

VEEDER - ROOT SERIAL INTERFACE MANUAL

for

**TLS-300 and TLS-350
UST Monitoring Systems**

and

**TLS-350R
Environmental & Inventory
Management System**

through Software Versions 020/133/333/433/520

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Serial Interface Manual

TLS-300/350/350R Monitoring Systems

| | |
|--|-----|
| NOTICE | ii |
| 1.0 INTRODUCTION | 1 |
| 2.0 HARDWARE CONNECTIONS | 1 |
| 2.1 RS-232 | 1 |
| 2.2 EIA RS-232 INTERFACE | 1 |
| 2.3 INTERNAL MODEM | 2 |
| 3.0 CHARACTER FORMAT AND BAUD RATE | 2 |
| 4.0 SWITCH SETTINGS | 2 |
| 4.1 DIP SWITCH | 2 |
| 5.0 COMMAND MESSAGE FORMAT | 3 |
| 6.0 RESPONSE MESSAGE FORMAT | 4 |
| 6.1 COMPUTER FORMAT | 4 |
| 6.2 DISPLAY FORMAT | 4 |
| 6.3 ASCII FLOATING POINT FORMAT | 5 |
| 6.3.1 NOTES | 5 |
| 6.3.2 EXAMPLES | 6 |
| 7.0 FUNCTION CODES AND RESPONSE MESSAGES | 7 |
| 7.1 CONTROL FUNCTIONS | 9 |
| 7.2 OPERATIONAL REPORTS | 37 |
| 7.2.1 SYSTEM REPORTS | 37 |
| 7.2.2 IN-TANK REPORTS | 58 |
| 7.2.3 SENSOR REPORTS | 101 |
| 7.2.4 LINE LEAK REPORTS | 123 |
| 7.2.5 MISCELLANEOUS REPORTS | 142 |
| 7.2.6 I/O DEVICE REPORTS | 145 |
| 7.3 SETUP FUNCTIONS & REPORTS | 152 |
| 7.3.1 SYSTEM SETUP | 152 |
| 7.3.2 COMMUNICATIONS SETUP | 181 |
| 7.3.3 WARNING, ALARM, & AUTO-PRINT SETUP | 202 |
| 7.3.4 IN-TANK SETUP | 244 |
| 7.3.5 SENSOR SETUP | 314 |
| 7.3.6 VOLUMETRIC LINE LEAK SETUP | 347 |
| 7.3.7 PUMP SENSOR SETUP | 366 |
| 7.3.8 PRESSURE LINE LEAK SETUP | 372 |
| 7.3.9 RECONCILIATION SETUP | 403 |
| 7.3.10 WIRELESS PLLD SETUP | 419 |
| 7.3.11 METER MAP & DELIVERY TICKET SETUP | 435 |
| 7.3.12 PUMP MONITOR RELAY SETUP | 442 |
| 7.3.13 I/O DEVICE SETUP | 448 |
| 7.3.14 EEPROM SETUP | 462 |
| 7.3.15 MISCELLANEOUS SETUP | 465 |
| 7.4 DIAGNOSTIC REPORTS | 483 |
| 7.4.1 SYSTEM DIAGNOSTIC REPORTS | 483 |
| 7.4.2 IN-TANK DIAGNOSTIC REPORTS | 489 |
| 7.4.3 SENSOR DIAGNOSTIC REPORTS | 519 |
| 7.4.4 LINE LEAK DIAGNOSTIC REPORTS | 537 |
| 7.4.5 RECONCILIATION DIAGNOSTIC REPORTS | 564 |
| 7.5 RECONCILIATION REPORTS | 570 |
| 7.6 VARIANCE ANALYSIS REPORTS | 585 |
| 7.7 IN-STATION DIAGNOSTICS (ISD) | 598 |
| 7.7.1 ISD REPORTS | 598 |
| 7.7.2 ISD SETUP | 635 |
| 7.7.3 ISD DIAGNOSTIC REPORTS | 653 |
| 8.0 IFSF DATABASE SUPPORT | 675 |
| 8.1 TANK LEVEL GAUGE DATABASE | 675 |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

| | |
|--|-----|
| 8.2 TANK LEVEL GAUGE ERROR CODE DATABASE | 676 |
| 8.3 TANK PROBE DATABASE | 676 |
| 8.4 TANK CONTENTS TABLE DATABASE..... | 678 |
| 8.5 TANK TEMPERATURE TABLE DATABASE | 678 |
| 8.6 TANK PROBE ERROR CODE DATABASE..... | 678 |
| 8.7 DATA DOWNLOAD DATABASE..... | 679 |
| 8.8 COMMUNICATION SERVICE DATABASE..... | 679 |
| 9.0 FUNCTION CODE SUMMARY..... | 680 |
| CONTROL FUNCTIONS (7.1)..... | 680 |
| OPERATIONAL REPORTS (7.2) | 681 |
| SYSTEM REPORTS (7.2.1)..... | 681 |
| IN-TANK REPORTS (7.2.2) | 681 |
| SENSOR REPORTS (7.2.3) | 682 |
| LINE LEAK REPORTS (7.2.4) | 683 |
| MISCELLANEOUS REPORTS (7.2.5)..... | 683 |
| I/O DEVICE REPORTS (7.2.6) | 684 |
| SETUP FUNCTIONS & REPORTS (7.3) | 684 |
| SYSTEM SETUP (7.3.1) | 684 |
| COMMUNICATIONS SETUP (7.3.2) | 685 |
| WARNING, ALARM, & AUTO-PRINT SETUP (7.3.3) | 685 |
| IN-TANK SETUP (7.3.4)..... | 687 |
| SENSOR SETUP (7.3.5)..... | 689 |
| VOLUMETRIC LINE LEAK SETUP (7.3.6) | 690 |
| PUMP SENSOR SETUP (7.3.7) | 690 |
| PRESSURE LINE LEAK SETUP (7.3.8) | 691 |
| RECONCILIATION SETUP (7.3.9) | 691 |
| WIRELESS PLLD SETUP (7.3.10) | 692 |
| METER MAP & DELIVERY TICKET SETUP (7.3.11)..... | 692 |
| LINE/PLLD/WPLLD SETUP | 693 |
| PUMP MONITOR RELAY SETUP (7.3.12)..... | 693 |
| PRESSURE LINE LEAK SETUP (refer to 7.3.8)..... | 693 |
| PUMP SENSOR SETUP (refer to 7.3.7) | 693 |
| I/O DEVICE SETUP (7.3.13)..... | 693 |
| EEPROM SETUP (7.3.14) | 694 |
| MISCELLANEOUS SETUP (7.3.15) | 694 |
| DIAGNOSTIC REPORTS (7.4) | 695 |
| SYSTEM DIAGNOSTIC REPORTS (7.4.1) | 695 |
| IN-TANK DIAGNOSTIC REPORTS (7.4.2)..... | 695 |
| SENSOR DIAGNOSTIC REPORTS (7.4.3)..... | 696 |
| LINE LEAK DIAGNOSTIC REPORTS (7.4.4)..... | 696 |
| RECONCILIATION DIAGNOSTIC REPORTS (7.4.5) | 697 |
| VARIANCE ANALYSIS REPORTS (7.6) | 698 |
| IN-STATION DIAGNOSTICS (ISD) (7.7)..... | 698 |
| ISD REPORTS (7.7.1)..... | 698 |
| ISD SETUP (7.7.2) | 698 |
| ISD DIAGNOSTIC REPORTS (7.7.3) | 699 |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

1.0 INTRODUCTION

The serial RS-232 interface is used to connect the system to a controlling computer, a display terminal (CRT) or a printing terminal. A modem can be connected directly to the system to provide telephone line access.

NOTE: The software versions for these systems vary depending on when they were purchased and if software upgrades have been installed. The version in which each function code first appeared is indicated in a box next to its description in Section 7. Commands appearing in software versions greater than 100 are only active in systems equipped with an ECPU.

2.0 HARDWARE CONNECTIONS

The RS-232 interface is a module accessed via a 25-pin D-connector located on the bottom-left of the console.

2.1 RS-232

The RS-232 D-connector is a panel mount, 25-pin female type, wired in a Data Terminal Equipment (DTE) configuration. A modem (DCE) may be connected directly to the interface using a straight-through cable. A CRT or printing terminal (DTE) may be connected to the interface by using a null cable which reverses the sense of the transmit/receive signals. The system does not require or activate any handshake signals.

RS-232 signals are wired to the female D-connector as follows:

| PIN | |
|-----|---|
| 2 | Transmitted Data |
| 3 | Received Data |
| 7 | Signal Ground (common return) and Chassis |

2.2 EIA RS-232 INTERFACE

The EIA RS-232 interface is designed to connect to modems for transmission of data over telephone lines. It can be used for direct local attachment of terminals if the cable run is no more than 50 feet. In practice, cable runs longer than 50 feet have performed satisfactorily; however, since the RS-232 specification is designed for operation up to 50 feet, direct connect cable runs greater than 50 feet are not warranted for proper operation.

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

2.3 INTERNAL MODEM

The optional internal modem operates at up to 2400 Baud. The modem module contains two RJ11 jacks for phone line connections, and is accessible at the bottom left of the console.

3.0 CHARACTER FORMAT AND BAUD RATE

The system receives and sends characters via the RS-232 interface in an ASCII format that is configured via the system front panel keypads. Selections consist of: 1 start bit; 7 or 8 data bits; odd, even or no parity; and 1 or 2 stop bits. Communications rate is selectable: 300, 1200, 2400, 4800 or 9600 baud. The system operates in a full duplex mode. Characters are not echoed when received, and transmitted characters must not be echoed back to the system. Transmit and receive can occur simultaneously, and commands can be stacked in the system buffer (up to 128 characters).

4.0 SWITCH SETTINGS

4.1 DIP SWITCH

A four-position DIP switch is located on the CPU board, which is mounted in the right-back of the console printer compartment. The DIP switch is next to the battery switch. The DIP switch positions are assigned as follows:

| Switch | |
|--------|-----------------------------------|
| 1 | Front Panel Setup Security Enable |
| 2 | RS-232 Security Enable |
| 3 | Unused |
| 4 | Fiscal Height Security |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

5.0 COMMAND MESSAGE FORMAT

All command and response messages are configured in a format which includes a surrounding envelope of control characters and a function code and data field message. The control characters are described in this section while the function codes and data field messages are described in subsequent sections.

The system responds to a command message that has the following configuration:

| | | | |
|-----|---------------|---------------|------------|
| SOH | Security Code | Function Code | Data Field |
|-----|---------------|---------------|------------|

SOH is a control-A character (ASCII 01).

The RS-232 security code is an optional six-digit code used to limit external serial access to the system for security purposes. It can be set to any unique set of characters using either the front panel switches or the external communication interface setup commands. The system will not respond to a command without the proper security code, if the DIP switch is set to enable RS-232 security.

The function code is a six character command code which the system interprets to determine the type of action to take and response to return. System function codes and response messages are defined in subsequent sections.

The data field is optional and contains information necessary to perform the selected function (such as setup information).

If the system receives a command message string containing a function code that it does not recognize, it will respond with a <SOH>9999FF1B<ETX>. The "9999" indicates that the system has not understood the command, while the "FF1B" is the appropriate checksum for the preceding <SOH>9999 string.

There is one command which does not follow the above format. The escape command is performed by sending an ESC (escape character, ASCII 27), to the system. It is a means to halt a response message at any time before its completion.

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

6.0 RESPONSE MESSAGE FORMAT

There are two types of response message formats: computer (or packed data format) and display format. Each format uses a different surrounding envelope of control characters.

6.1 COMPUTER FORMAT

The computer format is a stream of numbers without any formatting characters; i.e., carriage return, line feed, spaces, labels, etc. The message format is as follows:

| | | | | | |
|-----|---------------|------------|----|----------|-----|
| SOH | Function Code | Data Field | && | Checksum | ETX |
|-----|---------------|------------|----|----------|-----|

The function code is identical to the received command message function code.

The data field contains the response message which is described in subsequent sections.

The "&&" is a fixed tag character which indicates that the checksum immediately follows.

The Checksum is a series of four ASCII-hexadecimal characters which provide a check on the integrity of all the characters preceding it, including the control characters. The four characters represent a 16-bit binary count which is the 2's complemented sum of the 8-bit binary representation of the message characters after the parity bit (if enabled) has been cleared. Overflows are ignored. The data integrity check can be done by converting the four checksum characters to the 16-bit binary number and adding the 8-bit binary representation of the message characters to it. The binary result should be zero.

ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03). Caution should be taken before changing the ETX character, because it affects the transmitted messages on ALL communications ports of the system, and additional host devices may be connected to other ports which expect the ETX to be a Control-C.

6.2 DISPLAY FORMAT

The display format is intended for display on a CRT or printer. It includes all the necessary formatting characters such as carriage returns, line feeds, nulls, spaces, labels, etc. The message format is as follows:

| | | | |
|-----|---------------|------------|-----|
| SOH | Function Code | Data Field | ETX |
|-----|---------------|------------|-----|

See subsequent sections for a description of the data field response messages.

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

6.3 ASCII FLOATING POINT FORMAT

6.3.1 NOTES

6.3.1.1 HHHHHHHH (H = 0-9 or A-F) indicates the 8 "nibble" ASCII-Hexadecimal representation of a 4-Byte Floating Point number. Many data parameters are transmitted in this format.

6.3.1.2 The 32-bits are arranged as follows:

| Byte | 1 | | 2 | | 3 | | 4 | |
|--------|-------|------|-------|------|------|------|------|------|
| | S EEE | EEEE | E MMM | MMMM | MMMM | MMMM | MMMM | MMMM |
| Nibble | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

S is the sign bit (0 if positive, 1 if negative).

EEE EEEE E represents the 2's exponent. It is a 2's complement value biased by 127 (7F Hex). The exponent can be determined by subtracting 127 from the value of the E field and raising 2 to the resulting power.

MMM MMMM MMMM MMMM MMMM MMMM represents the 23-bit mantissa. Since the mantissa describes a value which is greater than or equal to 1.0 and less than 2.0, the 24th bit is always assumed to be equal to 1 and is not transmitted or stored. The value of the mantissa can be determined by dividing the value of the M field by 8,388,608 (2^{23}) and adding 1.0.

6.3.1.3 The complete value of the floating point number can then be determined by multiplying the exponent by the mantissa and attaching the appropriate positive or negative sign.

6.3.1.4 By convention, 00 00 00 00 represents the value 0.0 even though it actually converts to 5.8775×10^{-39} .

6.3.1.5 The eight "nibbles" are transmitted in sequence from 1 through 8 as shown in section 6.3.1.2.

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

6.3.2 EXAMPLES

6.3.2.1 3F800000 hex = 0011 1111 1000 0000 0000 0000 0000 0000 bin

S = 0 = + (positive)

E = 011 1111 1 bin = 7F hex = 127 dec

M = 000 0000 0000 0000 0000 0000 bin = 0 hex = 0 dec

Exponent = $2^{(127-127)} = 1.0$

Mantissa = $1.0 + (0/8,388,608) = 1.0$

Decimal Value = $+1.0 \times 1.0 = 1.0$

6.3.2.2 B8D1B717 hex = 1011 1000 1101 0001 1011 0111 0001 0111 bin

S = 1 = - (negative)

E = 011 1000 1 bin = 71 hex = 113 dec

M = 101 0001 1011 0111 0001 0111 bin = 51 B7 17 hex = 5,355,287 dec

Exponent = $2^{(113-127)} = 0.0000610352$

Mantissa = $1.0 + (5,355,287/8,388,608) = 1.63840$

Decimal Value = $-0.0000610352 \times 1.63840 = -0.0001$

6.3.2.3 C2C7FAE1 hex = 1100 0010 1100 0111 1111 1010 1110 0001 bin

S = 1 = - (negative)

E = 100 0010 1 bin = 85 hex = 133 dec

M = 100 0111 1111 1010 1110 0001 bin = 47 FA E1 hex = 4,717,281 dec

Exponent = $2^{(133-127)} = 64$

Mantissa = $1.0 + (4,717,281/8,388,608) = 1.56234$

Decimal Value = $-64 \times 1.56234 = -99.99$

6.3.2.4 461C4000 hex = 0100 0110 0001 1100 0100 0000 0000 0000 bin

S = 0 = + (positive)

E = 100 0110 0 bin = 8C hex = 140 dec

M = 001 1100 0100 0000 0000 0000 bin = 1C 40 00 hex = 1,851,392 dec

Exponent = $2^{(140-127)} = 8,192$

Mantissa = $1.0 + (1,851,392/8,388,608) = 1.22070$

Decimal Value = $+8,192 \times 1.22070 = 10,000$

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.0 FUNCTION CODES AND RESPONSE MESSAGES

All response messages are sent in a format described in previous sections. The function codes and data fields of these message formats are described in this section. The data field response messages are divided into the following major groupings:

| Function Codes..... | Response Types |
|---------------------|--|
| 001 to 09B | Control Functions |
| 101 to 132 | Operational Reports (System) |
| 201 to 2E2 | Operational Reports (In-tank) |
| 301 to 34C | Operational Reports (Sensor) |
| 351 to 389 | Operational Reports (Line Leak) |
| 391 to 392 | Operational Reports (Miscellaneous) |
| 401 to 412 | Operational Reports (I/O Device) |
| 501 to 51E | Setup Functions & Reports (System) |
| 520 to 531 | Setup Functions & Reports (Communications) |
| 532 to 5E2 | Setup Functions & Reports (Warning, Alarm, & Auto-print) |
| 601 to 683 | Setup Functions & Reports (In-tank) |
| 701 to 74E | Setup Functions & Reports (Sensor) |
| 751 to 7BC | Setup Functions & Reports (Volumetric Line Leak) |
| 771 to 7DC | Setup Functions & Reports (Pump Sensor) |
| 774 to 7D9 | Setup Functions & Reports (Pressure Line Leak) |
| 790 to 79F | Setup Functions & Reports (Reconciliation) |
| 7A0 to 7BE | Setup Functions & Reports (Wireless PLLD) |
| 7B1 to 7B6 | Setup Functions & Reports (Meter Map & Delivery Ticket) |
| 7C4 to 7C9 | Setup Functions & Reports (Pump Monitor Relay) |
| 801 to 813 | Setup Functions & Reports (I/O Device) |
| 851 to 853 | Setup Functions & Reports (EEPROM) |
| 881 to 8C4 | Setup Functions & Reports (Miscellaneous) |
| 901 to 908 | Diagnostic Reports (System) |
| A01 to A91 | Diagnostic Reports (In-tank) |
| B01 to B4B | Diagnostic Reports (Sensor) |
| B50 to B8E | Diagnostic Reports (Line Leak) |
| B91 to BB1 | Diagnostic Reports (Reconciliation) |
| C01 to C09 | Reconciliation Reports |
| C10 to C25 | Variance Analysis Reports |
| V00 to V12 | In-Station Diagnostics (Reports) |
| V40 to V52 | In-Station Diagnostics (Setup) |
| V80 to XE0 | In-Station Diagnostics (Diagnostics) |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Most response messages can be requested for either a single device (tank, sensor, line, etc.) or all devices. A "TT" in the function code signifies single device number 01 through 16. When "TT" is 00, it signifies all devices.

Typically, response messages include information on the active devices only. That is, those devices that are connected and working. However, the system can be forced to send data on inactive devices by using an inactive device number. In this case, if no valid data is available on a device, the message is filled out with question marks (?) in the place of numbers.

Computer format response messages do not include any formatting characters such as carriage returns, line feeds, spaces, nulls, labels, etc. Only those characters shown are actually included in the response message. For convenience, the messages are shown in segments and do not actually include any line feeds, carriage returns, etc. Also, the notes to the right and between the message lines are not included in the messages. All number values contained in the response messages retain leading zeroes.

Display format response messages include the formatting characters shown. All message lines end with a carriage return, line feed and six nulls. All response messages start and end with at least one blank line.

The system function codes and response messages are described in detail in the following sections under the major headings given above. A summary list of all function codes is given at the end of this document.

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.1 CONTROL FUNCTIONS

Function Code: 001
Function Type: System Reset

Version 1

Command Format:
Display: <SOH>S00100
Computer: <SOH>s00100

Typical Response Message, Display Format:

```
<SOH>
S00100
MAR 27, 1996  4:47 PM
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s00100YYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. && - Data Termination Flag
3. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 002

Function Type: Clear Power Reset Flag

Version 1

Command Format:

Display: <SOH>S00200

Computer: <SOH>s00200

Typical Response Message, Display Format:

```
<SOH>
S00200
MAR 27, 1996  8:06 PM
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s00200YYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. && - Data Termination Flag
3. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 003

Function Type: Remote Alarm Reset

Version 1

Command Format:

Display: <SOH>S00300

Computer: <SOH>s00300

Typical Response Message, Display Format:

```
<SOH>
S00300
MAR 27, 1996  8:04 PM
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s00300YYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. && - Data Termination Flag
3. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 010

Function Type: Cancel Autodial Computer Mode Session

Version 14

Command Format:

Display: <SOH>S01000

Computer: <SOH>s01000

Typical Response Message, Display Format:

<SOH>

S01000

MAR 27, 1996 8:04 PM

<ETX>

Typical Response Message, Computer Format:

<SOH>s00300YYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. && - Data Termination Flag
3. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 031
Function Type: Confirm Clear Function

Version 10

Command Format:
Display: <SOH>S03100832382
Computer: <SOH>s03100832382

Typical Response Message, Display Format:

```
<SOH>
S03100
MAR 29, 1996  6:27 PM

CONFIRM CLEAR COMPLETE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s03100YYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. && - Data Termination Flag
3. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 051

Function Type: Clear In-Tank Delivery Reports

Version 1

Command Format:

Display: <SOH>S051TT

Computer: <SOH>s051TT

Typical Response Message, Display Format:

<SOH>

S051TT

MAR 29, 1996 6:27 PM

DELIVERY REPORTS ERASED

<ETX>

Typical Response Message, Computer Format:

<SOH>s051TTYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 052

Function Type: Start In-Tank Leak Detect Test

Version 1

Command Format:

Display: <SOH>S052TT

Computer: <SOH>s052TT

Typical Response Message, Display Format:

<SOH>

S052TT

MAR 27, 1996 6:28 PM

TANK PRODUCT LABEL

1

UNLEADED REGULAR

LEAK TEST START

TEST BY EXTERN INTERFACE

<ETX>

Typical Response Message, Computer Format:

<SOH>s052TTYMMDDHHmmTTk&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. k - Status Flag
0=OFF
1=ON
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 053

Version 1

Function Type: Stop In-Tank Leak Detect Test

Command Format:

Display: <SOH>S053TT

Computer: <SOH>s053TT

Typical Response Message, Display Format:

<SOH>
S053TT
MAR 29, 1996 6:27 PM

| TANK | PRODUCT LABEL | |
|------|------------------|----------------|
| 1 | REGULAR UNLEADED | LEAK TEST STOP |

<ETX>

Typical Response Message, Computer Format:

<SOH>s053TTYMMDDHHmmTTk&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. k - Status Flag
0=OFF
1=ON
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 054
Function Type: Delete CSLD Rate Table

Version 5

Command Format:
Display: <SOH>S054TT149
Computer: <SOH>s054TT149

Notes:

1. TT - Tank Number (command valid for single tank only)
2. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S054TT
MAR 29, 1996  6:27 PM

T 1:REGULAR UNLEADED    CSLD RECORDS DELETED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s054TTYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 081

Version 7

Function Type: Start Pressure Line Leak Test (3.00 GPH only in V18)

Command Format:

Display: <SOH>S081QQ149

Computer: <SOH>s081QQ149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S081QQ
MAR 29, 1996  6:27 PM
```

```
Q 1:REGULAR UNLEADED
STATUS: TEST COMPLETE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s081QQYYMMDDHHmmQQtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.10 gal/hr
 - 04=test aborted
 - 05=running pump (manual test starting)
 - 06=line lockout
 - 07=disable alarm
 - 08=test pending
 - 09=testing delay
 - 0A=pressure check
 - 0B=testing at 0.20 gal/hr
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 082

Version 7

Function Type: Stop Pressure Line Leak Test

Command Format:

Display: <SOH>S082QQ149

Computer: <SOH>s082QQ149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S082QQ
MAR 29, 1996  6:27 PM
```

```
Q 1:REGULAR UNLEADED
STATUS: TEST COMPLETE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s082QQYYMMDDHHmmQQtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.10 gal/hr
 - 04=test aborted
 - 05=running pump (manual test starting)
 - 06=line lockout
 - 07=disable alarm
 - 08=test pending
 - 09=testing delay
 - 10=pressure check
 - 11=testing at 0.20 gal/hr
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 083

Version 10

Function Type: Start WPLLD Line Leak Test (3.00 GPH only in V18)

Command Format:

Display: <SOH>S083WW149

Computer: <SOH>s083WW149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S083WW
MAR 27, 1996  3:47 PM
```

```
W 1:UNLEADED REGULAR
STATUS: TEST PENDING
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s083WWYYMMDDHHmmWWtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.20 gal/hr
 - 04=test aborted
 - 05=line lockout
 - 06=disable alarm
 - 07=test pending
 - 08=test delay
 - 09=testing at 0.10 gal/hr
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 084

Version 10

Function Type: Stop WPLLD Line Leak Test

Command Format:

Display: <SOH>S084WW149

Computer: <SOH>s084WW149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

<SOH>
S084WW
MAR 27, 1996 3:48 PM

W 1:UNLEADED REGULAR
STATUS: TEST ABORTED
<ETX>

Typical Response Message, Computer Format:

<SOH>s084WWYYMMDDHHmmWWtt&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.20 gal/hr
 - 04=test aborted
 - 05=line lockout
 - 06=disable alarm
 - 07=test pending
 - 08=test delay
 - 09=testing at 0.10 gal/hr
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 087

Version 18

Function Type: Start Pressure Line Leak Test by Type

Command Format:

Display: <SOH>S087QQ149rr

Computer: <SOH>s087QQ149rr

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S087QQ
MAR 29, 1999  6:27 PM
```

```
Q 1:REGULAR UNLEADED
0.2 GPH SCHEDULED
STATUS: TEST COMPLETE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s087QQYYMMDDHHmmQQrrtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. rr - Test Type
 - 01=0.10 GPH
 - 02=0.20 GPH
 - 03=3.00 GPH
4. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.10 gal/hr
 - 04=test aborted
 - 05=running pump (manual test starting)
 - 06=line lockout
 - 07=disable alarm
 - 08=test pending
 - 09=testing delay
 - 0A=pressure check
 - 0B=testing at 0.20 gal/hr
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 088

Version 18

Function Type: Start WPLLD Line Leak Test by Type

Command Format:

Display: <SOH>S088WW149rr

Computer: <SOH>s088WW149rr

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S088WW
MAR 29, 1999  6:27 PM
```

```
W 1:REGULAR UNLEADED
0.2 GPH SCHEDULED
STATUS: TEST COMPLETE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s088WWYYMMDDHHmmWWrrtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. rr - Test Type
 - 01=0.10 GPH
 - 02=0.20 GPH
 - 03=3.00 GPH
4. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.20 gal/hr
 - 04=test aborted
 - 05=line lockout
 - 06=disable alarm
 - 07=test pending
 - 08=test delay
 - 09=testing at 0.10 gal/hr
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 089

Version 19

Function Type: Pressure Line Leak Pressure Offset Reset

Command Format:

Display: <SOH>S089QQ149

Computer: <SOH>s089QQ149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S089QQ
JAN  1, 2000  6:27 PM
```

```
Q 1:REGULAR UNLEADED
PRESSURE OFFSET RESET
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s089QQYYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 090

Version 19

Function Type: WPLLD Line Leak Pressure Offset Reset

Command Format:

Display: <SOH>S090WW149

Computer: <SOH>s090WW149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S090WW
JAN  1, 2000  6:27 PM
```

```
W 1:REGULAR UNLEADED
PRESSURE OFFSET RESET
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s090WWYYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 091
Function Type: Close Current Shift

Version 15

Command Format:
Display: <SOH>S09100
Computer: <SOH>s09100

Typical Response Message, Display Format:

<SOH>
S09100
MAR 27, 1996 8:04 PM

CLOSE CURRENT SHIFT: YES
<ETX>

Typical Response Message, Computer Format:

<SOH>s09100YYMMDDHHmmff&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. ff - Close Current Shift Flag
01=If close accepted
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 092

Version 23

Function Type: Start Pressure Line Leak Profile Line Test

Command Format:

Display: <SOH>S092QQ149

Computer: <SOH>s092QQ149

Notes:

1. 149 - This verification code must be sent to confirm the comand

Typical Response Message, Display Format:

```
<SOH>
I092QQ
NOV 14, 2001 10:15 PM

START PRESSURE LINE LEAK PROFILE LINE TEST

Q 1:UNLEADED REGULAR
STATUS: RUNNING PUMP
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s092QQYYMMDDHHmmQQtt
      QQtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
3. tt - Test Status
 - 00 = TEST COMPLETE (DONE: BULK MOD 10000)
 - 01 = TURN PUMP ON (RUNNING PUMP)
 - 02 = PUMP ON WAIT (RUNNING PUMP)
 - 03 = PRESSURE 1 WAIT (PUMP OFF)
 - 04 = PRESSURE 2 WAIT (MEASURING Pxx 19.123 PSI)
 - 05 = CALC WAIT TIME (MEASURING Pxx 19.123 PSI)
 - 06 = PRESSURE N WAIT (MEASURING Pxx 19.123 PSI)
 - 07 = EVALUATE PERIOD (MEASURING Pxx 19.123 PSI)
 - 08 = TEST ABORT (ABORTED)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 093

Version 23

Function Type: Stop Pressure Line Leak Profile Line Test

Command Format:

Display: <SOH>S093QQ149

Computer: <SOH>s093QQ149

Notes:

1. 149 - This verification code must be sent to confirm the comand

Typical Response Message, Display Format:

```
<SOH>
I093QQ
NOV 14, 2001 10:15 PM

STOP PRESSURE LINE LEAK PROFILE LINE TEST

Q 1:UNLEADED REGULAR
STATUS: ABORTED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s093QQYYMMDDHHmmQQtt
      QQtt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
3. tt - Test Status
 - 00 = TEST COMPLETE (DONE: BULK MOD 10000)
 - 01 = TURN PUMP ON (RUNNING PUMP)
 - 02 = PUMP ON WAIT (RUNNING PUMP)
 - 03 = PRESSURE 1 WAIT (PUMP OFF)
 - 04 = PRESSURE 2 WAIT (MEASURING Pxx 19.123 PSI)
 - 05 = CALC WAIT TIME (MEASURING Pxx 19.123 PSI)
 - 06 = PRESSURE N WAIT (MEASURING Pxx 19.123 PSI)
 - 07 = EVALUATE PERIOD (MEASURING Pxx 19.123 PSI)
 - 08 = TEST ABORT (ABORTED)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 094

Version 23

Function Type: Recalculate Pressure Line Leak Profile Bulk Modulus

Command Format:

Display: <SOH>S094QQ149

Computer: <SOH>s094QQ149

Notes:

1. 149 - This verification code must be sent to confirm the comand

Typical Response Message, Display Format:

<SOH>

I094QQ

NOV 14, 2001 10:15 PM

RECALCULATE PRESSURE LINE LEAK PROFILE LINE TEST BULK MODULUS

Q 1:UNLEADED REGULAR

STATUS: DONE: BULK MOD 10000

<ETX>

Typical Response Message, Computer Format:

<SOH>s094QQYYMMDDHHmmQQtt

QQtt&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
3. tt - Test Status
 - 00 = TEST COMPLETE (DONE: BULK MOD 10000)
 - 01 = TURN PUMP ON (RUNNING PUMP)
 - 02 = PUMP ON WAIT (RUNNING PUMP)
 - 03 = PRESSURE 1 WAIT (PUMP OFF)
 - 04 = PRESSURE 2 WAIT (MEASURING Pxx 19.123 PSI)
 - 05 = CALC WAIT TIME (MEASURING Pxx 19.123 PSI)
 - 06 = PRESSURE N WAIT (MEASURING Pxx 19.123 PSI)
 - 07 = EVALUATE PERIOD (MEASURING Pxx 19.123 PSI)
 - 08 = TEST ABORT (ABORTED)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 095

Version 24

Function Type: Start Vacuum Sensor Manual Test

Command Format:

Display: <SOH>S095SS149

Computer: <SOH>s095SS149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S095SS
FEB 14, 2004 10:15 AM

START VACUUM SENSOR MANUAL TEST

s 1:VACUUM SENSOR #1

MANUAL TEST STARTED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s095SSYYMMDDHHmmSStt...
                        SStt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. tt - Manual Test Status
00=ABORTED
01=STARTED
02=PENDING
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 096

Version 24

Function Type: Stop Vacuum Sensor Manual Evacuation Test

Command Format:

Display: <SOH>S096SS149

Computer: <SOH>s096SS149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S096SS
FEB 14, 2004 10:15 AM

STOP VACUUM SENSOR MANUAL EVACUATION TEST

s 1:VACUUM SENSOR #1

MANUAL TEST ABORTED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s096SSYYMMDDHHmmSStt...
                        SStt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. tt - Manual Test Status
00=ABORTED
01=STARTED
02=PENDING
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 097

Version 24

Function Type: Start Vacuum Sensor Evacuation Hold

Command Format:

Display: <SOH>S097SS149

Computer: <SOH>s097SS149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S097SS
FEB 14, 2004 10:15 AM

START VACUUM SENSOR EVACUATION HOLD

s 1:VACUUM SENSOR #1

EVAC HOLD STARTED
EVACUATION STATE: EVAC_HOLD
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s097SSYYMMDDHHmmSSEE...
SSEE&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. EE - Evacuation State (Hex)
00=Vacuum Ok
01=Evacuation Pending
02=Evacuation Active
03=Evacuation Pending Manual
04=Evacuation Active Manual
05=No Vacuum
06=Evacuation Hold
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 098

Version 24

Function Type: Stop Vacuum Sensor Evacuation Hold

Command Format:

Display: <SOH>S098SS149

Computer: <SOH>s098SS149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S098SS
FEB 14, 2004 10:15 AM

STOP VACUUM SENSOR EVACUATION HOLD

s 1:VACUUM SENSOR #1

EVAC HOLD ABORTED
EVACUATION STATE: VACUUM OK
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s098SSYYMMDDHHmmSSEE...
SSEE&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. EE - Evacuation State (Hex)
00=Vacuum Ok
01=Evacuation Pending
02=Evacuation Active
03=Evacuation Pending Manual
04=Evacuation Active Manual
05=No Vacuum
06=Evacuation Hold
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 099
Function Type: Start Mag Sump Leak Test

Version 26

Command Format:
Display: <SOH>S099ss149
Computer: <SOH>s099ss149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S099ss
FEB 14, 2004 10:15 AM

START MAG SUMP LEAK TEST

s 1:SUMP 1
LEAK TEST STARTED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s099ssYYMMDDHHmsstt...
                                sstt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=all)
3. tt - Mag Sump Leak Test Status
00=NO TEST DATA AVAILABLE
01=LEAK TEST ABORTED
02=FILL SUMP
03=MEASURING HEIGHT
04=LEAK TEST PASSED
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 09A

Version 26

Function Type: Start Mag Sump Leak Test Measuring Height Phase

Command Format:

Display: <SOH>S09Ass149

Computer: <SOH>s09Ass149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S09Ass
FEB 14, 2004 10:15 AM

START MAG SUMP LEAK TEST MEASURING HEIGHT PHASE

s 1:SUMP 1
STABILITY PHASE STARTED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s09AssYYMMDDHHmsstt...
                        sstt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=all)
3. tt - Mag Sump Leak Test Status
00=NO TEST DATA AVAILABLE
01=LEAK TEST ABORTED
02=FILL SUMP
03=MEASURING HEIGHT
04=LEAK TEST PASSED
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 09B
Function Type: Stop Mag Sump Leak Test

Version 26

Command Format:
Display: <SOH>S09Bss149
Computer: <SOH>s09Bss149

Notes:

1. 149 - This verification code must be sent to confirm the command

Typical Response Message, Display Format:

```
<SOH>
S09Bss
FEB 14, 2004 10:15 AM

STOP MAG SUMP LEAK TEST

s 1:SUMP 1
LEAK TEST ABORTED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>s09BssYYMMDDHHmsstt...
                        sstt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=all)
3. tt - Mag Sump Leak Test Status
00=NO TEST DATA AVAILABLE
01=LEAK TEST ABORTED
02=FILL SUMP
03=MEASURING HEIGHT
04=LEAK TEST PASSED
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.2 OPERATIONAL REPORTS

7.2.1 SYSTEM REPORTS

Function Code: 101
Function Type: System Status Report

Version 1

Command Format:
Display: <SOH>I10100
Computer: <SOH>i10100

Notes:

1. This command will report all active OR unacknowledged alarms and warnings up to the limit of 25 alarms in display format, and 150 alarms in computer format

Typical Response Message, Display Format:

```
<SOH>
I10100
JUL 29, 1997  9:02 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

```
SYSTEM STATUS REPORT
```

```
ALL FUNCTIONS NORMAL
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i10100YYMMDDHHmmAANNTT...  
AANNTT&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. AA - Alarm/Warning Category:
 - 00=All Functions Normal
 - 01=System Alarm
 - 02=Tank Alarm
 - 03=Liquid Sensor Alarm
 - 04=Vapor Sensor Alarm
 - 05=Input Alarm
 - 06=Volumetric Line Leak Alarm
 - 07=Groundwater Sensor Alarm
 - 08=Type A Sensor Alarm

 - 12=Type B Sensor Alarm
 - 13=Universal Sensor Alarm
 - 14=Auto-Dial Fax Alarm
 - 18=Mechanical Dispenser Interface Alarm
 - 19=Electronic Dispenser Interface Alarm

 - 20=Product Alarm
 - 21=Pressure Line Leak Alarm
 - 26=Wireless PLLD Alarm
 - 28=Smart Sensor Alarm
 - 29=Modbus Alarm

 - 30=ISD Site Alarm
 - 31=ISD Hose Alarm
 - 32=ISD Vapor Flow Meter Alarm
 - 33=PMC Alarm
 - 34=Pump Relay Monitor Alarm
 - 35=VMCI Dispenser Interface Alarm (Version 28)
 - 36=VMC Alarm (Version 28)
 - 37=APM Alarm (Version 31)

 - 99=Externally Detected Alarm (not reported by Console)

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

3. NN - Alarm Type Number:
- If AA is 01 and NN is:
 - 01=Printer out of Paper
 - 02=Printer Error
 - 03=EEPROM Configuration Error
 - 04=Battery Off
 - 05=Too Many Tanks
 - 06=System Security Warning
 - 07=ROM Revision Warning
 - 08=Remote Display Communications Error
 - 09=Autodial Error
 - 10=Software Module Warning
 - 11=Tank Test Shutdown Warning
 - 12=Protective Cover Alarm
 - 13=BIR Shift Close Pending
 - 14=BIR Daily Close Pending
 - 15=PC(H8) Revision Warning
 - 16=System Self Test Error
 - 17=System Clock Incorrect Warning
 - 18=System Device Poll Timeout
 - 19=Maintenance Tracker NVMem Removed
 - 20=Maintenance Tracker Communication Module Removed

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

- If AA is 02 and NN is:
 - 01=Tank Setup Data Warning
 - 02=Tank Leak Alarm
 - 03=Tank High Water Alarm
 - 04=Tank Overfill Alarm
 - 05=Tank Low Product Alarm
 - 06=Tank Sudden Loss Alarm
 - 07=Tank High Product Alarm
 - 08=Tank Invalid Fuel Level Alarm
 - 09=Tank Probe Out Alarm
 - 10=Tank High Water Warning
 - 11=Tank Delivery Needed Warning
 - 12=Tank Maximum Product Alarm
 - 13=Tank Gross Leak Test Fail Alarm
 - 14=Tank Periodic Leak Test Fail Alarm
 - 15=Tank Annual Leak Test Fail Alarm
 - 16=Tank Periodic Test Needed Warning
 - 17=Tank Annual Test Needed Warning
 - 18=Tank Periodic Test Needed Alarm
 - 19=Tank Annual Test Needed Alarm
 - 20=Tank Leak Test Active
 - 21=Tank No CSLD Idle Time Warning
 - 22=Tank Siphon Break Active Warning
 - 23=Tank CSLD Rate Increase Warning
 - 24=Tank AccuChart Calibration Warning
 - 25=Tank HRM Reconciliation Warning
 - 26=Tank HRM Reconciliation Alarm
 - 27=Tank Cold Temperature Warning
 - 28=Tank Missing Delivery Ticket Warning
 - 29=Tank/Line Gross Leak Alarm
 - 30=Delivery Density Warning
 - 31=Density Warning
 - 32=Fuel Quality Alarm

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

- If AA is 03, 04, 07, 08, 12, or 13 and NN is:
 - 02=Sensor Setup Data Warning
 - 03=Sensor Fuel Alarm
 - 04=Sensor Out Alarm
 - 05=Sensor Short Alarm
 - 06=Sensor Water Alarm
 - 07=Sensor Water Out Alarm
 - 08=Sensor High Liquid Alarm
 - 09=Sensor Low Liquid Alarm
 - 10=Sensor Liquid Warning
- If AA is 05 and NN is:
 - 01=Input Setup Data Warning
 - 02=Input Normal
 - 03=Input Alarm
- If AA is 06 and NN is:
 - 01=VLLD Setup Data Warning
 - 02=VLLD Self Test Alarm
 - 03=VLLD Shutdown Alarm
 - 04=VLLD Leak Test Fail Alarm
 - 05=VLLD Selftest Invalid Warning
 - 06=VLLD Continuous Handle On Warning
 - 07=VLLD Gross Line Test Fail Alarm
 - 08=VLLD Gross Line Selftest Fail Alarm
 - 09=VLLD Gross Pump Test Fail Alarm
 - 10=VLLD Gross Pump Selftest Fail Alarm
 - 11=VLLD Periodic Test Needed Warning
 - 12=VLLD Annual Test Needed Warning
 - 13=VLLD Periodic Test Needed Alarm
 - 14=VLLD Annual Test Needed Alarm
 - 15=VLLD Periodic Line Test Fail Alarm
 - 16=VLLD Periodic Line Selftest Fail Alarm
 - 17=VLLD Periodic Pump Test Fail Alarm
 - 18=VLLD Periodic Pump Selftest Fail Alarm
 - 19=VLLD Annual Line Test Fail Alarm
 - 20=VLLD Annual Line Selftest Fail Alarm
 - 21=VLLD Annual Pump Test Fail Alarm
 - 22=VLLD Annual Pump Selftest Fail Alarm
 - 23=VLLD Pressure Warning
 - 24=VLLD Pressure Alarm
 - 25=VLLD Gross Test Fault Alarm
 - 26=VLLD Periodic Test Fault Alarm
 - 27=VLLD Annual Test Fault Alarm
 - 28=VLLD Fuel Out Alarm
- If AA is 14 and NN is:
 - 01=Autodial Setup Data Warning
 - 02=Autodial Failed Alarm
 - 03=Autodial Service Report Warning (Added in V19)
 - 04=Autodial Alarm Clear Warning (Added in V19)
 - 05=Autodial Delivery Report Warning (Added in V19)
- If AA is 18, 19 and NN is:
 - 02=DIM Disabled Alarm
 - 03=DIM Communication Failure Alarm
 - 04=DIM Transaction Alarm

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

- If AA is 20 and NN is:
 - 01=BIR Setup Data Warning
 - 02=BIR Threshold Alarm
 - 03=BIR Close Shift Warning
 - 04=BIR Close Daily Warning

- If AA is 21 and NN is:
 - 01=PLLD Setup Data Warning
 - 02=PLLD Gross Test Fail Alarm
 - 03=PLLD Annual Test Fail Alarm
 - 04=PLLD Periodic Test Needed Warning
 - 05=PLLD Periodic Test Needed Alarm
 - 06=PLLD Sensor Open Alarm
 - 07=PLLD High Pressure Alarm (Obsolete V19)
 - 08=PLLD Shutdown Alarm
 - 09=PLLD High Pressure Warning (Obsolete V19)
 - 10=PLLD Continuous Handle On Warning (Obsolete V19)
 - 11=PLLD Periodic Test Fail Alarm
 - 12=PLLD Annual Test Needed Warning
 - 13=PLLD Annual Test Needed Alarm
 - 14=PLLD Low Pressure Alarm
 - 15=PLLD Sensor Short Alarm (Obsolete V19)
 - 16=PLLD Continuous Handle On Alarm
 - 17=PLLD Fuel Out Alarm
 - 18=PLLD Line Equipment Alarm

- If AA is 26 and NN is:
 - 01=WPLLD Setup Data Warning
 - 02=WPLLD Gross Test Fail Alarm
 - 03=WPLLD Periodic Test Fail Alarm
 - 04=WPLLD Periodic Test Needed Warning
 - 05=WPLLD Periodic Test Needed Alarm
 - 06=WPLLD Sensor Open Alarm
 - 07=WPLLD Communications Alarm
 - 08=WPLLD Shutdown Alarm
 - 09=WPLLD Continuous Handle On Warning (Obsolete V19)
 - 10=WPLLD Annual Test Fail Alarm
 - 11=WPLLD Annual Test Needed Warning
 - 12=WPLLD Annual Test Needed Alarm
 - 13=WPLLD High Pressure Warning (Obsolete V19)
 - 14=WPLLD High Pressure Alarm (Obsolete V19)
 - 15=WPLLD Sensor Short Alarm (Obsolete V19)
 - 16=WPLLD Continuous Handle On Alarm
 - 17=WPLLD Fuel Out Alarm
 - 18=WPLLD Line Equipment Alarm

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

- If AA is 28 and NN is:
 - 01=Smart Sensor Setup Data Warning
 - 02=Smart Sensor Communication Alarm
 - 03=Smart Sensor Fault Alarm
 - 04=Smart Sensor Fuel Warning
 - 05=Smart Sensor Fuel Alarm
 - 06=Smart Sensor Water Warning
 - 07=Smart Sensor Water Alarm
 - 08=Smart Sensor High Liquid Warning
 - 09=Smart Sensor High Liquid Alarm
 - 10=Smart Sensor Low Liquid Warning
 - 11=Smart Sensor Low Liquid Alarm
 - 12=Smart Sensor Temperature Warning
 - 13=Smart Sensor Relay Active
 - 14=Smart Sensor Install Alarm
 - 15=Smart Sensor Sensor Fault Warning
 - 16=Smart Sensor Vacuum Warning
 - 17=Smart Sensor No Vacuum Warning
- If AA is 29 and NN is:
 - 01=Improper Setup alarm
 - 02=Communication Loss alarm
- If AA is 30 and NN is:
 - 01=Stage 1 Transfer Monitoring Failure warning (ISD only)
 - 02=Containment Monitoring Gross Failure warning (ISD)
 - 03=Containment Monitoring Gross Failure alarm (ISD)
 - 04=Containment Monitoring Degradation Failure warning (ISD only)
 - 05=Containment Monitoring Degradation Failure alarm (ISD only)
 - 06=Containment Monitoring CVLD Failure warning (ISD)
 - 07=Containment Monitoring CVLD Failure alarm (ISD)
 - 08=Vapor Processor Over Pressure Failure warning (ISD only)
 - 09=Vapor Processor Over Pressure Failure alarm (ISD only)
 - 10=Vapor Processor Status Test warning (ISD only)
 - 11=Vapor Processor Status Test alarm (ISD only)
 - 12=Missing Relay Setup alarm (ISD only)
 - 13=Missing Hose Setup alarm (ISD only)
 - 14=Missing Tank Setup alarm (ISD)
 - 15=Missing Vapor Flow Meter alarm (ISD only)
 - 16=Missing Vapor Pressure Sensor alarm (ISD)
 - 17=Missing Vapor Pressure Input alarm (ISD)
 - 18=Setup Fail warning (ISD)
 - 19=Setup Fail alarm (ISD)
 - 20=Sensor Out warning (ISD)
 - 21=Sensor Out alarm (ISD)
 - 22=PC-ISD Offline (ISD)

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 101 Notes: (Continued)

- If AA is 31 and NN is:
 - 01=Collection Monitoring Gross Failure warning
 - 02=Collection Monitoring Gross Failure alarm
 - 03=Collection Monitoring Degradation Failure warning
 - 04=Collection Monitoring Degradation Failure alarm
 - 05=Flow Performance Hose Blockage Failure warning
 - 06=Flow Performance Hose Blockage Failure alarm
 - 07=Vapor Flow Meter Setup alarm
- If AA is 32 and NN is:
 - 01=Locked rotor alarm
- If AA is 33 and NN is:
 - 01=Vapor Processor Run Time Fault warning
 - 02=Processor Monitoring Effluent Emissions Failure warning
 - 03=Processor Monitoring Effluent Emissions Failure alarm
 - 04=Processor Monitoring Over Pressure Failure warning
 - 05=Processor Monitoring Over Pressure Failure alarm
 - 06=Processor Monitoring Duty Cycle Failure warning
 - 07=Processor Monitoring Duty Cycle Failure alarm
 - 08=PMC (stand alone mode only) Setup warning
- If AA is 34 and NN is:
 - 01=Setup Data Warning
 - 02=Pump Relay Alarm
- If AA is 35 and NN is:
 - 01=Setup Data Warning
 - 02=Disabled VMCI Alarm
 - 03=VMC Comm Timeout Alarm (Added in V31)
- If AA is 36 and NN is:
 - 01=VMC Comm timeout (Obsolete V31)
 - 02=Meter Not Connected
 - 03=FP Shutdown Warning
 - 04=FP Shutdown Alarm
- If AA is 37 and NN is:
 - 01=Gross Over-Pressure Test Warning
 - 02=APM Gross Over-Pressure Test Failure warning
 - 03=APM Gross Over-Pressure Test Failure alarm
 - 04=APM Degradation Over-Pressure Test Failure warning
 - 05=APM Degradation Over-Pressure Test Failure alarm
 - 06=APM Sensor Test Failure warning
 - 07=APM Sensor Test Failure alarm
 - 08=APM Setup Failure warning
 - 09=APM Sensor Out Failure warning
 - 10=APM Sensor Out Failure alarm
- If AA is 99 and NN is:
 - 01=Externally Detected Communication Alarm
 - 02=Communications - Data Reception Timeout
 - 03=Communications - Failed Checksum
 - 04=Communications - Parity Error
 - 05=Modem - Line Busy
 - 06=Modem - No Answer
 - 07=Modem - No Carrier
 - 08=Modem - No Dial Tone
 - 09=Modem - Modem Error
 - 10=Modem - Modem Not Responding
 - 11=Modem - Port Not Available
 - 12=Polling - Could Not Update Queue
 - 13=Polling - Invalid Data Type Requested

- 4. TT - Tank/Sensor Number
- 5. && - Data Termination Flag
- 6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 102

Function Type: System Configuration Report

Version 1

Command Format:

Display: <SOH>I10200

Computer: <SOH>i10200

Typical Response Message, Display Format:

<SOH>
I10200
JAN 22, 1996 3:05 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SYSTEM CONFIGURATION

| SLOT | BOARD TYPE | POWER ON RESET | CURRENT |
|------|------------------------|----------------|----------|
| 1 | 4 PROBE / G.T. | 164040 | 166912 |
| 2 | UNUSED | 10191362 | 10329900 |
| 3 | UNUSED | 10122894 | 10209602 |
| 4 | UNUSED | 10107912 | 10186864 |
| 5 | UNUSED | 10115504 | 10165331 |
| 6 | UNUSED | 10105807 | 10165451 |
| 7 | UNUSED | 10097749 | 10164467 |
| 8 | UNUSED | 10102487 | 10152837 |
| 9 | 4 INPUT BOARD | 40158 | 40158 |
| 10 | UNUSED | 15000000 | 15000000 |
| 11 | UNUSED | 15000000 | 15000000 |
| 12 | UNUSED | 15000000 | 15000000 |
| 13 | UNUSED | 15000000 | 15000000 |
| 14 | UNUSED | 15000000 | 15000000 |
| 15 | UNUSED | 15000000 | 15000000 |
| 16 | UNUSED | 15000000 | 15000000 |
| | COMM 1 FAXMODEM BOARD | 47008 | 47006 |
| | COMM 2 RS232 SERIAL BD | 14764 | 14753 |
| | COMM 3 ELEC DISP INT. | 100725 | 100748 |
| | COMM 4 UNUSED | 15000000 | 15000000 |
| | COMM 5 UNUSED | 15000000 | 15000000 |
| | COMM 6 UNUSED | 15000000 | 15000000 |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 102 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i10200YYMMDDHHmmNNSSTTTTTTTTTTCCCCCCCC...
                        SSTTTTTTTTTTCCCCCCCC&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of Modules to Follow (Hex)
3. SS - Slot Number (Hex)
4. TT - Type of Module (Hex):
 - 00=Not used
 - 01=Four Probe Module
 - 02=Vapor Sensor Module
 - 03=Liquid Sensor Module
 - 04=Four Relay Module
 - 05=I/O Combo Module
 - 06=Printer Module
 - 07=RS-232 Module
 - 08=Modem Module
 - 09=Volumetric Line Leak Module
 - 0A=Four Probe w/ Ground Temp Module
 - 0B=Groundwater Sensor Module
 - 0C=Type A Sensor Module
 - 0D=Remote Display Module
 - 10=Type B Sensor Module
 - 11=Universal Sensor Module
 - 12=Fax/Modem (1785) Module
 - 13=Remote/Local Printer Module
 - 14=Pump Sensor Module
 - 15=European RS-232 Module
 - 17=Eight Probe Module
 - 18=Mechanical Dispenser Interface Module
 - 19=Electronic Dispenser Interface Module
 - 1A=Pressure Line Leak Sensor Module
 - 1B=Pressure Line Leak Controller Module
 - 1D=Remote Printer Module
 - 1E=External Fax/Modem Module
 - 1F=RS-485 Module
 - 20=Wireless PLLD AC Interface Module
 - 21=Wireless PLLD Communications Module
 - 22=Wireless PLLD Controller Module
 - 23=Hughes Satellite J-Box Module
 - 24=Fax/Modem (1786) Module
 - 25=Serial Satellite Module
 - 26=Four Probe / Four Liquid Sensor Module
 - 27=Four PLLD Sensor Module
 - 28=SmartSensor(8) Module
 - 29=RS-485 Modbus Module
 - 2B=SmartSensor(7) Module
 - 2C=Four Input Module (Version 26)
 - 2D=MT Comm Module (Version 27)
 - 2E=Pump Relay Monitor Module (Version 27)
 - 2F=VMCI Dispenser Interface Module (Version 28)
5. FFFFFFFF - Power On Reset (ASCII Hex IEEE float)
6. CCCCCCCC - Current I/O Reading (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 111

Version 2

Function Type: Priority Alarm History Report

Command Format:

Display: <SOH>I11100

Computer: <SOH>i11100

Typical Response Message, Display Format:

<SOH>
I11100
JUL 29, 1997 9:02 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

PRIORITY ALARM HISTORY

| ID | CATEGORY | DESCRIPTION | ALARM TYPE | STATE | DATE | TIME |
|-----|----------|-------------|--------------------|-------|---------|--------|
| W 3 | OTHER | SPECIAL | WPLLD SHUTDOWN ALM | CLEAR | 1-01-96 | 8:07AM |
| W 3 | OTHER | SPECIAL | WPLLD SHUTDOWN ALM | ALARM | 1-01-96 | 8:06AM |
| | SYSTEM | | BATTERY IS OFF | CLEAR | 1-01-96 | 8:00AM |
| | SYSTEM | | BATTERY IS OFF | ALARM | 1-01-96 | 8:00AM |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11100YYMMDDHHmmAAccNNTTSSYYMMDDHHmm...
AAccNNTTSSYYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. AA - Alarm/Warning Category:
See explanation for "AA" in Function i10100
3. cc - Sensor Category
00=Other
01=Annular
02=Dispenser Pan
03=Monitoring Well
04=STP Sump
05=Piping Sump
4. NN - Alarm Type Number:
See explanation for "NN" in Function i10100
5. TT - Tank/Sensor Number
6. SS - Alarm State
01=Alarm cleared
02=Alarm occurred
7. YYMMDDHHmm - Date/Time Alarm state occurred
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 112

Version 2

Function Type: Non-Priority Alarm History Report

Command Format:

Display: <SOH>I11200

Computer: <SOH>i11200

Typical Response Message, Display Format:

<SOH>
I11200
JAN 22, 1996 3:05 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

NON-PRIORITY ALARM HISTORY

| ID | CATEGORY | DESCRIPTION | ALARM TYPE | STATE | DATE | TIME |
|-----|----------|-------------|--------------------|-------|----------|---------|
| | SYSTEM | | PAPER OUT | CLEAR | 12-20-95 | 12:01PM |
| | SYSTEM | | PAPER OUT | ALARM | 12-20-95 | 12:00PM |
| T 2 | TANK | SPECIAL | INVALID FUEL LEVEL | CLEAR | 12-20-95 | 11:59AM |
| T 2 | TANK | SPECIAL | INVALID FUEL LEVEL | ALARM | 12-20-95 | 11:59AM |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11200YYMMDDHHmmAAccNNTTSSYYMMDDHHmm...
AAccNNTTSSYYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. AA - Alarm/Warning Category:
See explanation for "AA" in Function i10100
3. cc - Sensor Category
00=Other
01=Annular
02=Dispenser Pan
03=Monitoring Well
04=STP Sump
05=Piping Sump
4. NN - Alarm Type Number:
See explanation for "NN" in Function i10100
5. TT - Tank/Sensor Number
6. SS - Alarm State
01=Alarm cleared
02=Alarm occurred
7. YYMMDDHHmm - Date/Time Alarm state occurred
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 113
Function Type: Active Alarm Report

Version 14

Command Format:
Display: <SOH>I11300
Computer: <SOH>i11300

Notes:

1. This command will report ALL active alarms and warnings regardless of their acknowledgement state. If there are more than can be contained in the non-priority and priority history storage areas, they will be reported here without time and date stamps

Typical Response Message, Display Format:

```
<SOH>
I11300
JAN 28, 1996 10:09 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ACTIVE ALARMS REPORT

ID  CATEGORY  DESCRIPTION                ALARM TYPE                DATE      TIME
   SYSTEM
T 2  TANK      SPECIAL                  INVALID FUEL LEVEL        12-20-95  11:59AM
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i11300YYMMDDHHmma..ab..bc..cd..dAAccNNTTTYMMDDHHmm...
                                   AAccNNTTTYMMDDHHmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. a..a - Station Header 1: 20 ASCII characters
3. b..b - Station Header 2: 20 ASCII characters
4. c..c - Station Header 3: 20 ASCII characters
5. d..d - Station Header 4: 20 ASCII characters
6. AA - Alarm/Warning Category:
See explanation for "AA" in Function i10100
7. cc - Sensor Category
00=Other
01=Annular
02=Dispenser Pan
03=Monitoring Well
04=STP Sump
05=Piping Sump
8. NN - Alarm Type Number:
See explanation for "NN" in Function i10100
9. TT - Tank/Sensor Number
10. YYMMDDHHmm - Alarm Date and Time
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 114
Function Type: Cleared Alarm Report

Version 19

Command Format:
Display: <SOH>I11400
Computer: <SOH>i11400

Typical Response Message, Display Format:

<SOH>
I11400
JAN 28, 1996 10:09 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CLEARED ALARMS REPORT

| ID | CATEGORY | DESCRIPTION | ALARM TYPE | STATE | DATE | TIME |
|--------|----------|-------------|--------------------|-------|---------|--------|
| T 4 | TANK | PRODUCT 4 | PROBE OUT | CLEAR | 1-02-96 | 4:10AM |
| T 1 | TANK | PRODUCT 1 | INVALID FUEL LEVEL | CLEAR | 1-02-96 | 1:12AM |
| SYSTEM | | | PAPER OUT | CLEAR | 1-02-96 | 1:09AM |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11400YYMMDDHHmma..ab..bc..cd..dAAccNNTTSSYYMMDDHHmm...
AAccNNTTSSYYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. a..a - Station Header 1: 20 ASCII characters
3. b..b - Station Header 2: 20 ASCII characters
4. c..c - Station Header 3: 20 ASCII characters
5. d..d - Station Header 4: 20 ASCII characters
6. AA - Alarm/Warning Category:
See explanation for "AA" in Function i10100
7. cc - Sensor Category
00=Other
01=Annular
02=Dispenser Pan
03=Monitoring Well
04=STP Sump
05=Piping Sump
8. NN - Alarm Type Number:
See explanation for "NN" in Function i10100
9. TT - Tank/Sensor Number
10. SS - Alarm State
01=Alarm cleared
02=Alarm occurred
11. YYMMDDHHmm - Clear Alarm Date and Time
12. && - Data Termination Flag
13. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 115

Version 27

Function Type: Maintenance Tracker Unacknowledged Alarm Report

Command Format:

Display: <SOH>I11500

Computer: <SOH>i11500

Typical Response Message, Display Format:

<SOH>
I11500
JUL 29, 2006 3:05 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAINTENANCE TRACKER UNACKNOWLEDGED ALARM REPORT

| ID | CATEGORY | DESCRIPTION | ALARM TYPE | DATE | TIME |
|-----|----------|----------------|------------|---------|---------|
| L12 | OTHER | LIQUID SENS 12 | SENSOR OUT | 7-08-06 | 11:12AM |
| L 1 | OTHER | LIQUID SENS 1 | SENSOR OUT | 7-08-06 | 10:10AM |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11500YYMMDDHHmma..ab..bc..cd..dAAccNNTTTYMMDDHHmm...
AaccNNTTTYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. a..a - Station Header 1: 20 ASCII characters
3. b..b - Station Header 2: 20 ASCII characters
4. c..c - Station Header 3: 20 ASCII characters
5. d..d - Station Header 4: 20 ASCII characters
6. AA - Alarm/Warning Category:
See explanation for "AA" in Function i10100
7. cc - Sensor Category
00=Other
01=Annular
02=Dispenser Pan
03=Monitoring Well
04=STP Sump
05=Piping Sump
8. NN - Alarm Type Number:
See explanation for "NN" in Function i10100
9. TT - Tank/Sensor Number
10. YYMMDDHHmm - Maintenance Tracker Alarm Active Date and Time
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 116
Function Type: Service Report History

Version 19 (Obsolete V27)

Command Format:
Display: <SOH>I11600
Computer: <SOH>i11600

Typical Response Message, Display Format:

<SOH>
I11600
MAR 26, 1996 1:47 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SERVICE REPORT

| DATE/TIME | ID | CODE |
|----------------------|------------|-------|
| MAR 29, 1996 8:50 AM | 1234567890 | 12345 |
| MAR 28, 1996 8:50 AM | 3482221100 | EABC2 |
| FEB 26, 1996 8:15 AM | 3482221100 | 12345 |
| JAN 25, 1996 2:20 PM | 3482221100 | Z1234 |
| JAN 23, 1996 1:48 PM | 3482221100 | 12345 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11600YYMMDDHHmma..ab..bc..cd..dNNYYMMDDHHmmiiiiiiiiiiiccccc...
YYMMDDHHmmiiiiiiiiiiiccccc&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. a..a - Station Header 1: 20 ASCII characters
3. b..b - Station Header 2: 20 ASCII characters
4. c..c - Station Header 3: 20 ASCII characters
5. d..d - Station Header 4: 20 ASCII characters
6. NN - Number of Records to follow (Decimal)
7. YYMMDDHHmm - Date and Time of entry
8. iiiiiiiiii - Service ID entered by Service Contractor (10 alpha/numeric)
9. ccccc - Service Code entered by Service Contractor (5 alpha/numeric)
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 119

Version 27

Function Type: Maintenance History Report

Command Format:

Display: <SOH>I11900YYMMDDYYMMDD OR <SOH>I11900

Computer: <SOH>i11900YYMMDDYYMMDD OR <SOH>i11900

Notes:

1. YYMMDD - Requested Start Date (year, month, day).
2. YYMMDD - Requested End Date (year, month, day).
3. - If the dates are not specified, the most recent 20 records are returned.

Typical Response Message, Display Format:

<SOH>
I11900
MAR 26, 2006 1:47 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAINTENANCE HISTORY

| TYPE | DATE/TIME | DESCRIPTION |
|--------------------|-----------------------|------------------------|
| LOGOUT | JAN 09, 2006 11:50 AM | J SMITH A12345 |
| SERVICE CODE | JAN 09, 2006 10:27 AM | COLD BOOT SYSTEM 1203 |
| SERVICE CODE | JAN 09, 2006 9:55 AM | INSTALLED PAPER 1211 |
| ALARM ACKNOWLEDGED | JAN 09, 2006 8:52 AM | L12:SENSOR OUT ALARM |
| ALARM ACKNOWLEDGED | JAN 09, 2006 8:52 AM | L 1:SENSOR OUT ALARM |
| LOGIN | JAN 09, 2006 8:50 AM | J SMITH A12345 |
| ALARM CLEAR | JAN 08, 2006 7:31 AM | L12:SENSOR OUT ALARM |
| ALARM CLEAR | JAN 08, 2006 7:30 AM | L 1:SENSOR OUT ALARM |
| ALARM ACTIVE | JAN 08, 2006 6:52 AM | L12:SENSOR OUT ALARM |
| ALARM ACTIVE | JAN 08, 2006 6:50 AM | L 1:SENSOR OUT ALARM |
| MTC ERR | JAN 05, 2006 8:30 PM | |
| ALARM CLEAR | JAN 03, 2006 8:30 AM | L 1:SENSOR OUT ALARM |
| ALARM ACTIVE | JAN 03, 2006 6:25 AM | L 1:SENSOR OUT ALARM |
| HISTORY DISABLED | JAN 02, 2006 7:25 PM | |
| VLLD TEST | JAN 02, 2006 6:25 PM | P 1 0.2 GPH TEST PASS |
| WPLLD TEST | JAN 02, 2006 3:45 PM | W 1 0.2 GPH TEST PASS |
| PLLD TEST | JAN 02, 2006 1:45 PM | Q 1 0.2 GPH TEST PASS |
| TANK TEST | JAN 02, 2006 10:28 AM | T 1 PERIODIC TEST PASS |
| HISTORY ENABLED | JAN 01, 2006 6:25 AM | |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 119 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i11900YYMMDDHHmmNNNNYYMMDDHHmmttXXXXXXXXYYMMDDHHmmttXXXXXX...
                                         YYMMDDHHmmttXXXXXX&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NNNNN - Number of records to Follow (Decimal)
3. YYMMDDHHmm - Date/time of record
4. tt - Record type (Hex)
 - 01=Maintenance History Enabled
 - 02=Maintenance History Disabled
 - 03=Maintenance Tracker Login
 - 04=Maintenance Tracker Logout
 - 05=Maintenance Tracker Remote Login
 - 06=Maintenance Tracker Remote Logout
 - 07=Maintenance Alarm Active
 - 08=Maintenance Alarm Inactive
 - 09=Maintenance Alarm Acknowledge
 - 0A=Maintenance Alarm Remote Acknowledge
 - 0B=Service Code
 - 0C=Tank Test, 0.20 Gal/Hr Fullest Monthly
 - 0D=PLLD Test, 0.20 Gal/Hr Latest Monthly
 - 0E=WPLLD Test, 0.20 Gal/Hr Latest Monthly
 - 0F=MT Comm Card Removed
 - 10=VLLD Test, 0.20 Gal/Hr Latest Monthly
5. XXXXXX - Six digit data field:
 - 000000= place filler (unused) for types 01, 02
 - iiiiii= login ID code for types 03, 04, 05, 06 (ASCII, padded with leading zeros)
 - ddttnn= Alarm device #, type, and alarm number for types 07, 08, 09, 0A (Decimal)
 - 00cccc= Four digit service code for type 0B (Decimal, padded with leading zeros)
 - 0000tt= Device # for types 0C, 0D, 0E (Decimal, padded with leading zeros)
 - 000000= Place filler (unused) for type 0F
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 11A
Function Type: Service Report History

Version 27

Command Format:
Display: <SOH>I11A00
Computer: <SOH>i11A00

Typical Response Message, Display Format:

<SOH>
I11A00
MAR 26, 2006 1:47 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SERVICE REPORT

| DATE/TIME | | LABEL | ID | LABEL | CODE |
|--------------|---------|---------|--------|--------------------|------|
| MAR 29, 2006 | 8:50 AM | J DOE | A12345 | INSTALLED PAPER | 1211 |
| MAR 28, 2006 | 8:50 AM | D SMITH | A34822 | CLEARED PAPER JAM | 0204 |
| FEB 26, 2006 | 8:15 AM | D SMITH | A34822 | RECONNECT PHONE LN | 0503 |
| JAN 25, 2006 | 2:20 PM | D SMITH | A34822 | REPLACED PROBE | 0304 |
| JAN 23, 2006 | 1:48 PM | D SMITH | A34822 | FIX STUCK FLOAT | 0305 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11A00YYMMDDHHmmNNYYMMDDHHmmiiiiiiicccc...
YYMMDDHHmmiiiiiiicccc&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of Records to follow (Decimal)
3. YYMMDDHHmm - Date and Time of entry
4. iiiiii - Service ID entered by Service Contractor (6 alpha/numeric)
5. cccc - Service Code entered by Service Contractor (4 numeric)
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 11B

Version 28

Function Type: Service Notice Session Report

Command Format:

Display: <SOH>I11B00

Computer: <SOH>i11B00

Typical Response Message, Display Format:

<SOH>
I11B00
APR 10, 2007 3:05 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SERVICE NOTICE SESSION REPORT

| START TIME | END TIME |
|----------------------|---------------------|
| APR 10, 2007 8:00 AM | IN PROGRESS |
| APR 9, 2007 8:10 AM | APR 9, 2007 9:10 AM |
| APR 8, 2007 8:05 AM | APR 8, 2007 8:45 AM |

<ETX>

Typical Response Message, Computer Format:

<SOH>i11B00YYMMDDHHmmfYYMMDDHHmmNNYYMMDDHHmmYYMMDDHHmm...
YYMMDDHHmmYYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Service Notice Session Enable
0 = Disabled
1 = Enabled
3. YYMMDDHHmm - Start Date and Time
- if Service Notice Session Enable = 0 (Disabled) then
Start Date/Time is invalid
- if Service Notice Session Enable = 1 (Enabled) then Start
Date/Time is valid
4. NN - Number of Service Notice Session Start/End records to follow
(Hex)
5. YYMMDDHHmm - Start Date and Time
6. YYMMDDHHmm - End Date and Time
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 132

Function Type: Fiscal Height Security Report

Version 32

Command Format:

Display: <SOH>I13200

Computer: <SOH>i13200

Typical Response Message, Display Format:

```
<SOH>
I13200
APR  1, 2011  8:03 AM

FISCALLY SEALED                : NO

FISCAL HEIGHT SECURITY          : DISABLED
FISCAL HEIGHT SECURITY SWITCH  : OFF
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i13200YYMMDDHHmmsfp&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. s - Is Fiscally Sealed
0=No
1=Yes
3. f - Fiscal Height Security Enable/Disable Flag
0=Disabled
1=Enabled
4. p - Fiscal Height Security Switch Position
0=Off
1=On
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.2.2 IN-TANK REPORTS

Function Code: 201
Function Type: In-Tank Inventory Report

Version 1

Command Format:
Display: <SOH>I201TT
Computer: <SOH>i201TT

Typical Response Message, Display Format:

<SOH>
I201TT
JAN 22, 1996 3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

| TANK | PRODUCT | VOLUME | TC VOLUME | ULLAGE | HEIGHT | WATER | TEMP |
|------|------------------|--------|-----------|--------|--------|-------|-------|
| 1 | REGULAR UNLEADED | 5329 | 5413 | 4699 | 48.97 | 0.00 | 37.39 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i201TTYMMDDHHmmTTpssssNNFFFFFFFF...
TTpssssNNFFFFFFFF&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. ssss - Tank Status Bits:
 - Bit 1 - (LSB) Delivery in Progress
 - Bit 2 - Leak Test in Progress
 - Bit 3 - Invalid Fuel Height Alarm (MAG Probes Only)
 - Bit 4-16 - Unused
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE floats:
 1. Volume
 2. TC Volume
 3. Ullage
 4. Height
 5. Water
 6. Temperature
 7. Water Volume
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 202
Function Type: In-Tank Delivery Report

Version 1

Command Format:
Display: <SOH>I202TT
Computer: <SOH>i202TT

Typical Response Message, Display Format:

```
<SOH>
I202TT
JUL 29, 1997  9:02 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

DELIVERY REPORT

| T 1:REGULAR UNLEADED | | | GALLONS TC | | GALLONS WATER | | TEMP DEG F | HEIGHT |
|----------------------|----------------------|--|------------|--|---------------|------|------------|--------|
| INCREASE | DATE / TIME | | | | | | | |
| END: | JUL 28, 1997 3:14 PM | | 3231 | | 3194 | 0.00 | 76.14 | 48.27 |
| START: | JUL 28, 1997 3:05 PM | | 1244 | | 1231 | 0.00 | 73.89 | 24.40 |
| AMOUNT: | | | 1987 | | 1963 | | | |
| END: | JUL 25, 1997 2:48 PM | | 4460 | | 4414 | 0.00 | 74.56 | 63.06 |
| START: | JUL 25, 1997 2:37 PM | | 1157 | | 1146 | 0.00 | 72.85 | 23.22 |
| AMOUNT: | | | 3303 | | 3268 | | | |

<ETX>

Typical Response Message, Computer Format:

```
<SOH>i202TTYMMDDHHmmTTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
TTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. dd - Number of Deliveries to follow (Decimal, 00 if no data available for this tank)
5. YYMMDDHHmm - Starting Date/Time
6. YYMMDDHHmm - Ending Date/Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Starting Volume
 2. Starting TC Volume
 3. Starting Water
 4. Starting Temp
 5. Ending Volume
 6. Ending TC Volume
 7. Ending Water
 8. Ending Temp
 9. Starting Height
 10. Ending Height
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 203
Function Type: In-Tank Leak Detect Report

Version 1

Command Format:
Display: <SOH>I203TT
Computer: <SOH>i203TT

Typical Response Message, Display Format:

```
<SOH>
I203TT
JAN 22, 1996  3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

TANK 1      REGULAR UNLEADED
TEST STATUS: OFF    0.2 GAL/HR TEST PASS
TEST START TIME: OCT 22, 1991 10:30 PM      DURATION:  7 HOURS
START TEMP: 58.7 DEG F      START VOLUME:  2123 GALLONS
ENDING TEMP: 58.1 DEG F      LEAK RATE:  -0.01 GALLONS/HR
CUMULATIVE PERIODIC VOLUME CHANGE (GALLONS):
-0.01  -0.02  -0.01  -0.03  -0.05  -0.04
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i203TTYMMDDHHmmTTpYYMMDDHHmmHHNNFFFFFFFF...
TTpYYMMDDHHmmHHNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. YYMMDDHHmm - Starting Date/Time
5. HH - Test Duration (hours)
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - ASCII Hex IEEE floats:
 1. Starting Temp
 2. Ending Temp
 3. Starting Volume
 4. Ending Rate
 5. Hourly changes up to the number of fields
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 204

Version 1

Function Type: In-Tank Shift Inventory Report

Command Format:

Display: <SOH>I204TT

Computer: <SOH>i204TT

Typical Response Message, Display Format:

```
<SOH>
I204TT
JAN 22, 1996  3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

TANK PRODUCT
1  REGULAR UNLEADED          VOLUME TC VOLUME  ULLAGE  HEIGHT  WATER  TEMP
SHIFT 1  STARTING VALUES      8518      8492    1482    76.26    0.00  64.57
      ENDING VALUES          8518      8492    1482    76.26    0.00  64.57
      DELIVERY VALUE              0
      TOTALS                      0
SHIFT 2  STARTING VALUES      8518      8492    1482    76.26    0.00  64.57
      ENDING VALUES          8518      8492    1482    76.26    0.00  64.57
      DELIVERY VALUE              0
      TOTALS                      0

<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i204TTYMMDDHHmmTTpssNNFFFFFFFF...
      TTpssNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. ss - Shift Number 01, 02, 03
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE floats:
 1. Start Volume
 2. Start Ullage
 3. Start TC Volume
 4. Start Height
 5. Start Water
 6. Start Temperature
 7. End Volume
 8. End Ullage
 9. End TC Volume
 - A. End Height
 - B. End Water
 - C. End Temperature
 - D. Total Value
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 205
Function Type: In-Tank Status Report

Version 1

Command Format:
Display: <SOH>I205TT
Computer: <SOH>i205TT

Typical Response Message, Display Format:

<SOH>
I205TT
JAN 22, 1996 3:07 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

| TANK | PRODUCT | STATUS |
|------|------------------|--------|
| 1 | REGULAR UNLEADED | NORMAL |

<ETX>

Typical Response Message, Computer Format:

<SOH>i205TTYMMDDHHmmTTnnNN...
TTnnNN&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. nn - Number of alarms active for tank (Hex, 00=none)
4. NN - Alarm Type Number:
See explanation for "NN" when "AA" is 02 in Function i10100
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 206

Version 1

Function Type: In-Tank Alarm History Report

Command Format:

Display: <SOH>I206TT

Computer: <SOH>i206TT

Typical Response Message, Display Format:

```
<SOH>
I206TT
JAN 22, 1996  3:07 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

TANK ALARM HISTORY

TANK 1  REGULAR UNLEADED

      LOW PRODUCT ALARM          DEC 22, 1995  3:31 PM
                                   DEC 19, 1995 10:05 AM

      INVALID FUEL LEVEL         DEC 20, 1995 11:59 AM
                                   DEC 20, 1995 11:58 AM
                                   DEC 20, 1995 11:57 AM

<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i206TTYMMDDHHmmTTnnYYMMDDHHmmaaaa...
                                   TTnnYYMMDDHHmmaaaa&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. nn - Number of alarms in history for tank (Decimal, 00=none)
4. YYMMDDHHmm - Date and time alarm occurred

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 206 Notes: (Continued)

- 5. aaaa - Type of alarm:
 - 0001=Tank Setup Data Warning
 - 0002=Tank Leak Alarm
 - 0003=Tank High Water Alarm
 - 0004=Tank Overfill Alarm
 - 0005=Tank Low Product Alarm
 - 0006=Tank Sudden Loss Alarm
 - 0007=Tank High Product Alarm
 - 0008=Tank Invalid Fuel Level Alarm
 - 0009=Tank Probe Out Alarm
 - 000A=Tank High Water Warning
 - 000B=Tank Delivery Needed Warning
 - 000C=Tank Maximum Product Alarm
 - 000D=Tank Gross Leak Test Fail Alarm
 - 000E=Tank Periodic Leak Test Fail Alarm
 - 000F=Tank Annual Leak Test Fail Alarm
 - 0010=Tank Periodic Test Needed Warning
 - 0011=Tank Annual Test Needed Warning
 - 0012=Tank Periodic Test Needed Alarm
 - 0013=Tank Annual Test Needed Alarm
 - 0014=Tank Leak Test Active
 - 0015=Tank No CSLD Idle Time Warning
 - 0016=Tank Siphon Break Active Warning
 - 0017=Tank CSLD Rate Increase Warning
 - 0018=Tank AccuChart Calibration Warning
 - 0019=Tank HRM Reconciliation Warning
 - 001A=Tank HRM Reconciliation Alarm
 - 001B=Tank Cold Temperature Warning
 - 001C=Tank Missing Delivery Ticket Warning
 - 001D=Tank/Line Gross Leak Alarm
- 6. && - Data Termination Flag
- 7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 207

Function Type: In-Tank Leak Test History Report

Version 2

Command Format:

Display: <SOH>I207TT

Computer: <SOH>i207TT

Typical Response Message, Display Format:

<SOH>
I207TT
JUL 29, 1997 9:02 AM
TANK LEAK TEST HISTORY

T 1:REGULAR UNLEADED

LAST GROSS TEST PASSED:

| TEST START TIME | HOURS | VOLUME | % VOLUME | TEST TYPE |
|----------------------|-------|--------|----------|-----------|
| JUL 29, 1997 6:02 AM | | 2821 | 48.9 | STANDARD |

LAST ANNUAL TEST PASSED:

NO TEST PASSED

FULLEST ANNUAL TEST PASS

NO TEST PASSED

LAST PERIODIC TEST PASS:

| TEST START TIME | HOURS | VOLUME | % VOLUME | TEST TYPE |
|----------------------|-------|--------|----------|-----------|
| JUL 29, 1997 4:15 AM | 27 | 2680 | 46.4 | CSLD |

FULLEST PERIODIC TEST
PASSED EACH MONTH:

| TEST START TIME | HOURS | VOLUME | % VOLUME | TEST TYPE |
|----------------------|-------|--------|----------|-----------|
| JUL 20, 1997 1:52 AM | 25 | 2916 | 50.5 | CSLD |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 207 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i207TTYMMDDHHmmTTNNRRnnttYYMMDDHHmmhhhhhhhhVVVVVVVVpppppppp...
TTNNRRnnttYYMMDDHHmmhhhhhhhhVVVVVVVVpppppppp&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. NN - Number of Leak History Reports to Follow (Hex)
4. RR - Leak Report Type:
 - 00=Last Test Passed
 - 01=Fulltest Test Passed
 - 02=Fulltest Periodic Monthly Test Passed
5. nn - Leak History Number (1-12) for first Monthly Tests Passed
6. tt - In-Tank Leak Test Type:
 - 00=0.20 gal/hr test
 - 01=0.10 gal/hr test
 - 02=Gross (3 gal/hr)test
7. YYMMDDHHmm - In-Tank Leak Test Start Time
8. hhhhhhhh - Leak Test Duration in Hours (ASCII Hex IEEE float)
9. VVVVVVVV - Leak Test Volume (ASCII Hex IEEE float)
10. pppppppp - Leak Test Percentage of Full Volume (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 208

Version 2

Function Type: In-Tank Leak Test Results Report

Command Format:

Display: <SOH>I208TT

Computer: <SOH>i208TT

Typical Response Message, Display Format:

<SOH>
I208TT
JAN 22, 1996 3:07 PM

PREVIOUS IN TANK LEAK TEST RESULTS

| TANK 1 | REGULAR UNLEADED | | | | | |
|-----------|------------------|---------|--------|------|-------|--------|
| TEST TYPE | START TIME | | RESULT | RATE | HOURS | VOLUME |
| ANNUAL | NOV 21, 1995 | 8:34 AM | PASSED | 0.00 | 12 | 9088 |
| PERIODIC | NOV 21, 1995 | 8:34 AM | PASSED | 0.00 | 12 | 9088 |
| GROSS | NOV 24, 1995 | 8:04 AM | PASSED | 0.00 | | 9088 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i208TTYMMDDHHmmTTNNttmmYYMMDDHHmmRRrrrrrrrrrrhhhhhhhhVvvvvvvv...
TTNNttmmYYMMDDHHmmRRrrrrrrrrrrhhhhhhhhVvvvvvvv&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. NN - Number of Results to Follow (Hex)
4. tt - In-Tank Leak Test Result Type:
00=0.20 gal/hr Test
01=0.10 gal/hr Test
02=Gross (3 gal/hr) Test
5. mm - In-Tank Leak Manifold Status:
00=Tank Not Manifolder During Leak Test
01=Tank Manifolder During Leak Test
6. YYMMDDHHmm - Previous In-Tank Leak Test Start Time
7. RR - Previous In-Tank Leak Test Result:
00=Test Invalid
01=Test Passed
02=Test Failed
8. rrrrrrrr - Test Rate (ASCII Hex IEEE float)
9. hhhhhhhh - Leak Test Duration in Hours (ASCII Hex IEEE float)
10. Vvvvvvvv - Leak Test Volume (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 20A

Version 110

Function Type: HRM Adjusted Delivery Report

Command Format:

Display: <SOH>I20ATT

Computer: <SOH>i20ATT

Typical Response Message, Display Format:

<SOH>
I20ATT
JAN 22, 1996 3:08 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ADJUSTED DELIVERY REPORT

T 1:REGULAR UNLEADED

| INCREASE DATE/TIME | INCREASE VOLUME | INCREASE TC VOLUME | ADJUSTMENT | DELIVERY VOLUME | DELIVERY TC VOLUME |
|----------------------|-----------------|--------------------|------------|-----------------|--------------------|
| JAN 13, 1996 2:06 AM | 3795 | 3859 | 8 | 3803 | 3868 |
| JAN 15, 1996 1:07 PM | 5383 | 5458 | 30 | 5413 | 5487 |
| JAN 17, 1996 3:13 AM | 6012 | 6114 | -1 | 6010 | 6113 |
| JAN 19, 1996 3:22 AM | 4413 | 4480 | -3 | 4409 | 4473 |
| JAN 21, 1996 2:52 AM | 6005 | 6112 | 6 | 6011 | 6119 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i20A00YYMMDDHHmmTTpPPrrYYMMDDHHmmNNFFFFFFFFF...
TTpPPrrYYMMDDHHmmNNFFFFFFFFF&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type
5. rr - Number of Records to follow (Decimal)
6. YYMMDDHHmm - Date/Time of Delivery Start
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Increase Volume
 2. Increase Temp Comp Volume
 3. Adjustment factor
 4. Adjusted Increase Value
 5. Adjusted Temp Comp Volume
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 20B

Function Type: BIR Adjusted Delivery Report

Version 110

Command Format:

Display: <SOH>I20BTT

Computer: <SOH>i20BTT

Typical Response Message, Display Format:

<SOH>
I20BTT
JAN 22, 1996 3:08 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

BIR ADJUSTED DELIVERY REPORT

T 1:REGULAR UNLEADED

| DELIVERY START | DATE | DELIVERY END | DATE | START VOLUME | END VOLUME | ADJ DELIV | ADJ TC DELIV |
|----------------|---------|--------------|---------|-----------------|---------------|--------------|-----------------|
| JAN 21, 1996 | 2:52 AM | JAN 21, 1996 | 3:12 AM | 3193 | 9197 | 6011 | 6119 |
| JAN 19, 1996 | 3:22 AM | JAN 19, 1996 | 3:40 AM | 4193 | 8602 | 4409 | 4473 |
| JAN 17, 1996 | 3:13 AM | JAN 17, 1996 | 3:40 AM | 2739 | 8749 | 6010 | 6113 |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 20B Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i20BTTYMMDDHHmmTTddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
                                TTddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All)
3. dd - Number of Deliveries to follow
4. YYMMDDHHmm - Starting Date/Time
5. YYMMDDHHmm - Ending Date/Time
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - ASCII Hex IEEE floats:
 1. Starting Volume
 2. Ending Volume
 3. Adjusted Delivery Volume
 4. Adjusted Temperature Compensated Delivery Volume
 5. Starting Fuel Height
 6. Starting Fuel Temperature 1
 7. Starting Fuel Temperature 2
 8. Starting Fuel Temperature 3
 9. Starting Fuel Temperature 4
 10. Starting Fuel Temperature 5
 11. Starting Fuel Temperature 6
 12. Ending Fuel Height
 13. Ending Fuel Temperature 1
 14. Ending Fuel Temperature 2
 15. Ending Fuel Temperature 3
 16. Ending Fuel Temperature 4
 17. Ending Fuel Temperature 5
 18. Ending Fuel Temperature 6
 19. Total Dispensed During Delivery
 20. Starting Fuel Temperature Average
 21. Ending Fuel Temperature Average
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 20C

Version 15

Function Type: In-Tank Most Recent Delivery Report

Command Format:

Display: <SOH>I20CTT

Computer: <SOH>i20CTT

Typical Response Message, Display Format:

```
<SOH>
I20CTT
JUL 29, 1997  9:03 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

LAST DELIVERY REPORT

```
T 1:REGULAR UNLEADED
INCREASE  DATE / TIME
```

GALLONS TC GALLONS WATER TEMP DEG F HEIGHT

```
      END: JUL 28, 1997  3:14 PM      3231      3194  0.00      76.14  48.27
      START: JUL 28, 1997  3:05 PM      1244      1231  0.00      73.89  24.40
      AMOUNT:      1987      1963
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i20CTTYMMDDHHmmTTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
      TTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. dd - Number of Deliveries to follow (Decimal, 00 if no data available for this tank)
5. YMMDDHHmm - Starting Date/Time
6. YMMDDHHmm - Ending Date/Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Starting Volume
 2. Starting TC Volume
 3. Starting Water
 4. Starting Temp
 5. Ending Volume
 6. Ending TC Volume
 7. Ending Water
 8. Ending Temp
 9. Starting Height
 10. Ending Height
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 20D

Version 15

Function Type: In-Tank Stick Height Report

Command Format:

Display: <SOH>I20DTT

Computer: <SOH>i20DTT

Notes:

1. This command will respond only if stick height is enabled. Tank stick height is fuel height (without tilt) + stick offset. If the stick height is less than zero, it will be set to zero. If the stick height is greater than tank diameter, it will be set to tank diameter.

Typical Response Message, Display Format:

```
<SOH>
I20DTT
OCT 15, 1996  4:29 PM

TANK STICK HEIGHT

TANK  PRODUCT LABEL      INCHES
  1    REGULAR           25.0
  2   MIDGRADE           67.5
  3    SUPER             66.1
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i20DTTYMMDDHHmmTTFFFFFFF...
                                TFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Stick Height (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 211
Function Type: Tank Chart Report

Version 14

Command Format:
Display: <SOH>I211TThhhhhh
Computer: <SOH>i211TTFFFFFFF

Notes:

1. TT - Tank number, 00=All tanks
2. hhhhh - height step size (inches or millimeters). Up to 6 decimal digits. If less than 6 digits are entered, use carriage return to terminate the command.
3. FFFFFFFF - height step size (ASCII Hex IEEE float)

Minimum Step Size: 0.010 inches or 0.397 millimeter

Minimum Resolution: 3 decimal places

Typical Response Message, Display Format:

```
<SOH>
I21101
OCT 15, 1996  4:29 PM

STATION HEADER 1....          TANK 1
STATION HEADER 2....          REGULAR UNLEADED
STATION HEADER 3....          10028 GALLONS
STATION HEADER 4....          96.00 INCHES

DEPTH  CAPACITY  DEPTH  CAPACITY  DEPTH  CAPACITY  DEPTH  CAPACITY
INCHES  GALLONS   INCHES  GALLONS   INCHES  GALLONS   INCHES  GALLONS
-----
0.000      0    26.000    2413    52.000    5827    78.100    9021
0.500      69    26.500    2474    52.500    5894    78.500    9073
1.000      90    27.000    2535    53.000    5961    79.000    9123
1.500     114    27.500    2596    53.500    6028    79.500    9173
:
:
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i211TTYMMDDHHmmTTnnnnnaaaaaaaaaAAAAAAAAAbbbbbbBBB...
TTnnnnnaaaaaaaaaAAAAAAAAAbbbbbbBBB&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. nnnn - Number of eight character Data Fields to follow (Hex)
4. aaaaaaaaa - Height 1 (ASCII Hex IEEE float)
5. AAAAAAAAA - Volume 1 (ASCII Hex IEEE float)
6. bbbbbbbb - Height 2 (ASCII Hex IEEE float)
7. BBBBBBBB - Volume 2 (ASCII Hex IEEE float)
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 212

Function Type: In-Tank Leak Test History Report 2

Version 24

Command Format:

Display: <SOH>I212TT

Computer: <SOH>i212TT

Typical Response Message, Display Format:

```
<SOH>
I212TT
JUL 29, 1997  9:02 AM
TANK LEAK TEST HISTORY

T 1:REGULAR UNLEADED

LAST GROSS TEST PASSED:
TEST START TIME          HOURS    VOLUME    % VOLUME    TEST TYPE
JUL 29, 1997  6:02 AM      2821      48.9      STANDARD

LAST ANNUAL TEST PASSED:

NO TEST PASSED

FULLEST ANNUAL TEST PASS

NO TEST PASSED

LAST PERIODIC TEST PASS:
TEST START TIME          HOURS    VOLUME    % VOLUME    TEST TYPE
JUL 29, 1997  4:15 AM      27       2680      46.4      CSLD

FULLEST PERIODIC TEST
PASSED EACH MONTH:

TEST START TIME          HOURS    VOLUME    % VOLUME    TEST TYPE
JUL 20, 1997  1:52 AM      25       2916      50.5      CSLD
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 212 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i212TTYMMDDHHmmTTNNRRnnTTYYMMDDHHmm
      hhhhhhhhVVVVVVVVppppppppzzmmmmmmmm...
      TTNNRRnnTTYYMMDDHHmm
      hhhhhhhhVVVVVVVVppppppppzzmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. NN - Number of Leak History Reports to Follow (Hex)
4. RR - Leak Report Type:
 - 00=Last Test Passed
 - 01=Fulllest Test Passed
 - 02=Fulllest Periodic Monthly Test Passed
5. nn - Leak History Number (1-12) for first Monthly Tests Passed
6. tt - In-Tank Leak Test Type:
 - 00=0.20 gal/hr test
 - 01=0.10 gal/hr test
 - 02=Gross (3 gal/hr) test
7. YYMMDDHHmm - In-Tank Leak Test Start Time
8. hhhhhhhh - Leak Test Duration in Hours (ASCII Hex IEEE float)
9. VVVVVVVV - Leak Test Volume (ASCII Hex IEEE float)
10. pppppppp - Leak Test Percentage of Full Volume (ASCII Hex IEEE float)
11. zz - Number of 8 Byte Fields to Follow (Hex)
12. mmmmmmmm - In-Tank Leak Test Method (Hex)
 - 00000000=Standard
 - 00000001=CSLD
13. && - Data Termination Flag
14. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 213

Version 26

Function Type: In-Tank Extended Standard Delivery Report

Command Format:

Display: <SOH>I213TTnn

Computer: <SOH>i213TTnn

Notes:

1. TT - Tank Number (Decimal, 00=all)
2. nn - Number of most recent deliveries (Decimal)

Typical Response Message, Display Format:

<SOH>
I213TTnn
JUL 29, 1997 9:02 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

DELIVERY REPORT

T 1:REGULAR UNLEADED

| INCREASE | DATE / TIME | GALLONS | TC | GALLONS | WATER | TEMP | DEG F | HEIGHT |
|----------|----------------------|---------|----|---------|-------|-------|-------|--------|
| END: | JUL 28, 1997 3:14 PM | 3231 | | 3194 | 0.00 | 76.14 | | 48.27 |
| START: | JUL 28, 1997 3:05 PM | 1244 | | 1231 | 0.00 | 73.89 | | 24.40 |
| AMOUNT: | | 1987 | | 1963 | | | | |
| END: | JUL 25, 1997 2:48 PM | 4460 | | 4414 | 0.00 | 74.56 | | 63.06 |
| START: | JUL 25, 1997 2:37 PM | 1157 | | 1146 | 0.00 | 72.85 | | 23.22 |
| AMOUNT: | | 3303 | | 3268 | | | | |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 213 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i213TTYMMDDHHmmTtpddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...  
TtpddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (single ASCII character [20h-7Eh])
4. dd - Number of Deliveries to follow (Decimal, 00 if no data available for this tank)
5. YYMMDDHHmm - Starting Date/Time
6. YYMMDDHHmm - Ending Date/Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE float:
 1. Starting Volume
 2. Starting TC Volume
 3. Starting Water
 4. Starting Temp
 5. Ending Volume
 6. Ending TC Volume
 7. Ending Water
 8. Ending Temp
 9. Starting Height
 10. Ending Height
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 214

Version 26

Function Type: In-Tank Mass/Density Inventory Report

Command Format:

Display: <SOH>I214TT

Computer: <SOH>i214TT

Typical Response Message, Display Format:

<SOH>
I214TT
JUL 22, 1996 3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

IN-TANK MASS/DENSITY INVENTORY

| TANK | PRODUCT | VOLUME | MASS | DENSITY | HEIGHT | WATER | TEMP |
|------|------------------|--------|-------|---------|--------|-------|-------|
| 1 | REGULAR UNLEADED | 5329 | 20357 | 5.9987 | 48.97 | 0.00 | 37.39 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i214TTYMMDDHHmmTTpssssNNFFFFFFFF...
TTpssssNNFFFFFFFF...&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (single ASCII character [20h-7Eh])
4. ssss - Tank Status Bits:
 - Bit 1=(LSB) Delivery in Progress
 - Bit 2=Leak Test in Progress
 - Bit 3=Invalid Fuel Height Alarm (MAG Probes Only)
 - Bit 4-16 - Unused
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE float:
 1. Volume
 2. Mass
 3. Density
 4. Height
 5. Water
 6. Temperature
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 215

Version 26

Function Type: In-Tank Mass/Density Delivery Report

Command Format:

Display: <SOH>I215TT

Computer: <SOH>i215TT

Typical Response Message, Display Format:

```
<SOH>
I215TT
JUL 29, 1997  9:02 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

MASS/DENSITY DELIVERY REPORT

T 1:REGULAR UNLEADED

| INCREASE | DATE / TIME | GALLONS | MASS | DENSITY | WATER | TEMP | HEIGHT |
|----------|----------------------|---------|--------|---------|-------|-------|--------|
| END: | JUL 28, 1997 3:14 PM | 3231 | 19380 | 5.9983 | 0.00 | 76.14 | 48.27 |
| START: | JUL 28, 1997 3:05 PM | 1244 | 7461 | 5.9983 | 0.00 | 73.89 | 24.40 |
| AMOUNT: | | 1987 | 11918 | | | | |
| END: | JUL 25, 1997 2:48 PM | 4460 | 26754 | 5.9987 | 0.00 | 74.56 | 63.06 |
| START: | JUL 25, 1997 2:37 PM | 1157 | 6940 | 5.9987 | 0.00 | 72.85 | 23.22 |
| AMOUNT: | | 3303 | 19813* | | | | |

<ETX>

Note: asterisk (*) indicates default density.

Typical Response Message, Computer Format:

```
<SOH>i215TTYMMDDHHmmTTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFFf...
TTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFFf...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (single ASCII character [20h-7Eh])
4. dd - Number of Deliveries to follow (Decimal, 00=no data)
5. YYMMDDHHmm - Starting Date/Time
6. YYMMDDHHmm - Ending Date/Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE float:
 1. Starting Volume
 2. Starting Mass
 3. Starting Density
 4. Starting Water
 5. Starting Temp
 6. Ending Volume
 7. Ending Mass
 8. Ending Density
 9. Ending Water
 10. Ending Temp
 11. Starting Height
 12. Ending Height
9. f - Default Density Flag (0=new value, 1=default)
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 216

Version 26

Function Type: Tank 50 Point Heights, Volumes and Slope Report

Command Format:

Display: <SOH>I216TT

Computer: <SOH>i216TT

Typical Response Message, Display Format:

```
<SOH>
I216TT
SEP 16, 2004  3:15 PM

TANK 50 POINT HEIGHTS, VOLUMES AND SLOPES

T 1: REGULAR UNLEADED

          DIAMETER      FULL VOLUME      SLOPE
          96.00         10000         104.17

PAIR      HEIGHT          VOLUME      SLOPE
  1        94.08           9800        104.17
  2        92.16           9600        104.17
  3        90.24           9400        104.17
  4        88.32           9200        104.17
  5        86.44           9000        104.17
      :
      :
  45        9.60           1000        104.17
  46        7.68            800        104.17
  47        5.76            600        104.17
  48        3.84            400        104.17
  49        1.92            200        104.17
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i216TTYMMDDHHmmTTdddddddddffffffffffssssssssnn
                                HHHHHHHHVVVVVVVVSSSSSSSS...
                                HHHHHHHHVVVVVVVVSSSSSSSS...
                                TTdddddddddffffffffffssssssssnn
                                HHHHHHHHVVVVVVVVSSSSSSSS...
                                HHHHHHHHVVVVVVVVSSSSSSSS&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. dddddddd - Tank Diameter, Inches (ASCII Hex IEEE float)
4. ffffffff - Full Volume, Gallons (ASCII Hex IEEE float)
5. ssssssss - Slope, Gallons per Inch (ASCII Hex IEEE float)
6. nn - Number of Height/Volume Pairs to Follow (Hex).
7. HHHHHHHH - Height, Inches (ASCII Hex IEEE float)
8. VVVVVVVV - Volume, Gallons (ASCII Hex IEEE float)
9. SSSSSSSS - Slope, Gallons per Inch (ASCII Hex IEEE float)
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 217
Function Type: Tank Profile

Version 26

Command Format:
Display: <SOH>I217TT
Computer: <SOH>i217TT

Typical Response Message, Display Format:

```
<SOH>
I217TT
SEP 16, 2004  3:15 PM

TANK PROFILE

T 1: REGULAR UNLEADED
TANK   PRODUCT LABEL          PROFILE
 1     REGULAR UNLEADED      1 PT
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i217TTYMMDDHHmmTTpp...TTpp&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. pp - Tank Profile Selected (Hex)
 - 00= 1 Pt
 - 01= 4 Pts
 - 02=20 Pts
 - 03=Linear
 - 04=50 Pts
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 218
Function Type: Tank Chart Audit Trail

Version 26

```
Command Format:
  Display: <SOH>I218TT
  Computer: <SOH>i218TT
```

Notes:

1. Returns the times of the last 10 tank chart modifications, most recent first

Typical Response Message, Display Format:

```
<SOH>  
I218TT  
JUL 29, 1997   9:02 AM  
  
TANK CHART AUDIT TRAIL  
T 1: REGULAR UNLEADED  
TANK CAPACITY      : 1000  
CONSOLE SERIAL NUMBER:  
    xxxxxxxxxxxxxxxxxxxxxxxxx  
PROBE S/N          : yyyyyyy  
WEIGHTS AND MEASURES:  
    zzzzzzzzzzzzzzzzzzzzzzzz
```

```
DATE/TIME
SEP 10, 2004  4:33 PM
SEP 09, 2004  3:25 PM
SEP 08, 2004 11:10 AM
SEP 02, 2004  5:30 PM
SEP 01, 2004  3:28 PM
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i2l8TTYMMDDHHmmTTcccccccxXXXXXXXXXXXXXXXXXXXXxyyyyyyzzzzzzzzzzzzzzzzzzzz  
nnnyymmdddhmm...yyymmddhhmm...  
TTcccccccxXXXXXXXXXXXXXXXXXXXXxyyyyyyzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz  
nnvyymmdddhmm...vymdddhmm&CCCC<ETX>
```

Notes:

- | | | |
|-----|-------------|---|
| 1. | YYMMDDHHmm | - Current Date and Time |
| 2. | TT | - Tank Number (Decimal, 00=all) |
| 3. | cccccccc | - Tank Capacity, Gallons (ASCII Hex IEEE float) |
| 4. | x..x | - Console Serial Number (20 ASCII characters [20h-7Eh]) |
| 5. | yyyyyy | - Probe Serial Number (Decimal) |
| 6. | z..z | - Weights and Measures Office (20 ASCII characters [20h-7Eh]) |
| 7. | nn | - Number of Date/Time fields to follow (Decimal) |
| 8. | yyymmddhhmm | - Date and Time of Tank Chart Modification |
| 9. | && | - Data Termination Flag |
| 10. | CCCC | - Message Checksum |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 219

Function Type: Tank Chart Security Status

Version 26

Command Format:

Display: <SOH>I219TT

Computer: <SOH>i219TT

Typical Response Message, Display Format:

```
<SOH>
I21900
JUN 22, 2001  3:15 PM
```

```
TANK CHART SECURITY
ENABLED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i21900YYMMDDHHmmf&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Tank Chart Security Flag
0=Disabled
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 21A (like 201)

Version 27

Function Type: In-Tank Inventory Report With 90/95% Ullage

Command Format:

Display: <SOH>I21ATT

Computer: <SOH>i21ATT

Typical Response Message, Display Format:

<SOH>
I21ATT
JAN 22, 2006 3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

| TANK | PRODUCT | VOLUME | TC | VOLUME | 95% ULLAGE | HEIGHT | WATER | TEMP |
|------|------------------|--------|----|--------|------------|--------|-------|-------|
| 1 | REGULAR UNLEADED | 8904 | | 8904 | 596 | 80.00 | 0.00 | 60.00 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i21ATTYYMDDHHmmTTpssssNNFFFFFFFF...
TTpssssNNFFFFFFFF&&CCCC<ETX>

Notes:

1. YYMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. ssss - Tank Status Bits:
 - Bit 1 - (LSB) Delivery in Progress
 - Bit 2 - Leak Test in Progress
 - Bit 3 - Invalid Fuel Height Alarm (MAG Probes Only)
 - Bit 4 - 16 - Unused
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE floats:
 1. Volume
 2. TC Volume
 3. 90/95% Ullage
 4. Height
 5. Water
 6. Temperature
 7. Water Volume
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 21B

Version 26

Function Type: BIR Extended Adjusted Delivery Report

Command Format:

Display: <SOH>I21BTTnn

Computer: <SOH>i21BTTnn

Notes:

1. TT - Tank Number (Decimal, 00=All)
2. nn - Number of most recent deliveries (Decimal)

Typical Response Message, Display Format:

<SOH>
I21BTTnn
JAN 22, 1996 3:08 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

BIR ADJUSTED DELIVERY REPORT

T 1:REGULAR UNLEADED

| DELIVERY | START | DATE | DELIVERY | END | DATE | START | END | ADJ | ADJ TC |
|--------------|---------|------|--------------|---------|------|--------|--------|-------|--------|
| | | | | | | VOLUME | VOLUME | DELIV | DELIV |
| JAN 21, 1996 | 2:52 AM | | JAN 21, 1996 | 3:12 AM | | 3193 | 9197 | 6011 | 6119 |
| JAN 19, 1996 | 3:22 AM | | JAN 19, 1996 | 3:40 AM | | 4193 | 8602 | 4409 | 4473 |
| JAN 17, 1996 | 3:13 AM | | JAN 17, 1996 | 3:40 AM | | 2739 | 8749 | 6010 | 6113 |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 21B Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i21BTTYMMDDHHmmTTddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...
                                TTddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All)
3. dd - Number of Deliveries to follow
4. YYMMDDHHmm - Starting Date/Time
5. YYMMDDHHmm - Ending Date/Time
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - ASCII Hex IEEE floats:
 1. Starting Volume
 2. Ending Volume
 3. Adjusted Delivery Volume
 4. Adjusted Temperature Compensated Delivery Volume
 5. Starting Fuel Height
 6. Starting Fuel Temperature 1
 7. Starting Fuel Temperature 2
 8. Starting Fuel Temperature 3
 9. Starting Fuel Temperature 4
 10. Starting Fuel Temperature 5
 11. Starting Fuel Temperature 6
 12. Ending Fuel Height
 13. Ending Fuel Temperature 1
 14. Ending Fuel Temperature 2
 15. Ending Fuel Temperature 3
 16. Ending Fuel Temperature 4
 17. Ending Fuel Temperature 5
 18. Ending Fuel Temperature 6
 19. Total Dispensed During Delivery
 20. Starting Fuel Temperature Average
 21. Ending Fuel Temperature Average
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 221
Function Type: Ticketed Delivery Report

Version 116

Command Format:
Display: <SOH>I221TTtt
Computer: <SOH>i221TTtt

Notes:

1. TT - Tank Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
 01=current
 02=previous

Typical Response Message, Display Format:

```
<SOH>
I221TT
MAR 20, 1998  3:25 PM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

```
CURRENT PERIOD TICKETED DELIVERY REPORT
VOLUMES ARE STANDARD
```

```
T 1:REGULAR UNLEADED
```

| DELIVERY END DATE | TICKET VOLUME | GAUGE VOLUME | DLVY VAR | BEFORE TMP | AFTER TMP | EST DLVY TMP |
|-----------------------|------------------|-----------------|-------------|---------------|--------------|-----------------|
| MAR 7, 1998 8:26 AM | 5901.0 | 5905.0 | -4.0 | 44.8 | 42.4 | 41.0 |
| MAR 9, 1998 11:37 AM | 5901.0 | 5905.0 | -4.0 | 44.6 | 43.2 | 42.4 |
| MAR 10, 1998 11:34 PM | 4099.0 | 4094.0 | 5.0 | 44.6 | 42.6 | 40.5 |

```
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i221TTYMMDDHHmmTTpPPdddYYMMDDHHmmNNNNNNNNNN...
TTpPPdddYYMMDDHHmmNNNNNNNNNN&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe type (Decimal)
5. ddd - Number of deliveries to follow (decimal) if 0, no more data
for this tank will follow
6. YYMMDDHHmm - Ending date/ time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. ticket volume
 2. gauged volume
 3. delivery variance
 4. start fuel temperature
 5. end fuel temperature
 6. estimated delivery temperature
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 222
Function Type: Bill of Lading Report

Version 23

Command Format:
Display: <SOH>S222TTtt
Computer: <SOH>s222TTtt

Inquire:
<SOH>I222TT
<SOH>i222TT

Notes:

1. TT - Tank Number (Decimal, 00=all)
2. tt - Report Type (if tt is not entered current is default)
01=current
02=previous

Typical Response Message, Display Format:

```
<SOH>
2220101
JAN  1, 1996  8:00 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

CURRENT PERIOD TICKETED AND BOL DELIVERY REPORT

PROD 1: UNLEADED GASOLINE

| DELIVERY END DATE | BOL NUMBER | TICKET VOLUME | GAUGE VOLUME | TC GAUGE VOLUME |
|-----------------------|---------------|------------------|-----------------|--------------------|
| DEC 2, 1993 2:00 AM | 123456 | 0.0 | 502.0 | 0.0 |
| DEC 6, 1993 2:00 AM | 123983 | 7375.0 | 7369.0 | 7375.0 |
| DEC 10, 1993 2:00 AM | 123902 | 2799.0 | 2790.0 | 2799.0 |

Typical Response Message, Computer Format:

```
<SOH>222TTYMMDDHHmmTTpPPdddYYMMDDHHmmAAaa..aaNNFFFFFFFF....FFFFFFFF...
TTpPPdddYYMMDDHHmmAAaa..aaNNFFFFFFFF....FFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 0=all)
3. p - Product Code (Decimal)
4. PP - Probe type (Decimal)
5. ddd - Number of deliveries to follow (Decimal) if 0, no more data
for this tank will follow
6. YYMMDDHHmm - Ending date/ time
7. AA - Number of ASCII characters to follow (Hex)
8. aa..aa - Bill of Lading Number (ASCII characters [20h-7Eh])
9. NN - Number of eight character Data Fields to follow (Hex)
10. FFFFFFFF - ASCII Hex IEEE floats:
 1. Ticketed volume
 2. Gauged volume
 3. Gauged TC volume
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 225

Version 116

Function Type: Periodic Delivery Variance Report

Command Format:

Display: <SOH>I225TTtt

Computer: <SOH>i225TTtt

Notes:

1. TT - Tank Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
01=current
02=previous

Typical Response Message, Display Format:

<SOH>
I225TT
MAR 20, 1998 3:25 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT PERIOD DELIVERY VARIANCE REPORT
VOLUMES ARE STANDARD

T 1:REGULAR UNLEADED

| | | TICKET VOLUME | GAUGE VOLUME | VARIANCE |
|--------------|----------|------------------|-----------------|----------|
| MAR 7, 1998 | 8:26 AM | 5901.0 | 5905.0 | -4.0 |
| MAR 9, 1998 | 11:37 AM | 5901.0 | 5905.0 | -4.0 |
| MAR 10, 1998 | 11:34 PM | 4099.0 | 4094.0 | 5.0 |
| MAR 12, 1998 | 8:27 PM | 3800.0 | 3797.0 | 3.0 |
| MAR 14, 1998 | 8:28 AM | 5900.0 | 5899.0 | 1.0 |
| MAR 16, 1998 | 11:39 AM | 5902.0 | 5916.0 | -14.0 |
| MAR 18, 1998 | 2:02 PM | 5901.0 | 5900.0 | 1.0 |

| | | | | |
|--------|--|---------|---------|-------|
| TOTALS | | 37404.0 | 37417.0 | -13.0 |
|--------|--|---------|---------|-------|

PERCENT VARIANCE OF SALES -13.0=-0.0%
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 225 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i225TTYMMDDHHmmTTpPPdddYYMMDDHHmmNNFFFFFFFF...  
TTpPPdddYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Numbers (Decimal, 00=all tanks)
3. p - Product Number (Decimal)
4. PP - Probe type (Decimal)
5. ddd - Number of deliveries to follow (decimal) if 000, no more data for this tank will follow
6. YYMMDDHHmm - Delivery Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Ticketed volume
 2. Gauged volume
 3. Delivery variance
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 226

Version 116

Function Type: Weekly Delivery Variance Report

Command Format:

Display: <SOH>I226TTtt

Computer: <SOH>i226TTtt

Notes:

1. TT - Tank Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
01=current
02=previous

Typical Response Message, Display Format:

```
<SOH>
I226TT
MAR 20, 1998  3:25 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT WEEK DELIVERY VARIANCE REPORT
VOLUMES ARE STANDARD

T 1:REGULAR UNLEADED

                                TICKET          GAUGE          VARIANCE
                                VOLUME          VOLUME
MAR 16, 1998 11:39 AM          5902.0          5916.0          -14.0
MAR 18, 1998  2:02 PM          5901.0          5900.0           1.0

TOTALS                        11803.0          11816.0          -13.0

PERCENT VARIANCE OF SALES      -13.0=-0.1%
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i226TTYMMDDHHmmTTpPPdddYYMMDDHHmmNNFFFFFFFFF...
TTpPPdddYYMMDDHHmmNNFFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Numbers (Decimal, 00=all tanks)
3. p - Product Number (Decimal)
4. PP - Probe type (Decimal)
5. ddd - Number of deliveries to follow (decimal) if 0, no more data
for this tank will follow
6. YYMMDDHHmm - Delivery Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE float:
1. Ticketed volume
2. Gauged volume
3. Delivery variance
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 227

Version 116

Function Type: Daily Delivery Variance Report

Command Format:

Display: <SOH>I227TTMMDD

Computer: <SOH>i227TTMMDD

Notes:

1. TT - Tank number
2. MMDD - Month and day for Daily Report, if left blank will report current date

Typical Response Message, Display Format:

<SOH>
I227TT
MAR 20, 1998 3:26 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

DAILY DELIVERY VARIANCE REPORT
VOLUMES ARE STANDARD

T 1:REGULAR UNLEADED

| | TICKET VOLUME | GAUGE VOLUME | VARIANCE |
|-----------------------|------------------|-----------------|----------|
| MAR 16, 1998 11:39 AM | 5902.0 | 5916.0 | -14.0 |
| <ETX> | | | |

Typical Response Message, Computer Format:

<SOH>i227TTYMMDDHHmmTTpPPdddYYMMDDHHmmNNFFFFFFFF...
TTpPPdddYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type (Decimal)
5. ddd - Number of deliveries to follow (decimal) if 000, no more data for this tank will follow
6. YYMMDDHHmm - Delivery Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE float:
 1. Ticketed volume
 2. Gauged volume
 3. Delivery variance
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 237

Version 33

Function Type: In-Tank Product Inventory Report

Command Format:

Display: <SOH>I237TT

Computer: <SOH>i237TT

Typical Response Message, Display Format:

<SOH>
I237TT
JAN 22, 2012 3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

PRODUCT INVENTORY REPORT

| TANK | PRODUCT LABEL | VOLUME | TC VOLUME |
|--------|---------------|--------|-----------|
| 1 | REGULAR 1 | 5265 | 5224 |
| 2 | REGULAR 2 | 5265 | 5220 |
| 3 | REGULAR 3 | 5265 | 5217 |
| 4 | REGULAR 4 | 5265 | 5231 |
| TOTAL: | | 21060 | 20892 |
| | | | |
| 5 | DIESEL | 3287 | 3276 |
| TOTAL: | | 3287 | 3276 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i237TTYMMDDHHmmNNTTpnnaaaaaaaaAAAAAAAAA...
TtpnnaaaaaaaaAAAAAAAAAbccccccccCCCCCCCC&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of tanks to follow (Hex)
3. TT - Tank Number (Decimal, 00=all)
4. p - Product Code (one ASCII character [20h-7Eh])
5. nn - Number of eight byte ASCII Hex floats to follow
6. aaaaaaaaa - Tank Volume
7. AAAAAAAAA - Tank TC Volume
8. bb - Number of eight byte ASCII Hex floats to follow
9. cccccccc - Product Volume
10. CCCCCCCC - Product TC Volume
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 238

Version 33

Function Type: In-Tank Siphon Manifolder Inventory Report

Command Format:

Display: <SOH>I238TT

Computer: <SOH>i238TT

Typical Response Message, Display Format:

```
<SOH>
I238TT
JAN 22, 2012  3:06 PM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

SIPHON MANIFOLDED INVENTORY REPORT

| TANK | PRODUCT LABEL | VOLUME | TC VOLUME |
|--------|---------------|--------|-----------|
| 1 | REGULAR 1 | 5265 | 5224 |
| 2 | REGULAR 2 | 5265 | 5220 |
| TOTAL: | | 10530 | 10448 |
| 3 | PREMIUM 1 | 5265 | 5217 |
| 4 | PREMIUM 2 | 5265 | 5231 |
| TOTAL: | | 10530 | 10448 |
| 5 | DIESEL | 3287 | 3276 |
| TOTAL: | | 3287 | 3276 |

```
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i238TTYMMDDHHmmNNTTpnnaaaaaaaaAAAAAAAAA...
TTpnnaaaaaaaaAAAAAAAAAbccccccccCCCCCCCC&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of tanks to follow (Hex)
3. TT - Tank Number (Decimal, 00=all)
4. p - Product Code (one ASCII character [20h-7Eh])
5. nn - Number of eight byte ASCII Hex floats to follow
6. aaaaaaaaa - Tank Volume
7. AAAAAAAAA - Tank TC Volume
8. bb - Number of eight byte ASCII Hex floats to follow
9. cccccccc - Product Volume
10. CCCCCCCC - Product TC Volume
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 239

Version 33

Function Type: In-Tank Manifolded Delivery Report
With Sales Adjustment if BIR available

Command Format:

Display: <SOH>I239TT

Computer: <SOH>i239TT

Typical Response Message, Display Format:

<SOH>
I239TT
JUL 29, 2012 9:02 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MANIFOLDED DELIVERY REPORT

TANK PRODUCT LABEL

1 REGULAR A

2 REGULAR B

3 REGULAR C

DATE / TIME GALLONS TC GALLONS

OCT 10, 2012 1:01 AM 25857 25857

OCT 9, 2012 1:01 AM 25854 25854

OCT 8, 2012 1:01 AM 25851 25851

OCT 7, 2012 1:01 AM 25848 25848

OCT 6, 2012 1:01 AM 25845 25845

OCT 5, 2012 1:01 AM 25842 25842

<ETX>

Typical Response Message, Computer Format:

<SOH>i239TTYMMDDHHmmnnTTp...TTpddYYMMDDHHmmNNFFFFFFFF...
nnTTp...TTpddYYMMDDHHmmNNFFFFFFFF...&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. nn - Number of Tanks to follow (???)
3. TT - Tank Number (Decimal, 00=all)
4. p - Product Code (single ASCII character [20h-7Eh])
5. dd - Number of Deliveries to follow (Decimal, 00 if no data available)
6. YYMMDDHHmm - Starting Date/Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE float:
 1. Unadjusted Delivery Volume, IEEE float
 2. Unadjusted TC Delivery Volume, IEEE float
 3. Estimated Sales, IEEE float
 4. Manifolded tanks bit mask, unsigned long
 5. Probe Out bit mask, unsigned long
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 23A

Version 33

Function Type: In-Tank Manifolded Delivery Report
With Sales Adjustment if BIR available

Command Format:

Display: <SOH>I23ATT

Computer: <SOH>i23ATT

Typical Response Message, Display Format:

<SOH>
I23ATT
JUL 29, 2012 9:02 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MANIFOLDED DELIVERY REPORT

TANK PRODUCT LABEL

1 REGULAR A

2 REGULAR B

3 REGULAR C

| START DATE / TIME | END DATE / TIME | GALLONS TC | GALLONS |
|----------------------|----------------------|------------|---------|
| OCT 10, 2012 1:01 AM | OCT 10, 2012 1:21 AM | 25857 | 25857 |
| OCT 9, 2012 1:01 AM | OCT 9, 2012 1:21 AM | 25854 | 25854 |
| OCT 8, 2012 1:01 AM | OCT 8, 2012 1:21 AM | 25851 | 25851 |
| OCT 7, 2012 1:01 AM | OCT 7, 2012 1:21 AM | 25848 | 25848 |
| OCT 6, 2012 1:01 AM | OCT 6, 2012 1:21 AM | 25845 | 25845 |
| OCT 5, 2012 1:01 AM | OCT 5, 2012 1:21 AM | 25842 | 25842 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i239TTYMMDDHHmmnnTTp...TTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
nnTTp...TTpddYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. nn - Number of Tanks to follow
3. TT - Tank Number (Decimal, 00=all)
4. p - Product Code (single ASCII character [20h-7Eh])
5. dd - Number of Deliveries to follow (Decimal, 00 if no data available)
6. YYMMDDHHmm - Start Date/Time
7. YYMMDDHHmm - End Date/Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE float:
 1. Unadjusted Delivery Volume, IEEE float
 2. Unadjusted TC Delivery Volume, IEEE float
 3. Estimated Sales, IEEE float
 4. Manifolded tanks bit mask, unsigned long
 5. Probe Out bit mask, unsigned long
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 251
Function Type: CSLD Results Report

Version 3

Command Format:
Display: <SOH>I251TT
Computer: <SOH>i251TT

Typical Response Message, Display Format:

```
<SOH>
I251TT
JAN 22, 1996  3:09 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CSLD TEST RESULTS
TANK PRODUCT          RESULT
  1 REGULAR UNLEADED   PER: JAN 22, 1996 PASS
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i251TTYMMDDHHmmTTrr...
                      TTrr&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. rr - Tank CSLD Results:
 - 01=PASS
 - 02=FAIL
 - 03=NO RESULTS AVAILABLE
 - 04=INVALID (software versions 3 and 4 only)
 - 08=INCR (software versions 5 and above)
 - 09=WARN (software versions 5 and above)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 281
Function Type: Fuel Management Report

Version 3

Command Format:
Display: <SOH>I281TT
Computer: <SOH>i281TT

Typical Response Message, Display Format:

```
<SOH>
I281TT
JAN 22, 1996  3:09 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

FUEL MANAGEMENT REPORT

REGULAR UNLEADED      ( TANK 1 )
  DAYS FUEL REMAINING: 1.8
  INVENTORY :         5308 GAL
  95% ULLAGE:         4218 GAL
<ETX>
```

| | | AVERAGE SALES (GALLONS) | | | | | | |
|--|--|-------------------------|------|------|------|------|------|------|
| | | SUN | MON | TUE | WED | THR | FRI | SAT |
| | | 2696 | 2075 | 2602 | 2046 | 2471 | 2805 | 2824 |

Typical Response Message, Computer Format:

```
<SOH>i281TTYMMDDHHmmPPTTpttp...NNFFFFFFFF...
                                PPTTpttp...NNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Number of tank product code pairs to follow (Hex)
3. TTp,ttp - Tank Number (decimal) and Product Code (ASCII character)
4. NN - Number of eight character Data Fields to follow (Hex)
5. FFFFFFFF - ASCII Hex IEEE floats:
 1. Days Supply of Fuel Remaining
 2. Present Inventory
 3. Present 95% Ullage
 4. Average Sales on Sundays
 5. Average Sales on Mondays
 6. Average Sales on Tuesdays
 7. Average Sales on Wednesdays
 8. Average Sales on Thursdays
 9. Average Sales on Fridays
 10. Average Sales on Saturdays
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 282

Version 19

Function Type: FLS Diagnostic: Volume History Table

Command Format:

Display: <SOH>I282TT

Computer: <SOH>i282TT

Typical Response Message, Display Format:

```
<SOH>
I282TT
JAN  3, 1996 10:07 PM

FLS DIAGNOSTICS: VOLUME TABLE

T 1:UNLEADED GASOLINE
CURRENT INVENTORY VOLUME:  5345
CURRENT INVENTORY TIME:    JAN  3, 1996 10:07:22 PM
MOST RECENT STORED:       JAN  3, 1996 10:00:22 PM

    1141  1297  1476  1625  1742  1932  2085  2156  2218  2242  2242  2242  2242
    2248  2265  2281  2307  2339  2405  2456  2573  2701  2854  3022  3141  3297
    3476  3625  3742  3932  4085  4156    0    0  4242  4242  4242  4248  4265
    4281  4307  4339  4405  4456  4573  4701  4854  5022  5160  5276  5345  5450
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iXXXTTYMMDDHHmmTTFFFFFFFFFYMMDDHHmmNNFFFFFFFF...
                        TTFFFFFFFFFYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All Tanks)
3. FFFFFFFF - Current Inventory Volume (ASCII Hex IEEE float)
4. YYMMDDHHmm - Date and Time of the most recent stored hourly history volume
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE floats:
 1. Latest recorded hourly volume
 2. Intermediate hourly recorded volumes
 3. Oldest recorded hourly volume
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 2E2

Version 14

Function Type: In-Tank Stored Inventory Report

Command Format:

Display: <SOH>I2E2TTII

Computer: <SOH>i2E2TTII

Typical Response Message, Display Format:

<SOH>
I2E2TT
JAN 22, 1996 3:06 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

| JAN 22, 1996 8:00 AM | | VOLUME | TC VOLUME | ULLAGE | HEIGHT | WATER | TEMP |
|----------------------|------------------|--------|-----------|--------|--------|-------|-------|
| TANK | PRODUCT | | | | | | |
| 1 | REGULAR UNLEADED | 5329 | 5413 | 4699 | 48.97 | 0.00 | 37.39 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i2E2TTYMMDDHHmmIIYYMMDDHHmmTTpssssNNFFFFFFFF...
TTpssssNNFFFFFFFF&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - Inventory Record Number (Decimal 01, 02, 03, 04)
3. YYMMDDHHmm - Date and Time of Recorded Inventory
4. TT - Tank Number (Decimal, 00=all)
5. p - Product Code (one ASCII character [20h-7Eh])
6. ssss - Tank Status Bits:
 - Bit 1 - (LSB) Delivery in Progress
 - Bit 2 - Leak Test in Progress
 - Bit 3 - Invalid Fuel Height Alarm (MAG Probes Only)
 - Bit 4-16 - Unused
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 - 1. Volume
 - 2. TC Volume
 - 3. Ullage
 - 4. Height
 - 5. Water
 - 6. Temperature
 - 7. Water Volume
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.2.3 SENSOR REPORTS

Function Code: 301

Version 1

Function Type: Liquid Sensor Status Report

Command Format:

Display: <SOH>I301SS

Computer: <SOH>i301SS

Typical Response Message, Display Format:

```
<SOH>
I301SS
JAN 28, 1995 10:10 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

LIQUID STATUS REPORT

SENSOR  LOCATION                      STATUS
   1  LIQUID # 1                      SENSOR NORMAL
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i301SSYYMMDDHHmmSSsssss...
                                SSsssss&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. ssss - Sensor Status Value:
 - 0000=Sensor Normal
 - 0001=Sensor Setup Data Warning
 - 0002=Sensor Fuel Alarm
 - 0003=Sensor Out Alarm
 - 0004=Sensor Short Alarm
 - 0005=Sensor Water Alarm
 - 0006=Sensor Water Out Alarm
 - 0007=Sensor High Liquid Alarm
 - 0008=Sensor Low Liquid Alarm
 - 0009=Sensor Liquid Warning
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 302

Version 1

Function Type: Liquid Sensor Alarm History Report

Command Format:

Display: <SOH>I302SS

Computer: <SOH>i302SS

Typical Response Message, Display Format:

```
<SOH>
I302SS
JAN 28, 1995 10:10 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

LIQUID ALARM HISTORY REPORT

SENSOR  LOCATION
  1  LIQUID # 1
    JAN  6, 1995  8:02 AM          FUEL ALARM

<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i302SSYYMMDDHHmmSSNNYYMMDDHHmmaaaa...
                                SSNNYYMMDDHHmmaaaa&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm type number:
 - 0001=Sensor Setup Data Warning
 - 0002=Sensor Fuel Alarm
 - 0003=Sensor Out Alarm
 - 0004=Sensor Short Alarm
 - 0005=Sensor Water Alarm
 - 0006=Sensor Water Out Alarm
 - 0007=Sensor High Liquid Alarm
 - 0008=Sensor Low Liquid Alarm
 - 0009=Sensor Liquid Warning
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 306

Version 1

Function Type: Vapor Sensor Status Report

Command Format:

Display: <SOH>I306SS

Computer: <SOH>i306SS

Typical Response Message, Display Format:

<SOH>
I306SS
JAN 28, 1995 10:11 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR STATUS REPORT

| SENSOR | LOCATION | STATUS |
|--------|-----------|---------------|
| 1 | VAPOR # 1 | SENSOR NORMAL |

<ETX>

Typical Response Message, Computer Format:

<SOH>i306SSYYMMDDHHmmSSssss...
SSssss&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. ssss - Sensor Status Value:
 - 0000=Sensor Normal
 - 0001=Sensor Setup Data Warning
 - 0002=Sensor Fuel Alarm
 - 0003=Sensor Out Alarm
 - 0004=Sensor Short Alarm
 - 0005=Sensor Water Alarm
 - 0006=Sensor Water Out Alarm
 - 0007=Sensor High Liquid Alarm
 - 0008=Sensor Low Liquid Alarm
 - 0009=Sensor Liquid Warning
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 307

Version 1

Function Type: Vapor Sensor Alarm History Report

Command Format:

Display: <SOH>I307SS

Computer: <SOH>i307SS

Typical Response Message, Display Format:

<SOH>
I307SS
JAN 28, 1995 10:11 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR ALARM HISTORY REPORT

SENSOR LOCATION
1 VAPOR # 1
JAN 6, 1995 8:02 AM WATER ALARM
<ETX>

Typical Response Message, Computer Format:

<SOH>i307SSYYMDDHHmmSSNNYYMDDHHmmaaaa...
SSNNYYMDDHHmmaaaa&&CCCC<ETX>

Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow
4. YYMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm type number:
 - 0001=Sensor Setup Data Warning
 - 0002=Sensor Fuel Alarm
 - 0003=Sensor Out Alarm
 - 0004=Sensor Short Alarm
 - 0005=Sensor Water Alarm
 - 0006=Sensor Water Out Alarm
 - 0007=Sensor High Liquid Alarm
 - 0008=Sensor Low Liquid Alarm
 - 0009=Sensor Liquid Warning
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 311

Version 1

Function Type: Groundwater Sensor Status Report

Command Format:

Display: <SOH>I311SS

Computer: <SOH>i311SS

Typical Response Message, Display Format:

<SOH>
I311SS
JAN 28, 1995 10:11 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

GROUNDWATER STATUS REPORT

| SENSOR | LOCATION | STATUS |
|--------|------------------|---------------|
| 1 | GROUND WATER # 1 | SENSOR NORMAL |

<ETX>

Typical Response Message, Computer Format:

<SOH>i311SSYYMMDDHHmmSSssss...
SSssss&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. ssss - Sensor Status Value:
 - 0000=Sensor Normal
 - 0001=Sensor Setup Data Warning
 - 0002=Sensor Fuel Alarm
 - 0003=Sensor Out Alarm
 - 0004=Sensor Short Alarm
 - 0005=Sensor Water Alarm
 - 0006=Sensor Water Out Alarm
 - 0007=Sensor High Liquid Alarm
 - 0008=Sensor Low Liquid Alarm
 - 0009=Sensor Liquid Warning
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 312

Function Type: Groundwater Sensor Alarm History Report

Version 1

Command Format:

Display: <SOH>I312SS

Computer: <SOH>i312SS

Typical Response Message, Display Format:

```
<SOH>
I312SS
JAN 28, 1995 10:11 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

GROUNDWATER ALARM HISTORY REPORT

SENSOR  LOCATION
  1  GROUND WATER # 1
      JAN  6, 1995  8:02 AM          OPEN ALARM

<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i312SSYYMDDHHmmSSNNYYMDDHHmmaaaa...
                                SSNNYYMDDHHmmaaaa&&CCCC<ETX>
```

Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow
4. YYMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm type number:
 - 0001=Sensor Setup Data Warning
 - 0002=Sensor Fuel Alarm
 - 0003=Sensor Out Alarm
 - 0004=Sensor Short Alarm
 - 0005=Sensor Water Alarm
 - 0006=Sensor Water Out Alarm
 - 0007=Sensor High Liquid Alarm
 - 0008=Sensor Low Liquid Alarm
 - 0009=Sensor Liquid Warning
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 315
Function Type: Smart Sensor Status Report

Version 24

Command Format:
Display: <SOH>I315SS
Computer: <SOH>i315SS

Typical Response Message, Display Format:

```
<SOH>
I315SS
JAN 22, 2003  3:07 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SMART SENSOR STATUS REPORT

SENSOR  LOCATION      STATUS

   1  SUMP 1          SENSOR NORMAL

<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i315SSYYMMDDHHmmSSssss...
SSssss&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. ssss - Sensor status value:
 - 0000=Smart Sensor Normal
 - 0001=Smart Sensor Setup Data Warning
 - 0002=Smart Sensor Communication Alarm
 - 0003=Smart Sensor Fault Alarm
 - 0004=Smart Sensor Fuel Warning
 - 0005=Smart Sensor Fuel Alarm
 - 0006=Smart Sensor Water Warning
 - 0007=Smart Sensor Water Alarm
 - 0008=Smart Sensor High Liquid Warning
 - 0009=Smart Sensor High Liquid Alarm
 - 0010=Smart Sensor Low Liquid Warning
 - 0011=Smart Sensor Low Liquid Alarm
 - 0012=Smart Sensor Temperature Warning
 - 0013=Smart Sensor Relay Active
 - 0014=Smart Sensor Install Alarm
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 316

Version 24

Function Type: Smart Sensor Alarm History Report

Command Format:

Display: <SOH>I316SS

Computer: <SOH>i316SS

Typical Response Message, Display Format:

```
<SOH>
I316SS
JAN 22, 2003  3:07 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SMART SENSOR ALARM HISTORY REPORT

SENSOR  LOCATION
  1  T1 SUMP
      JUN 23, 2003  2:12 PM      WATER WARNING
      JUN 23, 2003  2:12 PM      WATER ALARM
      JUN 23, 2003  2:12 PM      FUEL ALARM
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i316SSYYMDDHHmmSSnnYYMDDHHmmaaaa...
                                SSnnYYMDDHHmmaaaa&&CCCC<ETX>
```

Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. nn - Number of alarms incidents to follow (Decimal, 00=none)
4. YYMDDHHmm - Date and time alarm occurred
5. aaaa - Alarm type number:
 - 0001=Smart Sensor Setup Data Warning
 - 0002=Smart Sensor Communication Alarm
 - 0003=Smart Sensor Fault Alarm
 - 0004=Smart Sensor Fuel Warning
 - 0005=Smart Sensor Fuel Alarm
 - 0006=Smart Sensor Water Warning
 - 0007=Smart Sensor Water Alarm
 - 0008=Smart Sensor High Liquid Warning
 - 0009=Smart Sensor High Liquid Alarm
 - 0010=Smart Sensor Low Liquid Warning
 - 0011=Smart Sensor Low Liquid Alarm
 - 0012=Smart Sensor Temperature Warning
 - 0013=Smart Sensor Relay Active
 - 0014=Smart Sensor Install Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 317

Version 26

Function Type: Mag Sump Leak Test In Progress/Last Test Report

Command Format:

Display: <SOH>I317ss

Computer: <SOH>i317ss

Typical Response Message, Display Format:

```
<SOH>
I317ss
FEB 19, 2005  9:55 AM

MAG SUMP LEAK TEST
IN PROGRESS

s 1:SUMP NUMBER 1

STATUS:MEASURING HEIGHT
START TIME:
  FEB 19, 2005  9:43 AM
START HT:      20.971 IN.
START TEMP:      76.1 F
CURRENT HT:     20.971 IN.
CURRENT TEMP:      76.1 F
DURATION:       12 MINS
TEMP RATE:       6.0 F/HR
LEAK RATE: 0.0000 IN./HR
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 317 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>i3l7ssYMMDDHHmmssttccYMMDDHHmmNNHHHHHHHHHTTTTTTTThhhhhhhtttttttddddd  
RRrrrrrrrrrrrrrrrrrrrrLLllllllll...  
ssttccYMMDDHHmmNNHHHHHHHHHTTTTTTTThhhhhhhtttttttddddd  
RRrrrrrrrrrrrrrrrrrrrrLLllllllll&&CCCC<ETX>
```

Notes:

- ```

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=all)
3. tt - Mag Sump Leak Test Status
 00=NO TEST DATA AVAILABLE
 01=LEAK TEST ABORTED
 02=FILL SUMP
 03=MEASURING HEIGHT
 04=LEAK TEST PASSED
4. cc - Abort Reason Code
 00=NOT ABORTED
 01=MAG SENS ALM/WARN
 02=WATER TOO LOW
 03=WATER TOO HIGH
 04=TEMP TOO LOW
 05=TEMP TOO HIGH
 06=WATER INCREASED
 07=WATER DECREASED
 08=INSUFFICIENT DATA
 09=LEAK RATE TOO HIGH
 10=TEST PHASE TIMEOUT
 11=TEMP STABLE TIMEOUT
5. YYMMDDHHmm - Start Date/Time
6. NN - Number of 8 bytes data fields to follow (Decimal)
7. HHHHHHHH - Starting Height, Inches (ASCII Hex IEEE float)
8. TTTTTTTT - Starting Temperature, Degrees F (ASCII Hex IEEE float)
9. hhhhhhhh - Ending Height (ASCII Hex IEEE float)
10. tttttttt - Ending Temperature (ASCII Hex IEEE float)
11. dddddddd - Duration in minutes (ASCII Hex IEEE float)
12. RR - Temperature Change Rate Status Flag
 00=UNKNOWN
 01=VALID
 02=COMPUTING
 03=STABLE
13. rrrrrrrr - Temperature Rate Change, Degrees F/Hr (ASCII Hex IEEE float)
14. mmmmmmmm - Temperature Stable Time in minutes (ASCII Hex IEEE float)
15. LL - Leak Rate Status Flag
 00=UNKNOWN
 01=VALID
 02=COMPUTING
16. llllllll - Leak Rate, Inches/Hr (ASCII Hex IEEE float)
17. && - Data Termination Flag
18. CCCC - Message Checksum

```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 318**

Version 26

**Function Type:** Mag Sump Leak Test Last Passed Test Report

**Command Format:**

**Display:** <SOH>I318ss

**Computer:** <SOH>i318ss

### Typical Response Message, Display Format:

```
<SOH>
I318ss
FEB 21, 2005 10:50 AM

MAG SUMP LEAK TEST
LAST PASSED TEST

s 1:SUMP NUMBER 1

RESULT: TEST PASSED
START TIME:
 FEB 19, 2005 9:43 AM
START HT: 20.971 IN.
START TEMP: 76.1 F
END HT: 20.971 IN.
END TEMP: 76.1 F
DURATION: 120 MINS
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i318ssYYMMDDHHmmsssttYYMMDDHHmmNNHHHHHHHHHTTTTTTTTTT
 hhhhhhhhhttttttttddddd...
 ssttYYMMDDHHmmNNHHHHHHHHHTTTTTTTTTT
 hhhhhhhhhttttttttddddd&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=all)
3. tt - Mag Sump Leak Test Status
  - 00=NO TEST DATA AVAILABLE
  - 01=LEAK TEST ABORTED
  - 02=FILL SUMP
  - 03=MEASURING HEIGHT
  - 04=LEAK TEST PASSED
4. YYMMDDHHmm - Start Date/Time
5. NN - Number of 8 bytes data fields to follow (Decimal)
6. HHHHHHHH - Starting Height, Inches (ASCII Hex IEEE float)
7. TTTTTTTT - Starting Temperature, Degrees F (ASCII Hex IEEE float)
8. hhhhhhhh - Ending Height (ASCII Hex IEEE float)
9. tttttttt - Ending Temperature (ASCII Hex IEEE float)
10. dddddd - Duration in minutes (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 319**

Version 26

**Function Type:** Mag Sump Leak Test Last 10 Test Passed Report

**Command Format:**

**Display:** <SOH>I319ss

**Computer:** <SOH>i319ss

**Typical Response Message, Display Format:**

```
<SOH>
I319ss
NOV 15, 2004 8:26 AM
```

```
MAG SUMP LEAK TEST
LAST 10 TEST PASSED
```

```
s 1:SUMP NUMBER 1
```

| START DATE/TIME       | START<br>HEIGHT | START<br>TEMP | END<br>HEIGHT | END<br>TEMP | DURATION<br>MINUTES |
|-----------------------|-----------------|---------------|---------------|-------------|---------------------|
| JAN 19, 2005 9:43 AM  | 22.971          | 76.1          | 22.971        | 76.1        | 120                 |
| DEC 12, 2004 10:24 AM | 22.344          | 75.4          | 22.338        | 75.3        | 120                 |
| MAY 3, 2004 1:18 PM   | 21.972          | 72.0          | 21.970        | 72.2        | 120                 |
| FEB 23, 2004 3:12 PM  | 21.065          | 76.2          | 21.061        | 76.2        | 120                 |

```
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i319ssYYMMDDHHmmsssttYYMMDDHHmmNNHHHHHHHHHTTTTTTTT
 hhhhhhhhhttttttttddddd...
 YYMMDDHHmmNNHHHHHHHHHTTTTTTTT
 hhhhhhhhhttttttttddddd...
ssttYYMMDDHHmmNNHHHHHHHHHTTTTTTTT
 hhhhhhhhhttttttttddddd...
 YYMMDDHHmmNNHHHHHHHHHTTTTTTTT
 hhhhhhhhhttttttttddddd&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=All)
3. tt - Number of Tests to follow (Max=10)
4. YYMMDDHHmm - Date/Time Test
5. NN - Number of 8 bytes data fields to follow
6. HHHHHHHH - Starting Height, Inches (ASCII Hex IEEE float)
7. TTTTTTTT - Starting Temperature, Degrees F (ASCII Hex IEEE float)
8. hhhhhhhh - Ending Height (ASCII Hex IEEE float)
9. tttttttt - Ending Temperature (ASCII Hex IEEE float)
10. dddddd - Duration in minutes (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 31A**

Version 26

**Function Type:** Mag Sump Leak Test Last Passed Each Year Report

**Command Format:**

**Display:** <SOH>I31Ass

**Computer:** <SOH>i31Ass

### Typical Response Message, Display Format:

```
<SOH>
I31Ass
NOV 15, 2004 8:26 AM
```

```
MAG SUMP LEAK TEST
LAST PASSED EACH YEAR
```

```
s 1:SUMP NUMBER 1
```

| START DATE/TIME       | START<br>HEIGHT | START<br>TEMP | END<br>HEIGHT | END<br>TEMP | DURATION<br>MINUTES |
|-----------------------|-----------------|---------------|---------------|-------------|---------------------|
| JAN 19, 2005 9:43 AM  | 22.971          | 76.1          | 22.971        | 76.1        | 120                 |
| FEB 12, 2004 10:24 AM | 22.344          | 75.4          | 22.338        | 75.3        | 120                 |
| MAR 3, 2003 1:18 PM   | 21.972          | 72.0          | 21.970        | 72.2        | 120                 |
| JAN 23, 2002 3:12 PM  | 21.065          | 76.2          | 21.061        | 76.2        | 120                 |

```
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i31AssYYMMDDHHmmssttYYMMDDHHmmNNHHHHHHHHHTTTTTTTT
hhhhhhhhttttttttddddd...
YYMMDDHHmmNNHHHHHHHHHTTTTTTTT
hhhhhhhhttttttttddddd...
ssttYYMMDDHHmmNNHHHHHHHHHTTTTTTTT
hhhhhhhhttttttttddddd...
YYMMDDHHmmNNHHHHHHHHHTTTTTTTT
hhhhhhhhttttttttddddd&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number (Decimal, 00=All)
3. tt - Total Tests to follow (Max=3)
4. YYMMDDHHmm - Date/Time Test
5. NN - Number of 8 bytes data fields to follow
6. HHHHHHHH - Starting Height, Inches (ASCII Hex IEEE float)
7. TTTTTTTT - Starting Temperature, Degrees F (ASCII Hex IEEE float)
8. hhhhhhhh - Ending Height (ASCII Hex IEEE float)
9. tttttttt - Ending Temperature (ASCII Hex IEEE float)
10. dddddd - Duration in minutes (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 322**

Version 27

**Function Type:** Pump Relay Monitor Status Report

**Command Format:**

**Display:** <SOH>I322rr

**Computer:** <SOH>i322rr

**Typical Response Message, Display Format:**

```
<SOH>
I322rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR STATUS REPORT

DEVICE LABEL PUMP PUMP RELAY
 (OUT) (IN) STATUS
 1 PUMP RELAY UNLEADED OFF Q 1: OFF NORMAL
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i322rrYYMMDDHHmmrrrabssss...
 rrabssss&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. a - Pump Status (ASCII Hex)  
0=Off  
1=On
4. b - Relay Status (ASCII Hex)  
0=Off (or N/A B no Pump Relay assigned)  
1=On
5. ssss - Number of 8-character data fields to follow (ASCII Hex)  
0000=Normal  
0001=Setup Data Warning  
0002=Pump Relay Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 323**

Version 27

**Function Type:** Pump Relay Monitor Alarm History Report

**Command Format:**

**Display:** <SOH>I323rr

**Computer:** <SOH>i323rr

### Typical Response Message, Display Format:

```
<SOH>
I323rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR ALARM HISTORY REPORT

DEVICE LABEL
PUMP RELAY UNLEADED
 JUN 1, 2006 8:02 AM PUMP RELAY ALARM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i323rrYYMMDDHHmmrrNNYYMMDDHHmmaaaa...
 rrNNYYMMDDHHmmaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow (ASCII Hex)
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm Type number (ASCII Hex):  
0001=Setup Data Warning  
0002=Pump Relay Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 333**

Version 24

**Function Type:** Smart Sensor Install Log

**Command Format:**

**Display:** <SOH>I333SS

**Computer:** <SOH>i333SS

### Typical Response Message, Display Format:

<SOH>

I333SS

JAN 22, 2003 3:25 PM

SMART SENSOR INSTALL LOG

| DATE     |         | SENSOR | SERIAL NUMBER | TYPE       |
|----------|---------|--------|---------------|------------|
| 01-01-03 | 6:00:00 | 1      | 123456        | MAG SENSOR |
| 01-01-03 | 6:00:00 | 2      | 123457        | FLOWMETER  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i333SSYYMMDDHHmmnnnYYMMDDHHmmSSNNNNNNNNNffff...  
YYMMDDHHmmSSNNNNNNNNNffff&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. nnn - Number of Events to Follow (Decimal)
3. YYMMDDHHmm - Date and Time of Install Event
4. SS - Smart Sensor Number (Decimal)
5. NNNNNNNN - Sensor Serial Number (ASCII Hex IEEE float)
6. ffff - Smart Sensor Model Number (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 341**

**Function Type:** Type A (2 Wire CL) Sensor Status Report

Version 2

**Command Format:**

**Display:** <SOH>I341SS

**Computer:** <SOH>i341SS

**Typical Response Message, Display Format:**

```
<SOH>
I341SS
FEB 18, 1990 10:53 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

2 WIRE CL STATUS REPORT

SENSOR LOCATION STATUS
 1 2 WIRE CL SENSOR #1 FUEL ALARM
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i341SSYYMMDDHHmmSSssss...
 SSssss&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. ssss - Sensor Status Value:
  - 0000=Sensor Normal
  - 0001=Sensor Setup Data Warning
  - 0002=Sensor Fuel Alarm
  - 0003=Sensor Out Alarm
  - 0004=Sensor Short Alarm
  - 0005=Sensor Water Alarm
  - 0006=Sensor Water Out Alarm
  - 0007=Sensor High Liquid Alarm
  - 0008=Sensor Low Liquid Alarm
  - 0009=Sensor Liquid Warning
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 342**

**Function Type:** Type A (2 Wire CL) Sensor Alarm History Report

Version 2

**Command Format:**

**Display:** <SOH>I342SS

**Computer:** <SOH>i342SS

**Typical Response Message, Display Format:**

```
<SOH>
I342SS
FEB 18, 1990 10:53 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

2 WIRE CL ALARM HISTORY REPORT

```
SENSOR LOCATION
 1 2 WIRE CL SENSOR #1
 FEB 12, 1990 11:32 AM FUEL ALARM
 FEB 10, 1990 10:09 AM OPEN ALARM
```

<ETX>

**Typical Response Message, Computer Format:**

```
<SOH>i342SSYYMMDDHHmmSSNNYYMMDDHHmmaaaa...
 SSNNYYMMDDHHmmaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm type number:
  - 0001=Sensor Setup Data Warning
  - 0002=Sensor Fuel Alarm
  - 0003=Sensor Out Alarm
  - 0004=Sensor Short Alarm
  - 0005=Sensor Water Alarm
  - 0006=Sensor Water Out Alarm
  - 0007=Sensor High Liquid Alarm
  - 0008=Sensor Low Liquid Alarm
  - 0009=Sensor Liquid Warning
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 346**

**Function Type:** Type B (3 Wire CL) Sensor Status Report

Version 2

**Command Format:**

**Display:** <SOH>I346SS

**Computer:** <SOH>i346SS

**Typical Response Message, Display Format:**

```
<SOH>
I346SS
FEB 18, 1990 10:53 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

3 WIRE CL STATUS REPORT

SENSOR LOCATION STATUS
 1 3 WIRE CL SENSOR #1 FUEL ALARM
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i346SSYYMMDDHHmmSSssss...
 SSssss&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. ssss - Sensor Status Value:
  - 0000=Sensor Normal
  - 0001=Sensor Setup Data Warning
  - 0002=Sensor Fuel Alarm
  - 0003=Sensor Out Alarm
  - 0004=Sensor Short Alarm
  - 0005=Sensor Water Alarm
  - 0006=Sensor Water Out Alarm
  - 0007=Sensor High Liquid Alarm
  - 0008=Sensor Low Liquid Alarm
  - 0009=Sensor Liquid Warning
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 347**

**Function Type:** Type B (3 Wire CL) Sensor Alarm History Report

Version 2

**Command Format:**

**Display:** <SOH>I347SS

**Computer:** <SOH>i347SS

**Typical Response Message, Display Format:**

<SOH>  
I347SS  
FEB 18, 1990 10:53 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

3 WIRE CL ALARM HISTORY REPORT

| SENSOR | LOCATION                         |
|--------|----------------------------------|
| 1      | 3 WIRE CL SENSOR #1              |
|        | FEB 12, 1990 11:32 AM FUEL ALARM |
|        | FEB 10, 1990 10:09 AM OPEN ALARM |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i347SSYYMMDDHHmmSSNNYYMMDDHHmmaaaa...  
SSNNYYMMDDHHmmaaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm type number:
  - 0001=Sensor Setup Data Warning
  - 0002=Sensor Fuel Alarm
  - 0003=Sensor Out Alarm
  - 0004=Sensor Short Alarm
  - 0005=Sensor Water Alarm
  - 0006=Sensor Water Out Alarm
  - 0007=Sensor High Liquid Alarm
  - 0008=Sensor Low Liquid Alarm
  - 0009=Sensor Liquid Warning
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 34B**

Version 4

**Function Type:** Universal Sensor Status Report

**Command Format:**

**Display:** <SOH>I34BSS

**Computer:** <SOH>i34BSS

### Typical Response Message, Display Format:

```
<SOH>
I34BSS
FEB 18, 1990 10:53 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

UNIVERSAL STATUS REPORT

SENSOR LOCATION STATUS
 1 UNIVERSAL SENSOR #1 FUEL ALARM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i34BSSYYMMDDHHmmSSsssss...
 SSsssss&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. ssss - Sensor Status Value:
  - 0000=Sensor Normal
  - 0001=Sensor Setup Data Warning
  - 0002=Sensor Fuel Alarm
  - 0003=Sensor Out Alarm
  - 0004=Sensor Short Alarm
  - 0005=Sensor Water Alarm
  - 0006=Sensor Water Out Alarm
  - 0007=Sensor High Liquid Alarm
  - 0008=Sensor Low Liquid Alarm
  - 0009=Sensor Liquid Warning
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 34C**

**Function Type:** Universal Sensor Alarm History Report

Version 4

**Command Format:**

**Display:** <SOH>I34CSS

**Computer:** <SOH>i34CSS

**Typical Response Message, Display Format:**

<SOH>  
I34CSS  
FEB 18, 1990 10:53 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

UNIVERSAL ALARM HISTORY REPORT

| SENSOR | LOCATION             |            |  |
|--------|----------------------|------------|--|
| 1      | UNIVERSAL SENSOR 1   |            |  |
|        | FEB 12 1990 11:32 AM | FUEL ALARM |  |
|        | FEB 10 1990 10:09 PM | OPEN ALARM |  |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i34CSSYYMMDDHHmmSSNNYYMMDDHHmmaaaa...  
SSNNYYMMDDHHmmaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm type number:
  - 0001=Sensor Setup Data Warning
  - 0002=Sensor Fuel Alarm
  - 0003=Sensor Out Alarm
  - 0004=Sensor Short Alarm
  - 0005=Sensor Water Alarm
  - 0006=Sensor Water Out Alarm
  - 0007=Sensor High Liquid Alarm
  - 0008=Sensor Low Liquid Alarm
  - 0009=Sensor Liquid Warning
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.2.4 LINE LEAK REPORTS

**Function Code: 351**

Version 1

**Function Type:** Volumetric Line Leak Result Report

**Command Format:**

**Display:** <SOH>I351PP

**Computer:** <SOH>i351PP

**Typical Response Message, Display Format:**

```
<SOH>
I351PP
MAR 26, 1996 1:55 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

P 1:REGULAR UNLEADED
 3.0 GAL/HR TEST LINE SELF PUMP
 PREV 24 HOURS 104 104 111
 SINCE MIDNIGHT 53 53 56
 0.2 GAL/HR TEST
 MAR 25, 1996 8:14 PM PASSED
 MAR 25, 1996 2:02 AM PASSED
 MAR 24, 1996 2:20 AM PASSED
 0.1 GAL/HR TEST
 MAR 26, 1996 1:48 AM PASSED
 MAR 25, 1996 4:11 AM PASSED
 MAR 24, 1996 3:25 AM PASSED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i351PPYYMMDDHHmmPPLLSSBBllssbbNNYYMMDDHHmmRR...nnYYMMDDHHmmRR...
 PPLLSSBBllssbbNNYYMMDDHHmmRR...nnYYMMDDHHmmRR&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. LL - 3.00 GPH Line tests passed in previous 24 hours (Hex)
4. SS - 3.00 GPH Self tests passed in previous 24 hours (Hex)
5. BB - 3.00 GPH Pumpside tests passed in previous 24 hours (Hex)
6. ll - 3.00 GPH Line tests passed since midnight (Hex)
7. ss - 3.00 GPH Self tests passed since midnight (Hex)
8. bb - 3.00 GPH Pumpside tests passed since midnight (Hex)
9. NN - Number of 0.20 GPH test date entries to follow (Decimal)
10. YYMMDDHHmm - Date and Time of test
11. RR - Test result (00=fail, 01=pass)
12. nn - Number of 0.10 GPH test date entries to follow (Decimal)
13. YYMMDDHHmm - Date and Time of test
14. RR - Test result (00=fail, 01=pass)
15. && - Data Termination Flag
16. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 352**

**Function Type:** Volumetric Line Leak Alarm History Report

Version 1

**Command Format:**

**Display:** <SOH>I352PP

**Computer:** <SOH>i352PP

### Typical Response Message, Display Format:

```
<SOH>
I352PP
MAR 26, 1996 1:55 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

P 1:REGULAR UNLEADED
 DEC 24, 1991 9:51 PM LINE LEAK SHUTDOWN
 DEC 23, 1991 9:46 PM LLD SELF TEST FAIL
 DEC 22, 1991 9:31 PM LINE LEAK TEST FAIL
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i352PPYYMMDDHHmmPPNNYYMMDDHHmmaaaa...
 PPNNYYMMDDHHmmaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. NN - Number of Alarm entries to follow (Decimal)
4. YYMMDDHHmm - Date and Time of Alarm



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 352 Notes: (Continued)

- 5.           aaaa - Alarm type code:
  - 0001=VLLD Setup Data Warning
  - 0002=VLLD Self Test Alarm
  - 0003=VLLD Shutdown Alarm
  - 0004=VLLD Leak Test Fail Alarm
  - 0005=VLLD Selftest Invalid Warning
  - 0006=VLLD Continuous Handle On Warning
  - 0007=VLLD Gross Line Test Fail Alarm
  - 0008=VLLD Gross Line Selftest Fail Alarm
  - 0009=VLLD Gross Pump Test Fail Alarm
  - 000A=VLLD Gross Pump Selftest Fail Alarm
  - 000B=VLLD Periodic Test Needed Warning
  - 000C=VLLD Annual Test Needed Warning
  - 000D=VLLD Periodic Test Needed Alarm
  - 000E=VLLD Annual Test Needed Alarm
  - 000F=VLLD Periodic Line Test Fail Alarm
  - 0010=VLLD Periodic Line Selftest Fail Alarm
  - 0011=VLLD Periodic Pump Test Fail Alarm
  - 0012=VLLD Periodic Pump Selftest Fail Alarm
  - 0013=VLLD Annual Line Test Fail Alarm
  - 0014=VLLD Annual Line Selftest Fail Alarm
  - 0015=VLLD Annual Pump Test Fail Alarm
  - 0016=VLLD Annual Pump Selftest Fail Alarm
  - 0017=VLLD Pressure Warning
  - 0018=VLLD Pressure Alarm
  - 0019=VLLD Gross Test Fault Alarm
  - 001A=VLLD Periodic Test Fault Alarm
  - 001B=VLLD Annual Test Fault Alarm
  - 001C=VLLD Fuel Out Alarm
- 6.           && - Data Termination Flag
- 7.           CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 353**

Version 2

**Function Type:** Volumetric Line Leak Pump Status

**Command Format:**

**Display:** <SOH>I353PP

**Computer:** <SOH>i353PP

**Typical Response Message, Display Format:**

<SOH>  
I353PP  
MAR 26, 1996 1:55 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

| LINE | LOCATION         | STATUS  |
|------|------------------|---------|
| 1    | REGULAR UNLEADED | ENABLED |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i353PPYYMDDHHmmPPaaaa...  
PPaaaa&&CCCC<ETX>

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. aaaa - Line Status:  
0001=Enabled  
0002=Disabled
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 373**

Version 14

**Function Type:** Pressure Line Leak Test Results (with 0.20 test data)

**Command Format:**

**Display:** <SOH>I373QQ

**Computer:** <SOH>i373QQ

### Typical Response Message, Display Format:

<SOH>  
I373QQ  
JAN 24, 1996 2:52 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

PRESSURE LINE LEAK TEST RESULTS

Q 1:REGULAR UNLEADED

3.0 GAL/HR RESULTS:

LAST TEST:  
JAN 24, 1996 2:49 PM PASS

NUMBER OF TESTS PASSED  
PREV 24 HOURS : 149  
SINCE MIDNIGHT : 76

0.20 GAL/HR RESULTS:

JAN 22, 1996 1:32 AM PASS

0.10 GAL/HR RESULTS:

JAN 23, 1996 11:59 PM PASS

NO-VENT TEST ABORTS:

3 OUT OF 10 TESTS

<ETX>

(Added in V19)

(Added in V19)

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 373:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i373QQYYMDDHHmmQQyyymmddhhmmrrTTPPPMMMMNNYYMDDHHmmRRtt...
 nnYYMDDHHmmRRtt...
 QQyyymmddhhmmrrTTPPPMMMMNNYYMDDHHmmRRtt...
 nnYYMDDHHmmRRtt&&CCCC<ETX>
```

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. yyymmddhhmm - Last 3.00 gal/hr test time
4. rr - 3.00 gal/hr test result (Hex)
5. TT - 3.00 gal/hr test type (unused, always 00)
6. PPPP - Number of 3.00 gal/hr tests passed in previous 24 hours (Hex)
7. MMMM - Number of 3.00 gal/hr tests passed since midnight (Hex)
8. NN - Number of 0.10 gal/hr test results (14 character groups) to follow (Hex)
9. YYMDDHHmm - Date and time of 0.10 gal/hr test
10. RR - Test result  
01=PASS  
02=FAIL
11. tt - 0.10 gal/hr test type (unused, always 00)
12. nn - Number of 0.20 gal/hr test results (14 character groups) to follow (Hex)
13. YYMDDHHmm - Date and time of 0.20 gal/hr test
14. RR - Test result  
01=PASS  
02=FAIL
15. tt - 0.20 gal/hr test type (unused, always 00)
16. && - Data Termination Flag
17. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 374**

Version 14

**Function Type:** Pressure Line Leak Test History (with 0.20 test data)

**Command Format:**

**Display:** <SOH>I374QQ

**Computer:** <SOH>i374QQ

### Typical Response Message, Display Format:

<SOH>  
I374QQ  
JAN 24, 1996 2:52 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

PRESSURE LINE LEAK TEST HISTORY

Q 1:REGULAR UNLEADED

LAST 3.0 PASS: JAN 24, 1996 2:49 PM

FIRST 0.10 PASS EACH MONTH: JAN 16, 1996 12:38 AM

FIRST 0.20 PASS EACH MONTH: JAN 14, 1996 10:21 PM

<ETX>

### Typical Response Message, Computer Format:

<SOH>i374QQYYMDDHHmmQQyymmddhhmmTTNNYYMDDHHmmttnnYYMDDHHmmtt...  
QQyymmddhhmmTTNNYYMDDHHmmttnnYYMDDHHmmtt&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. yymmddhhmm - Last 3.00 gal/hr test pass time ("0000000000" if no test yet)
4. TT - 3.00 gal/hr test type (unused, always 00)
5. NN - Number of 0.10 gal/hr test results (12 character groups) to follow (Hex)
6. YYMDDHHmm - Date and time of 0.10 gal/hr test
7. tt - 0.10 gal/hr test type (unused, always 00)
8. nn - Number of 0.20 gal/hr test results (12 character groups) to follow (Hex)
9. YYMDDHHmm - Date and time of 0.20 gal/hr test
10. tt - 0.20 gal/hr test type (unused, always 00)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 381**  
**Function Type:** Pressure Line Leak Status

Version 7

**Command Format:**  
**Display:** <SOH>I381QQ  
**Computer:** <SOH>i381QQ

### Typical Response Message, Display Format:

```
<SOH>
I381QQ
JAN 24, 1996 2:52 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

PRESSURE LINE LEAK STATUS

LINE DISPENSING TEST STATUS PUMP HANDLE
Q 1:REGULAR UNLEADED ENABLED TESTING 0.10 GAL/HR OFF OFF

ACTIVE ALARMS:
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i381QQYYMMDDHHmmQQSSSttNNaaaa...
 QQSSSttNNaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. SSSS - Status Bits:
  - Bit 1 - (LSB) Dispensing enabled flag  
(0=Disabled, 1=Enabled)
  - Bit 2 - Pump power  
(0=Pump Off, 1=Pump On)
  - Bit 3 - Dispenser Handle  
(0=Handle Off, 1=Handle On)
  - Bit 4-16 - Unused
4. tt - Test status
  - 00=test complete
  - 01=dispensing
  - 02=testing at 3.00 gal/hr
  - 03=testing at 0.10 gal/hr
  - 04=test aborted
  - 05=running pump (manual test starting)
  - 06=line lockout
  - 07=disable alarm
  - 08=test pending
  - 09=test delay
  - 0A=pressure check
  - 0B=testing at 0.20 gal/hr

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 381 Notes: (Continued)

- 5.           NN - number of active alarms to follow (Hex)
- 6.           aaaa - type of alarm:
  - 0001=PLLD Setup Data Warning
  - 0002=PLLD Gross Test Fail Alarm
  - 0003=PLLD Annual Test Fail Alarm
  - 0004=PLLD Periodic Test Needed Warning
  - 0005=PLLD Periodic Test Needed Alarm
  - 0006=PLLD Sensor Open Alarm
  - 0007=PLLD High Pressure Alarm (Obsolete V19)
  - 0008=PLLD Shutdown Alarm
  - 0009=PLLD High Pressure Warning (Obsolete V19)
  - 000A=PLLD Continuous Handle On Warning (Obsolete V19)
  - 000B=PLLD Periodic Test Fail Alarm
  - 000C=PLLD Annual Test Needed Warning
  - 000D=PLLD Annual Test Needed Alarm
  - 000E=PLLD Low Pressure Alarm
  - 000F=PLLD Sensor Short Alarm (Obsolete V19)
  - 0010=PLLD Continuous Handle On Alarm
  - 0011=PLLD Fuel Out Alarm
  - 0012=PLLD Line Equipment Alarm
- 7.           && - Data Termination Flag
- 8.           CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 382**

Version 7

**Function Type:** Pressure Line Leak Alarm History Report

**Command Format:**

**Display:** <SOH>I382QQ

**Computer:** <SOH>i382QQ

### Typical Response Message, Display Format:

<SOH>  
I382QQ  
JAN 24, 1996 2:52 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

PRESSURE LINE LEAK ALARM HISTORY REPORT

Q 1:REGULAR UNLEADED  
GROSS LINE FAIL JAN 9, 1995 6:12 AM  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i382QQYYMMDDHHmmQQNNyymmddhhmmaaaa...  
QQNNyymmddhhmmaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. NN - number of alarms to follow (Hex)
4. yymmddhhmm - Date and time that the alarm occurred
5. aaaa - type of alarm:
  - 0001=PLLD Setup Data Warning
  - 0002=PLLD Gross Test Fail Alarm
  - 0003=PLLD Annual Test Fail Alarm
  - 0004=PLLD Periodic Test Needed Warning
  - 0005=PLLD Periodic Test Needed Alarm
  - 0006=PLLD Sensor Open Alarm
  - 0007=PLLD High Pressure Alarm (Obsolete V19)
  - 0008=PLLD Shutdown Alarm
  - 0009=PLLD High Pressure Warning (Obsolete V19)
  - 000A=PLLD Continuous Handle On Warning (Obsolete V19)
  - 000B=PLLD Periodic Test Fail Alarm
  - 000C=PLLD Annual Test Needed Warning
  - 000D=PLLD Annual Test Needed Alarm
  - 000E=PLLD Low Pressure Alarm
  - 000F=PLLD Sensor Short Alarm (Obsolete V19)
  - 0010=PLLD Continuous Handle On Alarm
  - 0011=PLLD Fuel Out Alarm
  - 0012=PLLD Line Equipment Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 383 Version 7  
**Function Type:** Pressure Line Leak Test Results (0.10 test data only)

**Command Format:**  
**Display:** <SOH>I383QQ  
**Computer:** <SOH>i383QQ

**Notes:**

1. In Version 12, this command's response is inadvertently identical to I373QQ. In Versions 7-11, 14, and higher, the response is accurately defined here.

**Typical Response Message, Display Format:**

```
<SOH>
I383QQ
JAN 24, 1996 2:52 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

PRESSURE LINE LEAK TEST RESULTS

Q 1:REGULAR UNLEADED

 3.0 GAL/HR RESULTS:

LAST TEST:
JAN 24, 1996 2:49 PM PASS

NUMBER OF TESTS PASSED
 PREV 24 HOURS : 149
 SINCE MIDNIGHT : 76

0.10 GAL/HR RESULTS:

JAN 23, 1996 11:59 PM PASS
<ETX>
```

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code 383 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i383QQYYMDDHHmmQQyyymmddhhmmrrTTPPPMMMMNNYYMDDHHmmRRtt...
QQyyymmddhhmmrrTTPPPMMMMNNYYMDDHHmmRRtt&&CCCC<ETX>
```

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. yyymmddhhmm - Last 3.00 gal/hr test time
4. rr - 3.00 gal/hr test result (Hex)
5. TT - 3.00 gal/hr test type (unused, always 00)
6. PPPP - Number of 3.00 gal/hr tests passed in previous 24 hours (Hex)
7. MMMM - Number of 3.00 gal/hr tests passed since midnight (Hex)
8. NN - Number of 0.10 gal/hr test results (14 character groups) to follow (Hex)
9. YYMDDHHmm - Date and time of 0.10 gal/hr test
10. RR - Test result  
01=PASS  
02=FAIL
11. tt - 0.10 gal/hr test type (unused, always 00)
12. && - Data Termination Flag
13. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 384**

Version 7

**Function Type:** Pressure Line Leak Test History (0.10 test data only)

**Command Format:**

**Display:** <SOH>I384QQ

**Computer:** <SOH>i384QQ

**Notes:**

1. In Version 12, this command's response is inadvertently identical to I374QQ. In Versions 7-11, 14, and higher, the response is accurately defined here.

**Typical Response Message, Display Format:**

```
<SOH>
I384QQ
JAN 24, 1996 2:52 PM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

PRESSURE LINE LEAK TEST HISTORY

Q 1:REGULAR UNLEADED

LAST 3.0 PASS: JAN 24, 1996 2:49 PM

FIRST 0.10 PASS EACH MONTH: JAN 16, 1996 12:38 AM

<ETX>

**Typical Response Message, Computer Format:**

```
<SOH>i384QQYYMMDDHHmmQQyyymmddhhmmTTNNYYMMDDHHmmtt...
QQyyymmddhhmmTTNNYYMMDDHHmmtt&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. yyymmddhhmm - Last 3.00 gal/hr test pass time ("0000000000" if no test yet)
4. TT - 3.00 gal/hr test type (unused, always 00)
5. NN - Number of 0.10 gal/hr test results (12 character groups) to follow (Hex)
6. YYMMDDHHmm - Date and time of 0.10 gal/hr test
7. tt - 0.10 gal/hr test type (unused, always 00)
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 386**  
**Function Type:** WPLLD Line Leak Status

Version 10

**Command Format:**  
**Display:** <SOH>I386WW  
**Computer:** <SOH>i386WW

### Typical Response Message, Display Format:

```
<SOH>
I386WW
JAN 24, 1996 2:52 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

WPLLD LINE LEAK STATUS

LINE DISPENSING TEST STATUS PUMP HANDLE
W 1:REGULAR UNLEADED ENABLED TESTING 0.20 GAL/HR OFF OFF

ACTIVE ALARMS:
 PLLD PERIODIC WARN
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i386WWYYMMDDHHmmWWSSSttNNaaaa...
 WWSSSttNNaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. SSSS - Status Bits:
  - Bit 1 - (LSB) Dispensing enabled flag  
(0=Disabled, 1=Enabled)
  - Bit 2 - Pump power  
(0=Pump Off, 1=Pump On)
  - Bit 3 - Dispenser Handle  
(0=Handle Off, 1=Handle On)
  - Bit 4-16 - Unused
4. tt - Test status
  - 00=test complete
  - 01=dispensing
  - 02=testing at 3.00 gal/hr
  - 03=testing at 0.20 gal/hr
  - 04=test aborted
  - 05=line lockout
  - 06=disable alarm
  - 07=test pending
  - 08=test delay
  - 09=testing at 0.10 gal/hr

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 386 Notes: (Continued)

- 5. NN - number of active alarms to follow (Hex)
- 6. aaaa - type of alarm:
  - 0001=WPLLD Setup Data Warning
  - 0002=WPLLD Gross Test Fail Alarm
  - 0003=WPLLD Periodic Test Fail Alarm
  - 0004=WPLLD Periodic Test Needed Warning
  - 0005=WPLLD Periodic Test Needed Alarm
  - 0006=WPLLD Sensor Open Alarm
  - 0007=WPLLD Communications Alarm
  - 0008=WPLLD Shutdown Alarm
  - 0009=WPLLD Continuous Handle On Warning (Obsolete V19)
  - 000A=WPLLD Annual Test Fail Alarm
  - 000B=WPLLD Annual Test Needed Warning
  - 000C=WPLLD Annual Test Needed Alarm
  - 000D=WPLLD High Pressure Warning (Obsolete V19)
  - 000E=WPLLD High Pressure Alarm (Obsolete V19)
  - 000F=WPLLD Sensor Short Alarm (Obsolete V19)
  - 0010=WPLLD Continuous Handle On Alarm
  - 0011=WPLLD Fuel Out Alarm
  - 0012=WPLLD Line Equipment Alarm
- 7. && - Data Termination Flag
- 8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 387**

Version 10

**Function Type:** WPLLD Line Leak Alarm History Report

**Command Format:**

**Display:** <SOH>I387WW

**Computer:** <SOH>i387WW

### Typical Response Message, Display Format:

<SOH>  
I387WW  
JAN 24, 1996 2:52 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

WPLLD LINE LEAK ALARM HISTORY REPORT

W 1:REGULAR UNLEADED  
GROSS LINE FAIL JAN 9, 1995 6:12 AM  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i387WWYYMMDDHHmmWWNNyymmddhhmmaaaa...  
WWNNyymmddhhmmaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. NN - number of alarms to follow (Hex)
4. yymmddhhmm - Date and time that the alarm occurred
5. aaaa - type of alarm:
  - 0001=WPLLD Setup Data Warning
  - 0002=WPLLD Gross Test Fail Alarm
  - 0003=WPLLD Periodic Test Fail Alarm
  - 0004=WPLLD Periodic Test Needed Warning
  - 0005=WPLLD Periodic Test Needed Alarm
  - 0006=WPLLD Sensor Open Alarm
  - 0007=WPLLD Communications Alarm
  - 0008=WPLLD Shutdown Alarm
  - 0009=WPLLD Continuous Handle On Warning (Obsolete V19)
  - 000A=WPLLD Annual Test Fail Alarm
  - 000B=WPLLD Annual Test Needed Warning
  - 000C=WPLLD Annual Test Needed Alarm
  - 000D=WPLLD High Pressure Warning (Obsolete V19)
  - 000E=WPLLD High Pressure Alarm (Obsolete V19)
  - 000F=WPLLD Sensor Short Alarm (Obsolete V19)
  - 0010=WPLLD Continuous Handle On Alarm
  - 0011=WPLLD Fuel Out Alarm
  - 0012=WPLLD Line Equipment Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 388**

Version 10

**Function Type:** WPLLD Line Leak Test Results

**Command Format:**

**Display:** <SOH>I388WW

**Computer:** <SOH>i388WW

### Typical Response Message, Display Format:

<SOH>  
I388WW  
JAN 24, 1996 2:52 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

WPLLD LINE LEAK TEST RESULTS

W 1:REGULAR UNLEADED

3.0 GAL/HR RESULTS:

LAST TEST:  
JAN 24, 1996 2:12 PM PASS

NUMBER OF TESTS PASSED  
PREV 24 HOURS : 75  
SINCE MIDNIGHT : 39

0.20 GAL/HR RESULTS:

JAN 23, 1996 10:59 PM PASS

0.10 GAL/HR RESULTS:

JAN 21, 1996 3:27 AM PASS

NO-VENT TEST ABORTS:  
3 OUT OF 10 TESTS

(Added in V19)  
(Added in V19)

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 388** (Continued)

### Typical Response Message, Computer Format:

```
<SOH>i388WWYYMDDHHmmWWyymddhhmmrrTTPPPMMMMNNYYMDDHHmmRRtt...
 nnYYMDDHHmmRRtt...
 WWyymddhhmmrrTTPPPMMMMNNYYMDDHHmmRRtt...
 nnYYMDDHHmmRRtt&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. yymddhhmm - Last 3.00 gal/hr test time
4. rr - 3.00 gal/hr test result (Hex)
5. TT - 3.00 gal/hr test type (unused, always 00)
6. PPPP - Number of 3.00 gal/hr tests passed in previous 24 hours (Hex)
7. MMMM - Number of 3.00 gal/hr tests passed since midnight (Hex)
8. NN - Number of 0.20 gal/hr test results (14 character groups) to follow (Hex)
9. YYMDDHHmm - Date and time of test
10. RR - Test result  
01=PASS  
02=FAIL
11. tt - Test type (unused, always 00)
12. nn - Number of 0.10 gal/hr test results (14 character groups) to follow (Hex)
13. YYMDDHHmm - Date and time of test
14. RR - Test result  
01=PASS  
02=FAIL
15. tt - Test type (unused, always 00)
16. && - Data Termination Flag
17. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 389**

Version 12

**Function Type:** WPLLD Line Leak Test History

**Notes:**

1. While this command was implemented in Versions 10 & 11, the format shown below was not correct until Version 12. The format used in Versions 10 & 11 is shown in Command I384, except that the WPLLD tests were 0.20 GPH instead of 0.10 GPH.

**Command Format:**

**Display:** <SOH>I389WW

**Computer:** <SOH>i389WW

**Typical Response Message, Display Format:**

```
<SOH>
I389WW
JAN 24, 1996 2:52 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

WPLLD LINE LEAK TEST HISTORY

W 1:REGULAR UNLEADED

LAST 3.0 PASS: JAN 24, 1996 2:12 PM
FIRST 0.20 PASS EACH MONTH: JAN 15, 1996 11:38 PM
FIRST 0.10 PASS EACH MONTH: JAN 12, 1996 1:21 AM
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i389WWYYMMDDHHmmWWyymmddhhmmTTNNYYMMDDHHmmtt...nnYYMMDDHHmmtt...
WWyymmddhhmmTTNNYYMMDDHHmmtt...nnYYMMDDHHmmtt&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. yymmddhhmm - Last 3.00 gal/hr test pass time ("0000000000" if no test yet)
4. TT - 3.00 gal/hr test type (unused, always 00)
5. NN - Number of 0.20 gal/hr test results (12 character groups) to follow (Hex)
6. YYMMDDHHmm - Date and time of 0.20 gal/hr test
7. tt - 0.20 gal/hr test type (unused, always 00)
8. nn - Number of 0.10 gal/hr test results (12 character groups) to follow (Hex)
9. YYMMDDHHmm - Date and time of 0.10 gal/hr test
10. tt - 0.10 gal/hr test type (unused, always 00)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.2.5 MISCELLANEOUS REPORTS

**Function Code:** 391  
**Function Type:** Tanker Load Report

Version 10

**Command Format:**  
**Display:** <SOH>I391TT  
**Computer:** <SOH>i391TT

#### Typical Response Message, Display Format:

```
<SOH>
I391TT
JAN 9, 1995 10:02 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

TANK 1 REGULAR UNLEADED

NO START DATE/TIME VOLUME TEMP END DATE/TIME VOLUME TEMP TOTAL
 4 YY/MM/DD HH:mm GGGGGG TT.T YY/MM/DD HH:mm GGGGGG TT.T GGGGGG
 3 YY/MM/DD HH:mm GGGGGG TT.T YY/MM/DD HH:mm GGGGGG TT.T GGGGGG
 2 YY/MM/DD HH:mm GGGGGG TT.T YY/MM/DD HH:mm GGGGGG TT.T GGGGGG
 1 YY/MM/DD HH:mm GGGGGG TT.T YY/MM/DD HH:mm GGGGGG TT.T GGGGGG
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i391TTYMMDDHHmmTTLLSSNNYYMMDDHHmmaaaaaaaabbbbbbbb
 YYMMDDHHmmccccccccddddddeeeeeee...
 TTLLSSNNYYMMDDHHmmaaaaaaaabbbbbbbb
 YYMMDDHHmmccccccccddddddeeeeeee&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. LL - Total Loads for tank (Decimal, no data to follow if 00)
4. SS - Load Sequence Number (Decimal)
5. NN - Number of data items to follow (Hex)
6. YYMMDDHHmm - Starting Date/Time
7. aaaaaaaa - Starting Volume (ASCII Hex IEEE float)
8. bbbbbbbb - Starting Temperature (ASCII Hex IEEE float)
9. YYMMDDHHmm - Ending Date/Time
10. cccccccc - Ending Volume (ASCII Hex IEEE float)
11. dddddddd - Ending Temperature (ASCII Hex IEEE float)
12. eeeeeeee - Total (start volume - end volume) (ASCII Hex IEEE float)
13. && - Data Termination Flag
14. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 392**  
**Function Type:** Tanker Load Report II

Version 26

**Command Format:**  
**Display:** <SOH>I392TT  
**Computer:** <SOH>i392TT

### Typical Response Message, Display Format:

<SOH>  
I392TT  
JAN 9, 1995 10:02 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

TANK 1 REGULAR UNLEADED

| NO | DATE/TIME             | VOLUME | TEMP | TC | VOLUME |
|----|-----------------------|--------|------|----|--------|
| 4  | START: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |
|    | END: YY/MM/DD HH:mm   | GGGGGG | TT.T |    | GGGGGG |
|    | TOTAL:                | GGGGGG |      |    | GGGGGG |
| 3  | START: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |
|    | END: YY/MM/DD HH:mm   | GGGGGG | TT.T |    | GGGGGG |
|    | TOTAL: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |
| 2  | START: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |
|    | END: YY/MM/DD HH:mm   | GGGGGG | TT.T |    | GGGGGG |
|    | TOTAL: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |
| 1  | START: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |
|    | END: YY/MM/DD HH:mm   | GGGGGG | TT.T |    | GGGGGG |
|    | TOTAL: YY/MM/DD HH:mm | GGGGGG | TT.T |    | GGGGGG |

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 392 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i392TTYMMDDHHmmTTLLSSNNYYMMDDHHmmYYMMDDHHmmnnaaaaaaaaabbbbbbbcccccccc
 ddddddddeeeeeeeeeeffffffffgggggggghhhhhhhh...
 TTLLSSNNYYMMDDHHmmYYMMDDHHmmnnaaaaaaaaabbbbbbbcccccccc
 ddddddddeeeeeeeeeeffffffffgggggggghhhhhhhh&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. LL - Total Loads for tank (Decimal, no data to follow if 00)
4. SS - Load Sequence Number (Decimal)
5. NN - Number of 10 byte Date/Times to follow (Hex)
6. YYMMDDHHmm - Starting Date/Time
7. YYMMDDHHmm - Ending Date/Time
8. nn - Number of 8 byte data items to follow (Hex)
9. aaaaaaaaa - Starting Volume (ASCII Hex IEEE float)
10. bbbbbbbb - Starting Temperature (ASCII Hex IEEE float)
11. cccccccc - Ending Volume (ASCII Hex IEEE float)
12. dddddddd - Ending Temperature (ASCII Hex IEEE float)
13. eeeeeeee - Total Volume (start volume - end volume) (ASCII Hex IEEE float)
14. ffffffff - Starting TC Volume (ASCII Hex IEEE float)
15. gggggggg - Ending TC Volume (ASCII Hex IEEE float)
16. hhhhhhhh - Total TC Volume (start TC volume - end TC volume) (ASCII Hex IEEE float)
17. && - Data Termination Flag
18. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.2.6 I/O DEVICE REPORTS

**Function Code:** 401  
**Function Type:** Input Status Report

Version 1

**Command Format:**  
**Display:** <SOH>I401II  
**Computer:** <SOH>i401II

#### Typical Response Message, Display Format:

```
<SOH>
I401II
MAR 27, 1996 5:44 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

INPUT LOCATION STATUS
 1 * EXTERNAL INPUT 1 * OFF
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i401IIYYMDDHHmmIIsssss...
 IIsssss&&CCCC<ETX>
```

#### Notes:

1. YYMDDHHmm - Current Date and Time
2. II - Input Number (Decimal, 00=all)
3. ssss - Input Status:
  - 0001=Input Setup Data Warning
  - 0002=Input Normal
  - 0003=Input Alarm
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 402**

**Function Type:** Input Alarm History Report

Version 1

**Command Format:**

**Display:** <SOH>I402II

**Computer:** <SOH>i402II

### Typical Response Message, Display Format:

```
<SOH>
I402II
MAR 27, 1996 5:45 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

INPUT LOCATION
 1 * EXTERNAL INPUT 1 *
 JAN 15, 1996 8:04 AM SETUP DATA WARNING
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i402IIYYMDDHHmmIINYYMDDHHmmaaaa...
 IINYYMDDHHmmaaaa&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. II - Input Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow (Hex)
4. YYMDDHHmm - Date and Time of alarm
5. aaaa - Alarm type number:
  - 0001=Input Setup Data Warning
  - 0002=Input Normal
  - 0003=Input Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 403**

Version 5

**Function Type:** Input/Generator Alarm History Report  
(Setup parameters determine whether an input is from a generator.)

**Command Format:**

**Display:** <SOH>I403II

**Computer:** <SOH>i403II

### Typical Response Message, Display Format:

```
<SOH>
I403II
MAR 27, 1996 5:47 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

INPUT / GENERATOR ALARM HISTORY REPORT

INPUT LOCATION
1 * EXTERNAL INPUT 1 *
 AUG 19, 1995 2:03 PM EXTERN INPUT ALARM
 AUG 20, 1995 6:15 AM EXTERN INPUT ALARM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i403IIYYMDDHHmmIINYYMDDHHmmaaaa...
 IINYYMDDHHmmaaaa&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. II - Input Number (Decimal, 00=all)
3. NN - Number of Alarm Incidents to follow (Hex)
4. YYMDDHHmm - Date and Time of alarm
5. aaaa - Alarm type number:
  - 0001=Input Setup Data Warning
  - 0002=Input Normal
  - 0003=Input Alarm
  - 0004=Generator Off
  - 0005=Generator On
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 404**

Version 31

**Function Type:** Input Generator Report  
(Setup parameters determine whether an input is from a generator.)

**Command Format:**

**Display:** <SOH>I404TT

**Computer:** <SOH>i404TT

### Typical Response Message, Display Format:

<SOH>  
I40400  
MAR 27, 2010 5:47 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

INPUT GENERATOR REPORT

| START          | END            | START  | END    | DURATION | CONSUMPTION |
|----------------|----------------|--------|--------|----------|-------------|
| DATE / TIME    | DATE / TIME    | LITERS | LITERS | HHH:MM   | LITERS L/HR |
| 12-20-10 12:59 | 12-20-10 19:06 | 350000 | 349745 | 0006:06  | 200 33.33   |
| 12-21-10 12:59 | 12-21-10 19:06 | 350000 | 349745 | 0006:06  | 200 33.33   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i40400YYMMDDHHmmTTNNYYMMDDHHmmYYMMDDHHmmnnFFFFFFFF...&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. NN - Number of Records to follow (Hex)
4. YYMMDDHHmm - Start Time
5. YYMMDDHHmm - End Time
6. nn - Number of 8 character data fields to follow (Hex)
7. FFFFFFFF - Alarm type number:
  - 1=Start Height
  - 2=Start Volume
  - 3=Start TC Volume
  - 4=Start Water
  - 5=Start Temperature
  - 6=End Height
  - 7=End Volume
  - 8=End TC Volume
  - 9=End Water
  - 10=End Temperature
8. && - Data Termination Flag
9. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 406**  
**Function Type:** Relay Status Report

Version 1

**Command Format:**  
**Display:** <SOH>I406RR  
**Computer:** <SOH>i406RR

### Typical Response Message, Display Format:

<SOH>  
I406RR  
MAR 27, 1996 5:47 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

| RELAY | LOCATION    | STATUS |
|-------|-------------|--------|
| 1     | * RELAY 1 * | OPEN   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i406RRYYMMDDHHmmRRssss...  
RRssss&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay Number (Decimal, 00=all)
3. ssss - Relay Status:  
0001=Relay Open  
0002=Relay Closed
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 411**  
**Function Type:** VMCI Alarm History Report

Version 28

**Command Format:**  
**Display:** <SOH>I411xx  
**Computer:** <SOH>i411xx

### Typical Response Message, Display Format:

```
<SOH>
I41100
JAN 22, 2007 3:11 PM

VMCI ALARM HISTORY REPORT

DEVICE ALARMS
 1 JAN 1, 2007 8:02 AM SETUP DATA WARNING
 JAN 20, 2007 12:00 PM DISABLED ALARM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i411xxYYMMDDHHmmxxNNYYMMDDHHmmaaaa...
 xxNNYYMMDDHHmmaaaa...&&&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. xx - VMCI Board Number (Decimal, 01-06, 00=all)
3. NN - Number of alarm Incidents to follow (ASCII Hex)
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm Type number (ASCII hex):
  - 0001 = Setup Data Warning:
  - More than 1 board installed
  - 0002 = Disabled VMCI Board
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 412**  
**Function Type:** VMC Alarm History Report

Version 28

**Command Format:**  
**Display:** <SOH>I412xx  
**Computer:** <SOH>i412xx

### Typical Response Message, Display Format:

```
<SOH>
I41200
JAN 22, 2007 3:11 PM
```

#### VMC ALARM HISTORY REPORT

| VMC | S/N    | ALARMS       |          |                     |  |
|-----|--------|--------------|----------|---------------------|--|
| 1   | 111111 | JAN 1, 2007  | 8:02 AM  | METER NOT CONNECTED |  |
|     |        | JAN 10, 2007 | 12:00 PM | FP SHUTDOWN WARNING |  |
|     |        | JAN 20, 2007 | 12:00 PM | FP SHUTDOWN ALARM   |  |
| 2   | 222222 | JAN 1, 2007  | 8:02 AM  | VMC COMM TIMEOUT    |  |

<ETX>

### Typical Response Message, Computer Format:

```
<SOH>i412xxYYMMDDHHmmxxNNYYMMDDHHmmaaaa...
 xxNNYYMMDDHHmmaaaa...&&&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. xx - VMC Controller Number (Decimal, 01-18, 00=all)
3. NN - Number of alarm Incidents to follow (ASCII Hex)
4. YYMMDDHHmm - Date and Time of Alarm
5. aaaa - Alarm Type number (ASCII hex):
  - 0001 = VMC Communication Timeout Alarm
  - 0002 = Roots meter not connected Alarm
  - 0003 = Fueling Point Shutdown Warning
  - 0004 = Fueling Point Shutdown Alarm
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3 SETUP FUNCTIONS & REPORTS

#### 7.3.1 SYSTEM SETUP

**Function Code:** 501  
**Function Type:** Set Time of day

Version 1

**Command Format:**  
**Display:** <SOH>S50100YYMMDDHHmm  
**Computer:** <SOH>s50100YYMMDDHHmm

**Inquire:**  
<SOH>I50100  
<SOH>i50100

#### Typical Response Message, Display Format:

<SOH>  
I50100  
JAN 22, 1996 3:11 PM  
  
SYSTEM DATE AND TIME  
<ETX>

#### Typical Response Message, Computer Format:

<SOH>i50100YYMMDDHHmmYYMMDDHHmm&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. YYMMDDHHmm - Year, Month, Day, Hour and Minute
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 502

Version 1

**Function Type:** Set Shift Start Time 1, 2, 3, 4

**Command Format:**

**Display:** <SOH>S502SSHmm

**Computer:** <SOH>s502SSHmm

**Inquire:**

<SOH>I502SS

<SOH>i502SS

**Notes:**

1. SS - Shift Start time (01, 02, 03, 04)

**Typical Response Message, Display Format:**

<SOH>

I50201

JAN 22, 1996 3:12 PM

SHIFT TIME 1 : DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i502SSYYMMDDHHmmHHmm&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. HHmm - Hour and Minute (EE00=Disabled)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 503**

Version 1

**Function Type:** Set Print Header Line 1, 2, 3, 4

**Command Format:**

**Display:** <SOH>S503LLaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s503LLaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I503LL

<SOH>i503LL

**Typical Response Message, Display Format:**

<SOH>

I503LL

JAN 22, 1996 3:12 PM

# 1:STATION HEADER 1....

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i503LLYYMMDDHHmmaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. LL - Header line number 1, 2, 3, 4
3. a - Header Line (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 504**

**Function Type:** Set System RS-232 Security Code

Version 1

**Command Format:**

**Display:** <SOH>S50400aaaaaa

**Computer:** <SOH>s50400aaaaaa

**Inquire:**

<SOH>I50400

<SOH>i50400

**Typical Response Message, Display Format:**

<SOH>  
I50400  
JAN 22, 1996 3:12 PM

SYSTEM SECURITY CODE  
CODE : 000000  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50400YYMMDDHHmmaaaaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. aaaaaa - Security Code (6 ASCII characters [20h-7Eh])
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 505**

**Function Type:** Set System Type & Language Flags

Version 1

**Command Format:**

**Display:** <SOH>S50500UL

**Computer:** <SOH>s50500UL

**Inquire:**

<SOH>I50500

<SOH>i50500

### Typical Response Message, Display Format:

```
<SOH>
I50500
JAN 22, 1996 3:12 PM

SYSTEM TYPE AND LANGUAGE FLAG

SYSTEM UNITS
U.S
SYSTEM LANGUAGE
ENGLISH
SYSTEM DATE/TIME FORMAT
MON DD YYYY HH:MM:SS xM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i50500YYMMDDHHmmUL&&CCCC<ETX>
```

### Notes:

1. For all languages beyond Finnish (L=9), use command S51700.
2. YYMMDDHHmm - Current Date and Time
3. U - System Units:
  - 1=U.S
  - 2=Metric
  - 3=Imperial Gallons
4. L - System Language:
  - 1=English
  - 2=French
  - 3=Spanish
  - 4=German
  - 5=Portuguese
  - 6=Polish
  - 7=Swedish
  - 8=Japanese
  - 9=Finnish
5. && - Data Termination Flag
6. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 506**

**Function Type:** Set Periodic Test Needed Warning

Version 2

**Command Format:**

**Display:** <SOH>S50600f

**Computer:** <SOH>s50600f

**Inquire:**

<SOH>I50600

<SOH>i50600

**Typical Response Message, Display Format:**

<SOH>

I50600

JAN 22, 1996 3:12 PM

PERIODIC TEST WARNINGS: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50600YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Periodic Test Needed Warnings Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 507**

**Function Type:** Set Days Before Periodic Test Needed Warning

Version 4

**Command Format:**

**Display:** <SOH>S50700dd

**Computer:** <SOH>s50700dd

**Inquire:**

<SOH>I50700

<SOH>i50700

**Typical Response Message, Display Format:**

<SOH>

I50700

JAN 22, 1996 3:12 PM

PERIODIC TEST WARNING: DAYS= 25

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50700YYMMDDHHmmdd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. dd - Days Before Periodic Test Needed Warning
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 508**

**Function Type:** Set Days Before Periodic Test Needed Alarm

Version 4

**Command Format:**

**Display:** <SOH>S50800dd

**Computer:** <SOH>s50800dd

**Inquire:**

<SOH>I50800

<SOH>i50800

**Typical Response Message, Display Format:**

<SOH>

I50800

JAN 22, 1996 3:12 PM

PERIODIC TEST ALARM: DAYS= 30

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50800YYMMDDHHmmdd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. dd - Days Before Periodic Test Needed Alarm
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 509**

**Function Type:** Set Annual Test Needed Warning

Version 4

**Command Format:**

**Display:** <SOH>S50900f

**Computer:** <SOH>s50900f

**Inquire:**

<SOH>I50900

<SOH>i50900

**Typical Response Message, Display Format:**

<SOH>

I50900

JAN 22, 1996 3:12 PM

ANNUAL TEST WARNINGS: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50900YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Annual Test Needed Warnings Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 50A**

**Function Type:** Set Days Before Annual Test Needed Warning

Version 4

**Command Format:**

**Display:** <SOH>S50A00ddd

**Computer:** <SOH>s50A00ddd

**Inquire:**

<SOH>I50A00

<SOH>i50A00

**Typical Response Message, Display Format:**

<SOH>

I50A00

JAN 22, 1996 3:12 PM

ANNUAL TEST WARNING: DAYS=355

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50A00YYMMDDHHmddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ddd - Days Before Annual Test Needed Warning
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 50B**

**Function Type:** Set Days Before Annual Test Needed Alarm

Version 4

**Command Format:**

**Display:** <SOH>S50B00ddd

**Computer:** <SOH>s50B00ddd

**Inquire:**

<SOH>I50B00

<SOH>i50B00

**Typical Response Message, Display Format:**

<SOH>

I50B00

JAN 22, 1996 3:12 PM

ANNUAL TEST ALARM: DAYS=365

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50B00YYMMDDHHmmddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ddd - Days Before Annual Test Needed Alarm
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 50C

**Function Type:** Set Remote Printer Page Eject Flag

Version 5

**Command Format:**

**Display:** <SOH>S50C00f

**Computer:** <SOH>s50C00f

**Inquire:**

<SOH>I50C00

<SOH>i50C00

**Typical Response Message, Display Format:**

<SOH>  
I50C00  
JAN 22, 1996 3:13 PM

REMOTE PRINTER  
DISABLED  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50C00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Page Eject Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 50D

**Function Type:** Set Print Temperature Compensation Flag

Version 8

**Command Format:**

**Display:** <SOH>S50D00f

**Computer:** <SOH>s50D00f

**Inquire:**

<SOH>I50D00

<SOH>i50D00

**Typical Response Message, Display Format:**

<SOH>  
I50D00  
JAN 22, 1996 3:13 PM

PRINT TC VOLUMES  
ENABLED  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50D00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Print Temperature Compensation Flag  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 50E**

Version 8

**Function Type:** Set Temperature Compensation Value

**Command Format:**

**Display:** <SOH>S50E00DDD.hh

**Computer:** <SOH>s50E00FFFFFFFF

**Inquire:**

<SOH>i50E00

<SOH>i50E00

**Notes:**

1. DDD.hh - Compensation Temperature, Degrees and hundredths (Decimal)
2. FFFFFFFF - Compensation Temperature, Degrees (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
i50E00
JAN 22, 1996 3:13 PM

TEMP COMPENSATION
VALUE (DEG F): 60.0
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i50E00YYMMDDHHmmFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. FFFFFFFF - Compensation Temperature, Degrees (ASCII Hex IEEE float)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 50F**

**Function Type:** Set System Date/Time Display Format

Version 10

**Command Format:**

**Display:** <SOH>S50F00xx

**Computer:** <SOH>s50F00xx

**Inquire:**

<SOH>I50F00

<SOH>i50F00

**Typical Response Message, Display Format:**

<SOH>

I50F00

JAN 22, 1996 3:13 PM

MON DD YYYY HH:MM:SS xM

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i50F00YYMMDDHHMMxx&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. xx - Display format for DATE/TIME code
  - 01 - MON DD, YYYY HH:MM:SS xM (12 Hour Clock)
  - 02 - MON DD YYYY HH:MM:SS (24 Hour Clock)
  - 03 - MM-DD-YY HH:MM:SS xM (12 Hour Clock)
  - 04 - MM-DD-YY HH:MM:SS (24 Hour Clock)
  - 05 - DD-MM-YY HH:MM:SS (24 Hour Clock)
  - 06 - YY-MM-DD HH:MM:SS (24 Hour Clock)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 511**

**Function Type:** Set BIR Shift Printouts Flag

Version 110

**Command Format:**

**Display:** <SOH>S51100f

**Computer:** <SOH>s51100f

**Inquire:**

<SOH>I51100

<SOH>i51100

**Typical Response Message, Display Format:**

<SOH>  
I51100  
JAN 22, 1996 3:13 PM

SHIFT BIR PRINTOUTS  
ENABLED  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51100YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Shift Printouts flag  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 512**

**Function Type:** Set BIR Daily Printouts Flag

Version 110

**Command Format:**

**Display:** <SOH>S51200f

**Computer:** <SOH>s51200f

**Inquire:**

<SOH>I51200

<SOH>i51200

#### Typical Response Message, Display Format:

<SOH>  
I51200  
JAN 22, 1996 3:13 PM

DAILY BIR PRINTOUTS  
ENABLED  
<ETX>

#### Typical Response Message, Computer Format:

<SOH>i51200YYMMDDHHmmf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Daily Printouts flag  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 513**

**Function Type:** Set Tanker Load Report Flag

Version 10

**Command Format:**

**Display:** <SOH>S51300f

**Computer:** <SOH>s51300f

**Inquire:**

<SOH>I51300

<SOH>i51300

#### Typical Response Message, Display Format:

<SOH>  
I51300  
JAN 22, 1996 3:14 PM

TANKER LOAD REPORT  
ENABLED  
<ETX>

#### Typical Response Message, Computer Format:

<SOH>i51300YYMMDDHHmmf&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Tanker Load Report Flag:  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 514**

**Function Type:** Set H-Protocol Height/Volume format

Version 10

**Command Format:**

**Display:** <SOH>S51400f

**Computer:** <SOH>s51400f

**Inquire:**

<SOH>I51400

<SOH>i51400

### Typical Response Message, Display Format:

<SOH>

I51400

JAN 24, 1996 2:53 PM

H-PROTOCOL DATA FORMAT

HEIGHT

<ETX>

### Typical Response Message, Computer Format:

<SOH>i51400YYMMDDHHmmf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Data Format  
0=Height  
1=Volume
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 515**

**Function Type:** Set HRM - QPLD Monthly Printout

Version 110

**Command Format:**

**Display:** <SOH>S51500x

**Computer:** <SOH>s51500x

**Inquire:**

<SOH>I51500

<SOH>i51500

### Typical Response Message, Display Format:

<SOH>  
I51500  
JAN 24, 1996 2:53 PM

QPLD MONTHLY PRINTOUT  
ENABLED  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i51500YYMMDDHHmmx&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. x - QPLD Monthly Report:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 516**

**Function Type:** Set Re-direct Local Printout Flag

Version 14

**Command Format:**

**Display:** <SOH>S51600x

**Computer:** <SOH>s51600x

**Inquire:**

<SOH>I51600

<SOH>i51600

**Typical Response Message, Display Format:**

<SOH>

I51600

OCT 15, 1996 4:29 PM

RE-DIRECT LOCAL PRINTOUT

ENABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51600YYMMDDHHmmx&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. x - Re-direct Local Printout:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 517**

**Function Type:** Set System Type & Language Flags

Version 15

**Command Format:**

**Display:** <SOH>S51700ULL

**Computer:** <SOH>s51700ULL

**Inquire:**

<SOH>I51700

<SOH>i51700

### Typical Response Message, Display Format:

```
<SOH>
I51700
JUL 29, 1997 9:03 AM

SYSTEM TYPE AND LANGUAGE FLAG

SYSTEM UNITS
U.S.
SYSTEM LANGUAGE
ENGLISH
SYSTEM DATE/TIME FORMAT
MON DD YYYY HH:MM:SS xM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i51700YYMMDDHHmmULL&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. U - System Units:
  - 1=U.S.
  - 2=Metric
  - 3=Imperial Gallons
3. LL - System Language:
  - 01=English
  - 02=French
  - 03=Spanish
  - 04=German
  - 05=Portuguese
  - 06=Polish
  - 07=Swedish
  - 08=Japanese
  - 09=Finnish
  - 10=Greek
  - 11=Russian
  - 12=Turkish
  - 13=Dutch
  - 14=Italian
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 518**

**Function Type:** Set Secondary Language Code Page Output

Version 15

**Command Format:**

**Display:** <SOH>S51800PP

**Computer:** <SOH>s51800PP

**Inquire:**

<SOH>I51800

<SOH>i51800

**Typical Response Message, Display Format:**

<SOH>  
I51800  
JUL 29, 1997 9:04 AM  
ALTERNATE LANGUAGE CODE PAGE

CODE PAGE SELECTED:  
WINDOWS  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51800YYMMDDHHmmPP&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Code Page selected  
00=Windows  
01=DOS
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 519**

Version 15

**Function Type:** Set PLLD & WPLLD Duration Before Precision Retest

**Command Format:**

**Display:** <SOH>S51900DDD

**Computer:** <SOH>s51900DDD

**Inquire:**

<SOH>I51900

<SOH>i51900

**Typical Response Message, Display Format:**

<SOH>

I51900

JUL 29, 1997 9:04 AM

PRECISION TEST DURATION

HOURS: 12

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51900YYMMDDHHmmDDD&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. DDD - Retest Duration in hours (Decimal, 012-744)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 51A**

**Function Type:** Set Enable/Disable Auto Daylight Saving Time

Version 15

**Command Format:**

**Display:** <SOH>S51A00f

**Computer:** <SOH>s51A00f

**Inquire:**

<SOH>I51A00

<SOH>i51A00

**Typical Response Message, Display Format:**

<SOH>  
I51A00  
JUL 29, 1997 9:04 AM

DAYLIGHT SAVING TIME  
ENABLED ON  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51A00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Daylight Saving Time Flag  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 51B**

Version 15

**Function Type:** Set Start/End Daylight Saving Date and Time

**Command Format:**

**Display:** <SOH>S51BttMMWDHHmm

**Computer:** <SOH>s51BttMMWDHHmm

**Inquire:**

<SOH>I51Btt

<SOH>i51Btt

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. tt - Start or End Time Indicator  
01=Start Date & Time  
02=End Date & Time
3. MMWDHHmm - Date & Time  
MM=Month (01-12)  
W=Week of Month (1-6)  
D=Day of Week (1=Monday, 2=Tuesday, .. 7=Sunday)  
HH=Hour (00-23)  
mm=Minute (00-59)

**Typical Response Message, Display Format:**

<SOH>  
I51B00  
JUL 29, 1997 9:04 AM  
DAYLIGHT SAVING TIME

START DATE APR WEEK 1 SUN 2:00 AM  
END DATE OCT WEEK 4 SUN 2:00 AM  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51BttYYMMDDHHmmMMWDHHmm&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. tt - Start or End Time Indicator  
00=in computer format returns only Start Date & Time  
01=Start Date & Time  
02=End Date & Time
3. MMWDHHmm - Date & Time  
MM=Month (01-12)  
W=Week of Month (1-6)  
D=Day of Week (1=Monday, 2=Tuesday, .. 7=Sunday)  
HH=Hour (00-23)  
mm=Minute (00-59)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 51C

**Function Type:** Set Ticketed Delivery Flag Enable

Version 116

**Command Format:**

**Display:** <SOH>S51C00f

**Computer:** <SOH>s51C00f

**Inquire:**

<SOH>I51C00

<SOH>i51C00

**Typical Response Message, Display Format:**

<SOH>  
I51C00  
MAR 20, 1998 3:27 PM

TICKETED DELIVERY  
ENABLED  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51C00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Ticketed Delivery flag  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 51D

Version 116

**Function Type:** Set Ticketed Delivery Temperature Compensation Flag

**Command Format:**

**Display:** <SOH>S51D00f

**Computer:** <SOH>s51D00f

**Inquire:**

<SOH>I51D00

<SOH>i51D00

#### Typical Response Message, Display Format:

<SOH>  
I51D00  
MAR 20, 1998 3:27 PM

TICKETED DELIVERY TEMP COMPENSATION  
STANDARD  
<ETX>

#### Typical Response Message, Computer Format:

<SOH>i51D00YYMMDDHHmmf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Ticketed Delivery Temperature Compensation flag  
0=Standard  
1=Temperature compensated
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 51E**

**Function Type:** Set Ticketed Delivery Close Day of Week

Version 116

**Command Format:**

**Display:** <SOH>S51E00D

**Computer:** <SOH>s51E00D

**Inquire:**

<SOH>I51E00

<SOH>i51E00

**Typical Response Message, Display Format:**

<SOH>  
I51E00  
MAR 20, 1998 3:28 PM

CLOSE DAY OF WEEK  
SUN  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i51E00YYMMDDHHmmD&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. D - Day of Week (1=Monday, 2=Tuesday, .. 7=Sunday)
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.2 COMMUNICATIONS SETUP

**Function Code: 520**

Version 20

**Function Type:** Set Receiver Auto Dial Type and Start Time II

**Command Format:**

**Display:** <SOH>S520RRMYMMDDHHmm<CR> (if M=1)  
 MMWDHHmm<CR> (if M=2)  
 WDHHmm<CR> (if M=3)  
 DHHmm<CR> (if M=4)  
 HHmm<CR> (if M=5)  
 (if M=6) Reserved  
 (if M=7) Reserved  
 f<CR> (if M=8)

**Inquire:**  
 <SOH>I520RR

**Computer:** <SOH>s520RRMYMMDDHHmm<CR> (if M=1)  
 MMWDHHmm<CR> (if M=2)  
 WDHHmm<CR> (if M=3)  
 DHHmm<CR> (if M=4)  
 HHmm<CR> (if M=5)  
 (if M=6) Reserved  
 (if M=7) Reserved  
 f<CR> (if M=8)

<SOH>i520RR

**Typical Response Message, Display Format:**

<SOH>  
 I520RR  
 JUN 1, 2000 8:02 AM

RECEIVER AUTO DIAL TYPE & START TIME

| RCVR | LOCATION LABEL | DIAL TYPE | START TIME |
|------|----------------|-----------|------------|
| 1    | TLS LAB R1     | DAILY     | 4:00 PM    |
| 2    | TLS LAB R2     | DAILY     | 4:30 PM    |
| 3    | FINANCE R3     | DAILY     | 5:00 PM    |
| 4    | FINANCE R4     | DAILY     | 5:30 PM    |
| 5    | TCH SUP R5     | DAILY     | 6:00 PM    |
| 6    | TCH SUP R6     | DAILY     | 6:30 PM    |
| 7    | ENG/MKT R7     | DAILY     | 7:00 PM    |
| 8    | ENG/MKT R8     | DAILY     | 7:30 PM    |

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 520:** (Continued)

**Typical Response Message, Computer Format:**

```

<SOH>i520RRYYMMDDHHmmRRNNMYMMDDHHmm... (if M=1)
MMWDHHmm... (if M=2)
WDHHmm... (if M=3)
DHHmm... (if M=4)
HHmm... (if M=5)
 (if M=6) Reserved
 (if M=7) Reserved
f... (if M=8)

RRNNMYMMDDHHmm&&CCCC<ETX> (if M=1)
MMWDHHmm&&CCCC<ETX> (if M=2)
WDHHmm&&CCCC<ETX> (if M=3)
DHHmm&&CCCC<ETX> (if M=4)
HHmm&&CCCC<ETX> (if M=5)
 (if M=6) Reserved
 (if M=7) Reserved
f&&CCCC<ETX> (if M=8)

```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal, 00=all)
3. NN - Number of Data Fields to follow (Hex)
4. M - Auto Dial Method (frequency):
  - 1=On Date
  - 2=Annually
  - 3=Monthly
  - 4=Weekly
  - 5=Daily
  - 8=BIR End (V20 - BIR only)
5. - If M=1 ON DATE, NNMYMMDDHHmm:
  - NN =0B - Number of characters to follow (Hex)
  - M =1 - ON DATE
  - YY =Year
  - MM =Month (01-12)
  - DD =Day
  - HHmm=Hour, Minute (EE00=Disabled)
- If M=2 ANNUALLY, NNMMWDHHmm:
  - NN =09 - Number of characters to follow (Hex)
  - M =2 - ANNUALLY
  - MM =Month (01-12)
  - W =Week Number (1-4)
  - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
  - HHmm=Hour, Minute (EE00=Disabled)

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 520 Notes: (Continued)

- If M=3 MONTHLY, NNMWDHHmm:
    - NN =07 - Number of characters to follow (Hex)
    - M =3 - MONTHLY
    - W =Week Number (1-4)
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=4 WEEKLY, NNMDHHmm:
    - NN =06 - Number of characters to follow (Hex)
    - M =4 - WEEKLY
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=5 DAILY, NNMHHmm:
    - NN =05 - Number of characters to follow (Hex)
    - M =5 - DAILY
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=8 BIR END, NNMf:
    - NN =02 - Number of characters to follow (Hex)
    - M =8 - BIR END
    - f =BIR Period End Enable Flag
      - 0=Disabled
      - 1=Auto Daily Closing
6.           && - Data Termination Flag
7.           CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 521**

**Function Type:** Set Receiver Configuration Flag

Version 2

**Command Format:**

**Display:** <SOH>S521RRf

**Computer:** <SOH>s521RRf

**Inquire:**

<SOH>I521RR

<SOH>i521RR

#### Typical Response Message, Display Format:

<SOH>

S521RR

MAR 29, 1996 6:27 PM

RECEIVER CONFIGURATION

| DEVICE | LABEL       | CONFIGURED |
|--------|-------------|------------|
| 1      | HOME OFFICE | ON         |

<ETX>

#### Typical Response Message, Computer Format:

<SOH>i521RRYYMMDDHHmmRRf...  
RRf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. f - Receiver Configuration Flag:  
0=Disabled  
1=Enabled
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 522**

**Function Type:** Set Receiver Location Label

Version 2

**Command Format:**

**Display:** <SOH>S522RRaaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s522RRaaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I522RR

<SOH>i522RR

#### Typical Response Message, Display Format:

```
<SOH>
I522RR
JAN 22, 1996 3:14 PM

RECEIVER LABEL

DEVICE LABEL
 1 aaaaaaaaaaaaaaaaaaaaaa
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i522RRYYMMDDHHmmRRaaaaaaaaaaaaaaaaaaaaaa...
 RRaaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 523**

**Function Type:** Set Receiver Telephone Number

Version 2

**Command Format:**

**Display:** <SOH>S523RRaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s523RRaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I523RR

<SOH>i523RR

### Typical Response Message, Display Format:

<SOH>

I523RR

JAN 22, 1996 3:14 PM

RECEIVER TELEPHONE NUMBER

RCVR LOCATION LABEL

1

HOME OFFICE

PHONE NUMBER

aaaaaaaaaaaaaaaaaaaaa

<ETX>

### Typical Response Message, Computer Format:

<SOH>i523RRYYMMDDHHmmRRaaaaaaaaaaaaaaaaaaaaa...

RRaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. a - Phone Number (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 524**

**Function Type:** Set Receiver Dialing Destination Type

Version 2

**Command Format:**

**Display:** <SOH>S524RRTT

**Computer:** <SOH>s524RRTT

**Inquire:**

<SOH>I524RR

<SOH>i524RR

### Typical Response Message, Display Format:

<SOH>

I524RR

JAN 22, 1996 3:15 PM

RECEIVER DIALING DESTINATION TYPE

RCVR LOCATION LABEL

FAX TYPE

1 HOME OFFICE

FACSIMILE

<ETX>

### Typical Response Message, Computer Format:

<SOH>i524RRYYMMDDHHmmRRTT...

RRTT&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. TT - Dialing Destination Type:
  - 01=Teletype
  - 02=Facsimile
  - 03=Computer
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 525**

**Function Type:** Set Receiver Port Number to Dial

Version 2

**Command Format:**

**Display:** <SOH>S525RRn

**Computer:** <SOH>s525RRn

**Inquire:**

<SOH>I525RR

<SOH>i525RR

### Typical Response Message, Display Format:

<SOH>

I525RR

JUL 29, 1997 9:05 AM

RECEIVER MODEM NUMBER TO DIAL

| RCVR | LOCATION LABEL | PORT NUMBER |
|------|----------------|-------------|
| 1    | HOME OFFICE    | 1           |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i525RRYYMMDDHHmmRRn...

RRn&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. n - Port Number (max 3, or 6 in Version 1xx)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 526**  
**Function Type:** Set Receiver Retry Number

Version 2

**Command Format:**  
**Display:** <SOH>S526RRnn  
**Computer:** <SOH>s526RRnn

**Inquire:**  
<SOH>I526RR  
<SOH>i526RR

### Typical Response Message, Display Format:

```
<SOH>
I526RR
JUL 29, 1997 9:05 AM

RECEIVER RETRY NUMBER

RCVR LOCATION LABEL RETRY NUMBER
 1 HOME OFFICE 3
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i526RRYYMMDDHHmmRRnn...
 RRnn&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. nn - Retry Number (03 through 99)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 527**

**Function Type:** Set Receiver Retry Delay Time

Version 2

**Command Format:**

**Display:** <SOH>S527RRnn

**Computer:** <SOH>s527RRnn

**Inquire:**

<SOH>I527RR

<SOH>i527RR

### Typical Response Message, Display Format:

<SOH>

I527RR

JUL 29, 1997 9:06 AM

RECEIVER RETRY DELAY TIME

RCVR LOCATION LABEL

RETRY DELAY

1 HOME OFFICE

3

<ETX>

### Typical Response Message, Computer Format:

<SOH>i527RRYYMMDDHHmmRRnn...

RRnn&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. nn - Retry Delay Time (00 to 60 minutes)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 528**

**Function Type:** Set Receiver Confirmation Report Flag

Version 2

**Command Format:**

**Display:** <SOH>S528RRf

**Computer:** <SOH>s528RRf

**Inquire:**

<SOH>I528RR

<SOH>i528RR

### Typical Response Message, Display Format:

<SOH>

I528RR

JAN 22, 1996 3:15 PM

RECEIVER CONFIRMATION REPORT FLAG

RCVR LOCATION LABEL

CONFIRMATION REPORT

1

HOME OFFICE

OFF

<ETX>

### Typical Response Message, Computer Format:

<SOH>i528RRYYMMDDHHmmRRf...

RRf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. f - Confirmation Report Flag:  
0=OFF  
1=ON
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 529**

**Function Type:** Set Fax Auto Dial Method

Version 19

**Command Format:**

**Display:** <SOH>S52900f

**Computer:** <SOH>s52900f

**Inquire:**

<SOH>I52900

<SOH>i52900

**Typical Response Message, Display Format:**

<SOH>  
I52900  
MAY 05, 1999 1:54 PM

ALL PHONES  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i52900YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Fax Auto Dial Method  
0=ALL PHONES  
1=SINGLE PHONE
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 52A**  
**Function Type:** Set Receiver Report List

Version 3

**Command Format:**  
**Display:** <SOH>S52ARRNNRRss  
**Computer:** <SOH>s52ARRNNRRss

**Inquire:**  
<SOH>I52ARR  
<SOH>i52ARR

### Typical Response Message, Display Format:

```
<SOH>
I52ARR
JUL 29, 1997 9:06 AM

RECEIVER REPORT LIST

RCVR LOCATION LABEL REPORT LIST
 1 HOME OFFICE SYSTEM STATUS
 IN-TANK STATUS
 INVENTORY
 PERIODIC DLVY VAR
 PERIODIC BOOK VAR
 DAILY VAR ANALY

<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i52ARRYYMDDHHmmRRNNrrss...
 RRNNrrss&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. NN - Total Number of Reports to Follow (Decimal)
4. rr - Report Number:
  - 01=System Status
  - 02=Priority Alarm History
  - 03=Non-Priority Alarm History
  - 05=In-Tank Status
  - 06=In-Tank Inventory
  - 07=In-Tank Delivery
  - 08=In-Tank Leak Test
  - 09=Shift Report
  - 10=PLLD Results
  - 11=WPLLD Results
  - 12=Volumetric Line Leak Status
  - 13=Periodic Row Report
  - 14=Fuel Management Report
  - 15=CSLD Results
  - 16=Most Recent Delivery Report
  - 17=Current Periodic Delivery Variance Report (Added in V19)
  - 18=Current Periodic Book Variance Report (Added in V19)
  - 19=Daily Variance Analysis Report (Added in V19)
5. ss - Report Status
  - 01=ON
  - 00=OFF
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 52B**

Version 3

**Function Type:** Set Receiver Auto Dial Type and Start Time

**Command Format:**

**Display:** <SOH>S52BRRMYMMDDHHmm<CR> (if M=1)  
MMWDHHmm<CR> (if M=2)  
WDHHmm<CR> (if M=3)  
DHHmm<CR> (if M=4)  
HHmm<CR> (if M=5)  
**Computer:** <SOH>s52BRRMYMMDDHHmm<CR> (if M=1)  
MMWDHHmm<CR> (if M=2)  
WDHHmm<CR> (if M=3)  
DHHmm<CR> (if M=4)  
HHmm<CR> (if M=5)

**Inquire:**  
<SOH>I52BRR

<SOH>i52BRR

### Typical Response Message, Display Format:

<SOH>  
I52BRR  
JAN 22, 1996 3:15 PM

RECEIVER AUTO DIAL TYPE & START TIME

| RCVR | LOCATION LABEL | DIAL TYPE | START TIME |
|------|----------------|-----------|------------|
| 1    | HOME OFFICE    | DAILY     | 4:15 AM    |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i52BRRYYMMDDHHmmRRMYMMDDHHmm (if M=1)  
MMWDHHmm (if M=2)  
WDHHmm (if M=3)  
DHHmm (if M=4)  
HHmm (if M=5)  
RRMYMMDDHHmm&&CCCC<ETX> (if M=1)  
MMWDHHmm&&CCCC<ETX> (if M=2)  
WDHHmm&&CCCC<ETX> (if M=3)  
DHHmm&&CCCC<ETX> (if M=4)  
HHmm&&CCCC<ETX> (if M=5)

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal, 00=all)

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 52B Notes: (Continued)

3. M - Auto Dial Method:
  - 1=On Date
  - 2=Annually
  - 3=Monthly
  - 4=Weekly
  - 5=Daily
  - If M=1 ON DATE, YYMMDDHHmm:
    - YY =Year
    - MM =Month (01-12)
    - DD =Day
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=2 ANNUALLY, MMWDHHmm:
    - MM =Month (01-12)
    - W =Week Number (1-4)
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=3 MONTHLY, WDHHmm:
    - W =Week Number (1-4)
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=4 WEEKLY, DHHmm:
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=5 DAILY, HHmm:
    - HHmm=Hour, Minute (EE00=Disabled)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 52C**

**Function Type:** Set Receiver Auto Dial On Alarms

Version 3

**Command Format:**

**Display:** <SOH>S52CRRAANNTTSS

**Computer:** <SOH>s52CRRAANNTTSS

**Inquire:**

<SOH>I52CRR

<SOH>i52CRR

### Typical Response Message, Display Format:

```
<SOH>
I52CRR
JAN 22, 1996 3:15 PM

RECEIVER SETUP REPORT

D 1: HOME OFFICE
- NO ALARM ASSIGNMENTS -
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i52CRRYYMMDDHHmmRRnnAANNTTSS...
RRnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. nn - Number of Alarms to Follow (Hex)
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status (Hex):  
00=Clear  
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 52D  
**Function Type:** Autodial Alarm Status

Version 17

**Command Format:**  
**Display:** <SOH>S52DRRf  
**Computer:** <SOH>s52DRRf

**Inquire:**  
<SOH>I52DRR  
<SOH>i52DRR

### Notes:

1. RR - Receiver number (00=all)
2. f - Alarm clear flag  
1=clear; all others ignored

### Typical Response Message Display Format:

```
<SOH>
I52DRR
JAN 1, 1996 8:06 AM
```

```
RECEIVER AUTODIAL ALARM STATUS
RCVR STATUS
1 CLEAR
```

### Typical Response Message, Computer Format:

```
<SOH>i52D00YYMMDDHHmmNNf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of receiver alarm flags to follow
3. f - Alarm flags  
0=clear  
1=alarm
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 52E**

**Function Type:** Set Delay for Autodial on Alarm Clear

Version 19

**Command Format:**

**Display:** <SOH>S52ERRhh

**Computer:** <SOH>s52ERRhh

**Inquire:**

<SOH>I52ERR

<SOH>i52ERR

### Typical Response Message, Display Format:

<SOH>  
I52ERR  
JAN 28, 1996 10:09 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

RECEIVER CLEARED ALARMS REPORT DELAY PERIOD

| RCVR | LOCATION LABEL   | DELAY PERIOD |
|------|------------------|--------------|
| 1    | Main Office D- 1 | 1            |
| 2    | Finance D- 2     | 3            |
| 3    | Home Office D- 3 | 8            |
| 4    | Service D- 4     | 3            |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i52ERRYYMMDDHHmmRRhh...  
RRhh&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal, 00=All)
3. hh - Number of hours to delay autodial on clear alarm (Decimal, 01-99)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 52F**  
**Function Type:** Set Receiver Alarm Status

Version 19

**Command Format:**  
**Display:** <SOH>S52FRRAAf  
**Computer:** <SOH>s52FRRAAf

**Inquire:**  
<SOH>I52FRR  
<SOH>i52FRR

### Notes:

1. RR - Receiver number (00=all)
2. AA - Alarm Type number  
00=all  
03=Service Report Warning  
04=Alarm Clear Warning  
05=Delivery Report Warning  
06=No Dial Tone Alarm
3. f - Alarm clear flag  
0=clear; all others invalid

(Version 20)

### Typical Response Message, Display Format:

<SOH>  
I52FRR  
JAN 1, 2000 8:06 AM

RECEIVER ALARM STATUS

D 1: HOME OFFICE  
SERVICE REPORT WARN: CLEAR  
ALARM CLEAR WARN : CLEAR  
DELIVERY REPORT WRN: CLEAR  
NO DIAL TONE ALARM : CLEAR  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i52FRRYYMMDDHHmmNNRRf...  
RRf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of receiver alarm flags per receiver  
Order of alarms: Service Report Warn, Alarm Clear Warn,  
Delivery Report Warn, and No Dial Tone Alarm
3. RR - Receiver number
4. f - Alarm flags  
0=clear  
1=alarm
5. && - Data Termination Flag
6. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 530  
**Function Type:** Beeper Enable/Disable

Version 26

**Command Format:**  
**Display:** <SOH>S53000x149  
**Computer:** <SOH>s53000x149

**Inquire:**  
<SOH>I53000  
<SOH>i53000

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

```
<SOH>
I53000
JAN 22, 1996 3:12 PM
```

```
BEEPER: ENABLED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i53000YYMMDDHHmmx&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. x - Beeper Enable/Disable Flag  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 531**

**Function Type:** Set RS-232 End of Message

Version 8

**Command Format:**

**Display:** <SOH>S53100f

**Computer:** <SOH>s53100f

**Inquire:**

<SOH>I53100

<SOH>i53100

### Typical Response Message, Display Format:

<SOH>  
I53100  
JAN 22, 1996 3:16 PM

RS-232 END OF MESSAGE  
DISABLED  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i53100YYMMDDHHmmf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - End of Message flag  
0=Disable  
1=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.3 WARNING, ALARM, & AUTO-PRINT SETUP

**Function Code:** 532

**Function Type:** Set Ticketed Variance Analysis Printout Flags

Version 116

**Command Format:**

**Display:** <SOH>S53200PWD

**Computer:** <SOH>s53200PWD

**Inquire:**

<SOH>I53200

<SOH>i53200

**Typical Response Message, Display Format:**

```
<SOH>
I53200
MAR 20, 1998 3:28 PM

PERIODIC, WEEKLY AND DAILY PRINTOUTS
VARIANCE ANALYSIS

PERIODIC
DISABLED

WEEKLY
DISABLED

DAILY
ENABLED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i53200YYMMDDHHmmPWD&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. P - Periodic Printout flag  
0=Disable  
1=Enable
3. W - Weekly Printout flag  
0=Disable  
1=Enable
4. D - Daily Printout flag  
0=Disable  
1=Enable
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 533**

Version 116

**Function Type:** Set Ticketed Delivery Book Variance Printout Flags

**Command Format:**

**Display:** <SOH>S53300PWD

**Computer:** <SOH>s53300PWD

**Inquire:**

<SOH>I53300

<SOH>i53300

### Typical Response Message, Display Format:

```
<SOH>
I53300
MAR 20, 1998 3:28 PM

PERIODIC, WEEKLY AND DAILY PRINTOUTS
BOOK VARIANCE

PERIODIC
DISABLED

WEEKLY
DISABLED

DAILY
ENABLED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i53300YYMMDDHHmmPWD&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. P - Periodic Printout flag  
0=Disable  
1=Enable
3. W - Weekly Printout flag  
0=Disable  
1=Enable
4. D - Daily Printout flag  
0=Disable  
1=Enable
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 534**

**Function Type:** Set Ticketed Delivery Variance Printout Flags

Version 116

**Command Format:**

**Display:** <SOH>S53400PWD

**Computer:** <SOH>s53400PWD

**Inquire:**

<SOH>I53400

<SOH>i53400

### Typical Response Message, Display Format:

```
<SOH>
I53400
MAR 20, 1998 3:28 PM

PERIODIC, WEEKLY AND DAILY PRINTOUTS
DELIVERY VARIANCE

PERIODIC
DISABLED

WEEKLY
DISABLED

DAILY
ENABLED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i53400YYMMDDHHmmPWD&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. P - Periodic Printout flag  
0=Disable  
1=Enable
3. W - Weekly Printout flag  
0=Disable  
1=Enable
4. D - Daily Printout flag  
0=Disable  
1=Enable
5. && - Data Termination Flag
6. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 536**

Version 20

**Function Type:** Set RS-232 Security Code per Port

**Command Format:**

**Display:** <SOH>S536PPsaaaaaa

**Computer:** <SOH>s536PPsaaaaaa

**Inquire:**

<SOH>I536PP

<SOH>i536PP

### Notes:

1. PP - Port number (Decimal, 01..03 [..06]; 99=this port)
2. s - Enable or Disable Status (if disabled no password is required)
3. aaaaaa - Security code (6 ASCII characters from 20 Hex-7E Hex)

### Typical Response Message, Display Format:

```
<SOH>
I536PP
JUN 1, 2000 8:05 AM

232 SECURITY CODE

PORT SECURITY CODE STATUS
1 123456 ENABLED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i536PPYYMMDDHHmmsaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. s - disabled or enabled status
3. aaaaaa - Security code (6 ASCII characters from 20 Hex-7E Hex)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 537**

Version 20

**Function Type:** Set Display Format RS-232 ETX per Port

**Command Format:**

**Display:** <SOH>S537PPAB

**Computer:** <SOH>s537PPAB

**Inquire:**

<SOH>I537PP

<SOH>i537PP

**Notes:**

1. PP - Port number (Decimal, 01..06]; 99=this port)
2. A - ETX CHAR 1 (value 0-255)
3. B - ETX CHAR 2 (value 0-255)
4. The default end of message character transmitted by the TLS is an <ETX> (Decimal 003 or ^C). If desired, the TLS can be programmed to transmit up to two other characters at the end of each computer format response message.
5. The TLS accepts any ASCII character (000-255) in either of the two positions. However, if the first "A" character is a <NUL> (000), the TLS reverts to its default condition. If the first character "A", is not a NULL but the second character "B" is, only the first character is transmitted as the response message. If neither character is a <NUL>, both characters are transmitted, in sequence, at the end of each computer format response message.
6. This command only sets the ETX characters. To enable the use of the custom ETX, the 531 command must be used to enable the user's custom ETX.

**Typical Response Message, Display Format:**

```
<SOH>
I537PP
JUN 1, 2000 8:05 AM

DISPLAY MODE RS-232 ETX CHARATERS

PORT ETX ETX
 1 A B
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i537PPYYMMDDHHmmAB&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. A - 1st Character (value 0-255)
3. B - 2nd Character (value 0-255)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 538**

Version 20

**Function Type:** Set Computer Format RS-232 ETX per Port

**Command Format:**

**Display:** <SOH>S538PPAB

**Computer:** <SOH>s538PPAB

**Inquire:**

<SOH>I538PP

<SOH>i538PP

### Notes:

1. PP - Port number (Decimal, 01..06]; 99=this port)
2. A - ETX CHAR 1 (value 0-255)
3. B - ETX CHAR 2 (value 0-255)
4. The default end of message character transmitted by the TLS is an <ETX> (Decimal 003 or ^C). If desired, the TLS can be programmed to transmit up to two other characters at the end of each computer format response message.
5. The TLS accepts any ASCII character (000-255) in either of the two positions. However, if the first "A" character is a <NUL> (000), the TLS reverts to its default condition. If the first character "A", is not a NULL but the second character "B" is, only the first character is transmitted as the response message. If neither character is a <NUL>, both characters are transmitted, in sequence, at the end of each computer format response message.
6. This command only sets the ETX characters. To enable the use of the custom ETX, the 531 command must be used to enable the user's custom ETX.

### Typical Response Message, Display Format:

```
<SOH>
I538PP
JUN 1, 2000 8:06 AM

COMPUTER MODE RS-232 ETX CHARATERS

PORT ETX ETX
 1 C D
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i538PPYYMMDDHHmmAB&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. A - 1st Character (value 0-255)
3. B - 2nd Character (value 0-255)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 546**

**Function Type:** Set Tank Periodic Test Needed Warning

Version 15

**Command Format:**

**Display:** <SOH>S54600f

**Computer:** <SOH>s54600f

**Inquire:**

<SOH>I54600

<SOH>i54600

**Typical Response Message, Display Format:**

<SOH>

I54600

JAN 22, 1996 3:12 PM

TANK PER TEST NEEDED WRN: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54600YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Tank Periodic Test Needed Warning Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 547**

Version 15

**Function Type:** Set Days Before Tank Periodic Test Needed Warning

**Command Format:**

**Display:** <SOH>S54700dd

**Computer:** <SOH>s54700dd

**Inquire:**

<SOH>I54700

<SOH>i54700

**Typical Response Message, Display Format:**

<SOH>

I54700

JAN 22, 1996 3:12 PM

TANK PER TEST NEEDED WRN: DAYS= 25

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54700YYMMDDHHmmdd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. dd - Days Before Tank Periodic Test Needed Warn (Decimal, 00-30)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 548**

Version 15

**Function Type:** Set Days Before Tank Periodic Test Needed Alarm

**Command Format:**

**Display:** <SOH>S54800dd

**Computer:** <SOH>s54800dd

**Inquire:**

<SOH>I54800

<SOH>i54800

**Typical Response Message, Display Format:**

<SOH>

I54800

JAN 22, 1996 3:12 PM

TANK PER TEST NEEDED ALM: DAYS= 30

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54800YYMMDDHHmmdd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. dd - Days Before Tank Periodic Test Needed Alarm (Decimal, 00-30)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 549**

**Function Type:** Set Tank Annual Test Needed Warning

Version 15

**Command Format:**

**Display:** <SOH>S54900f

**Computer:** <SOH>s54900f

**Inquire:**

<SOH>I54900

<SOH>i54900

**Typical Response Message, Display Format:**

<SOH>

I54900

JAN 22, 1996 3:12 PM

TANK ANN TEST NEEDED WRN: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54900YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Annual Test Needed Warning Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 54A**

Version 15

**Function Type:** Set Days Before Tank Annual Test Needed Warning

**Command Format:**

**Display:** <SOH>S54A00ddd

**Computer:** <SOH>s54A00ddd

**Inquire:**

<SOH>I54A00

<SOH>i54A00

**Typical Response Message, Display Format:**

<SOH>

I54A00

JAN 22, 1996 3:12 PM

TANK ANN TST NEEDED WRN: DAYS=355

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54A00YYMMDDHHmddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ddd - Days Before Annual Test Needed Warning (Decimal, 000-365)
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 54B**

**Function Type:** Set Days Before Tank Annual Test Needed Alarm

Version 15

**Command Format:**

**Display:** <SOH>S54B00ddd

**Computer:** <SOH>s54B00ddd

**Inquire:**

<SOH>I54B00

<SOH>i54B00

**Typical Response Message, Display Format:**

<SOH>

I54B00

JAN 22, 1996 3:12 PM

TANK ANN TEST NEEDED ALM: DAYS=365

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54B00YYMMDDHHmddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ddd - Days Before annual Test Needed Alarm (Decimal, 000-365)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 54C**

Version 19

**Function Type:** Set CSLD Evaporation Reid Vapor Pressure Chart

**Command Format:**

**Display:** <SOH>S54C00GG.G...

**Computer:** <SOH>s54C00FFFFFFFFF...

**Inquire:**

<SOH>I54C00

<SOH>i54C00

### Notes:

1. GG.G - 12 Reid Vapor Pressures (Decimal)
2. FFFFFFFF - 12 Reid Vapor Pressures (ASCII Hex IEEE floats)
3. The command will be rejected if any value is outside the range 0.0 to 15.0, or all table values are zero.

### Typical Response Message, Display Format:

```
<SOH>
I54COO
JAN 22, 1996 3:27 PM
```

```
CSLD EVAP CONSTANTS
REID VAPOR PRESSURE:
JAN 14.0
FEB 14.0
MAR 12.0
APR 12.0
MAY 11.0
JUN 10.0
JUL 8.0
AUG 4.0
SEP 5.0
OCT 6.0
NOV 9.0
DEC 12.0
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i54C00YYMMDDHHmmNNFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of eight character Data Fields to follow (Hex)
3. FFFFFFFF - 12 Reid Vapor Pressures (ASCII Hex IEEE floats)
  1. Jan RVP
  2. Feb RVP
  3. Mar RVP
  4. Apr RVP
  5. May RVP
  6. Jun RVP
  7. Jul RVP
  8. Aug RVP
  9. Sep RVP
  10. Oct RVP
  11. Nov RVP
  12. Dec RVP
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 54D**

Version 29

**Function Type:** Set ISO3166 3 Character Country Code

**Command Format:**

**Display:** <SOH>S54D00aaa

**Computer:** <SOH>s54D00aaa

**Inquire:**

<SOH>I54D00

<SOH>i54D00

**Typical Response Message, Display Format:**

<SOH>

I54D00

APR 10, 2007 10:15 AM

ISO3166 COUNTRY CODE: ESP

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54D00YYMMDDHHmmaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. aaa - ISO3166 Country Code (3 ASCII characters [20h-7EH])
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 54E**

**Function Type:** Set Vapor Monitoring Type

Version 31

**Command Format:**

**Display:** <SOH>S54E00t

**Computer:** <SOH>s54E00t

**Inquire:**

<SOH>I54E00

<SOH>i54E00

**Notes:**

1. An ISD/APM SEM is required for this command

**Typical Response Message, Display Format:**

<SOH>

I54E00

APR 10, 2007 10:15 AM

VAPOR MONITORING TYPE: CARB ISD

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i54E00YYMMDDHHmmt&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. t - Vapor Monitoring Type  
0=CARB ISD  
1=APM
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 550**

**Function Type:** Set Inventory Alarms Units Configuration

Version 33

**Command Format:**

**Display:** <SOH>S55000C

**Computer:** <SOH>s55000C

**Inquire:**

<SOH>I55000

<SOH>i55000

### Typical Response Message, Display Format:

<SOH>  
I55000  
APR 10, 2012 10:15 AM

INVENTORY ALARMS UNITS

CONFIG: STANDARD  
MAX OR LABEL: VOLUME  
HIGH PRODUCT: % MAX  
OVERFILL : % MAX  
DELIV NEEDED: % MAX  
LOW PRODUCT : VOLUME  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i55000YYMMDDHHmmCMHODL&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. C - Inventory Alarms Units Configuration
  - 1=Standard
  - 2=% Full
  - 3=All Volume
  - 4=All Height
  - 5=Custom
3. M - Max or Label Units
4. H - High Product Units
5. O - Overfill Product Units
6. D - Delivery Needed Product Units
7. L - Low Product Units
  - 1=% Max
  - 2=% Full
  - 3=Volume
  - 4=Height
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 551**

**Function Type:** Set Inventory Alarms Custom Units

Version 33

**Command Format:**

**Display:** <SOH>S55100AU

**Computer:** <SOH>s55100AU

**Inquire:**

<SOH>I55100

<SOH>i55100

**Notes:**

1. A - Alarm Type (Decimal)  
1=Max Product  
2=High Product  
3=Overfill  
4=Delivery Needed  
5=Low Product
2. U - Units Type (Decimal)  
1=% Max  
2=% Full  
3=Volume  
4=Height
3. Alarm Type Max Product cannot be set to unit type % Max

**Typical Response Message, Display Format:**

```
<SOH>
I55100
APR 10, 2012 10:15 AM

INVENTORY ALARMS UNITS

CONFIG: CUSTOM
MAX OR LABEL: VOLUME
HIGH PRODUCT: % MAX
OVERFILL : % MAX
DELIV NEEDED: % MAX
LOW PRODUCT : VOLUME
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i55100YYMMDDHHmmCMHODL&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. C - Inventory Alarms Units Configuration  
1=Standard  
2=All % Full  
3=All Volume  
4=All Height  
5=Custom
3. M - Max Product Units
4. H - High Product Units
5. O - Overfill Product Units
6. D - Delivery Needed Product Units
7. L - Low Product Units  
1=% Max  
2=% Full  
3=Volume  
4=Height
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 553**  
**Function Type:** Set Line Re-Enable Method

Version 19

**Command Format:**  
**Display:** <SOH>S55300f  
**Computer:** <SOH>s55300f

**Inquire:**  
<SOH>I55300  
<SOH>i55300

### Typical Response Message, Display Format:

<SOH>  
I55300  
JAN 24, 2000 2:54 PM

LINE RE-ENABLE METHOD  
PASS LINE TEST  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i55300YYMMDDHHmmf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Line Re-Enable Method Flag  
0=Pass Line Test  
1=Alarm Acknowledge
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 554**

**Function Type:** Set Periodic Line Leak Test Auto-Confirm

Version 18

**Command Format:**

**Display:** <SOH>S55400f

**Computer:** <SOH>s55400f

**Inquire:**

<SOH>I55400

<SOH>i55400

**Typical Response Message, Display Format:**

<SOH>

I55400

JUL 29, 1997 9:07 AM

0.20 GPH LINE TEST AUTO-CONFIRM: ENABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55400YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Periodic Line Leak Test Auto-Confirm:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 555**

**Function Type:** Set Annual Line Leak Test Auto-Confirm

Version 18

**Command Format:**

**Display:** <SOH>S55500f

**Computer:** <SOH>s55500f

**Inquire:**

<SOH>I55500

<SOH>i55500

### Typical Response Message, Display Format:

<SOH>

I55500

JUL 29, 1997 9:07 AM

0.10 GPH LINE TEST AUTO-CONFIRM: ENABLED

<ETX>

### Typical Response Message, Computer Format:

<SOH>i55500YYMMDDHHmmf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Annual Line Leak Test Auto-Confirm:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 556**

**Function Type:** Set Line Periodic Test Needed Warning

Version 15

**Command Format:**

**Display:** <SOH>S55600f

**Computer:** <SOH>s55600f

**Inquire:**

<SOH>I55600

<SOH>i55600

**Typical Response Message, Display Format:**

<SOH>

I55600

JAN 22, 1996 3:12 PM

LINE PER TST NEEDED WRN: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55600YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Periodic Test Needed Warning Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 557**

Version 15

**Function Type:** Set Days Before Line Periodic Test Needed Warning

**Command Format:**

**Display:** <SOH>S55700dd

**Computer:** <SOH>s55700dd

**Inquire:**

<SOH>I55700

<SOH>i55700

**Typical Response Message, Display Format:**

<SOH>

I55700

JAN 22, 1996 3:12 PM

LINE PER TST NEEDED WRN: DAYS= 25

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55700YYMMDDHHmmdd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. dd - Days Before Periodic Test Needed Warning (Decimal, 00-30)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 558**

Version 15

**Function Type:** Set Days Before Line Periodic Test Needed Alarm

**Command Format:**

**Display:** <SOH>S55800dd

**Computer:** <SOH>s55800dd

**Inquire:**

<SOH>I55800

<SOH>i55800

**Typical Response Message, Display Format:**

<SOH>

I55800

JAN 22, 1996 3:12 PM

LINE PER TST NEEDED ALM: DAYS= 30

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55800YYMMDDHHmmdd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. dd - Days Before Periodic Test Needed Alarm (Decimal, 00-30)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 559**

**Function Type:** Set Line Annual Test Needed Warning

Version 15

**Command Format:**

**Display:** <SOH>S55900f

**Computer:** <SOH>s55900f

**Inquire:**

<SOH>I55900

<SOH>i55900

**Typical Response Message, Display Format:**

<SOH>

I55900

JAN 22, 1996 3:12 PM

LINE ANN TST NEEDED WRN: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55900YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Annual Test Needed Warning Flag:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 55A**

**Function Type:** Set Days Before Line Annual Test Needed Warning

Version 15

**Command Format:**

**Display:** <SOH>S55A00ddd

**Computer:** <SOH>s55A00ddd

**Inquire:**

<SOH>I55A00

<SOH>i55A00

**Typical Response Message, Display Format:**

<SOH>

I55A00

JAN 22, 1996 3:12 PM

LINE ANN TST NEEDED WRN: DAYS=355

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55A00YYMMDDHHmmddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ddd - Days Before Annual Test Needed Warning (Decimal, 000-365)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 55B**

**Function Type:** Set Days Before Line Annual Test Needed Alarm

Version 15

**Command Format:**

**Display:** <SOH>S55B00ddd

**Computer:** <SOH>s55B00ddd

**Inquire:**

<SOH>I55B00

<SOH>i55B00

**Typical Response Message, Display Format:**

<SOH>

I55B00

JAN 22, 1996 3:12 PM

LINE ANN TST NEEDED ALM: DAYS=365

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i55B00YYMMDDHHmmddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ddd - Days Before Annual Test Needed Alarm (Decimal, 000-365)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 55E**

Version 32

**Function Type:** Set Fiscal Height Security Enable/Disable

**Command Format:**

**Display:** <SOH>S55E00f

**Computer:** <SOH>s55E00f

**Inquire:**

<SOH>I55E00

<SOH>i55E00

**Notes:**

1. When the set portion of this command is sent to a TLS-350 that is fiscally sealed, Display Format returns the format shown below but Computer Format returns a question mark(?).

**Typical Response Message, Display Format:**

```
<SOH>
I55E00
APR 1, 2011 8:03 AM
```

```
FISCAL HEIGHT SECURITY: DISABLED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i55E00YYMMDDHHmmf&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Fiscal Height Security Enable/Disable Flag  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 560**

**Function Type:** Set Mass/Density Enable/Disable

Version 26

**Command Format:**

**Display:** <SOH>S56000f

**Computer:** <SOH>s56000f

**Inquire:**

<SOH>I56000

<SOH>i56000

**Typical Response Message, Display Format:**

<SOH>

I56000

JUN 22, 2001 3:15 PM

MASS/DENSITY

ENABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i56000YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Mass/Density Flag  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 564  
**Function Type:** Set Ullage

Version 27

**Command Format:**  
**Display:** <SOH>S56400f  
**Computer:** <SOH>s56400f

**Inquire:**  
<SOH>I56400  
<SOH>i56400

### Typical Response Message, Display Format:

<SOH>  
I56400  
JUN 22, 2006 3:15 PM  
  
ULLAGE: 90%  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i56400YYMMDDHHmmf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Ullage  
0=90%  
1=95%
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 565**  
**Function Type:** Set Maintenance History

Version 27

**Command Format:**  
**Display:** <SOH>S56500f  
**Computer:** <SOH>s56500f

**Inquire:**  
<SOH>I56500  
<SOH>i56500

#### Typical Response Message, Display Format:

<SOH>  
I56500  
JUN 22, 2006 3:15 PM

MAINTENANCE HISTORY  
ENABLED  
<ETX>

#### Typical Response Message, Computer Format:

<SOH>i56500YYMMDDHHmmf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Maintenance History Flag  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 566  
**Function Type:** Set Service Notice Enable

Version 28

**Command Format:**  
**Display:** <SOH>S56600149f  
**Computer:** <SOH>s56600149f

**Inquire:**  
<SOH>I56600  
<SOH>i56600

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

```
<SOH>
I56600
APR 10, 2007 10:15 AM

SERVICE NOTICE: DISABLED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i56600YYMMDDHHmmf&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Service Notice Enable  
0 = DISABLED  
1 = ENABLED
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 567**

Version 28

**Function Type:** Set Service Notice Delivery Override Enable

**Command Format:**

**Display:** <SOH>S56700149f

**Computer:** <SOH>s56700149f

**Inquire:**

<SOH>I56700

<SOH>i56700

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

<SOH>

I56700

APR 10, 2007 10:15 AM

SERVICE NOTICE DELIVERY OVERRIDE: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i56700YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Service Notice Delivery Override Enable  
0 = DISABLED  
1 = ENABLED
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 568**

Version 28

**Function Type:** Set Service Notice Session Enable

**Command Format:**

**Display:** <SOH>S56800149f

**Computer:** <SOH>s56800149f

**Inquire:**

<SOH>I56800

<SOH>i56800

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

<SOH>

I56800

APR 10, 2007 10:15 AM

SERVICE NOTICE SESSION: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i56800YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Service Notice Session Enable  
0 = DISABLED  
1 = ENABLED
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 569**

Version 28

**Function Type:** Set Service Notice Session Duration

**Command Format:**

**Display:** <SOH>S56900hh

**Computer:** <SOH>s56900hh

**Inquire:**

<SOH>I56900

<SOH>i56900

**Typical Response Message, Display Format:**

<SOH>

I56900

APR 10, 2007 10:15 AM

SERVICE NOTICE SESSION DURATION: 2 HOURS

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i56900YYMMDDHHmmhh&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. hh - Service Notice Session Duration in Hours (Decimal)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 56A**

Version 29

**Function Type:** System Tank Chart Security Code Audit Trail

**Command Format:**

**Display:** <SOH>I56A00

**Computer:** <SOH>i56A00

**Notes:**

1. Returns the date/time of the last Tank Chart Security Code modification

**Typical Response Message, Display Format:**

```
<SOH>
I56A00
APR 10, 2009 10:15 AM
```

```
TANK CHART SECURITY
DATE/TIME
MAR 30, 2008 08:00 AM
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i56A00YYMMDDHHmmymmddhhmm&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. yymmddhhmm - Date and Time of Tank Chart Security Code Modification
3. && - Data Termination Flag
4. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 581**  
**Function Type:** Set Alarm Filter

Version 33

**Command Format:**  
**Display:** <SOH>S58100f  
**Computer:** <SOH>s58100f

**Inquire:**  
<SOH>I58100  
<SOH>i58100

#### Typical Response Message, Display Format:

<SOH>  
I58100  
JUN 24, 2012 3:15 PM  
  
ALARM FILTERING FLAG: ENABLED  
<ETX>

#### Typical Response Message, Computer Format:

<SOH>i58100YYMMDDHHmmf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. f - Alarm Filter Flag  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 5BC

**Function Type:** Set Receiver Auto Dial on Alarm II

Version 19

**Command Format:**

**Display:** <SOH>S5BCRRAANNTTSS

**Computer:** <SOH>s5BCRRAANNTTSS

**Inquire:**

<SOH>I5BCRR

<SOH>i5BCRR

### Typical Response Message, Display Format:

```
<SOH>
I5BCRR
JAN 15, 1996 4:29 PM

RECEIVER SETUP REPORT

D 1: HOME OFFICE

IN-TANK ALARMS
T 1:LEAK ALARM
T 2:LEAK ALARM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i5BCRRYYMMDDHHmmRRnnAANNTTSS...
RRnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Receiver Number (Decimal)
3. nn - Number of Alarms to Follow (Hex)
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status  
00=Clear  
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum.

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 5BD

**Function Type:** Set Enable/Disable Custom Alarms

Version 23

**Command Format:**

**Display:** <SOH>S5BD00f

**Computer:** <SOH>s5BD00f

**Inquire:**

<SOH>I5BD00

<SOH>i5BD00

**Typical Response Message, Display Format:**

<SOH>  
I5BD00  
JUN 22, 2001 3:15 PM

CUSTOM ALARM LABELS  
ENABLED  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i5BD00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Custom Alarm Labels Flag  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 5BE  
**Function Type:** Set Custom Alarm Labels

Version 23

**Command Format:**  
**Display:** <SOH>S5BE00AANNfaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s5BE00AANNfaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I5BE00  
<SOH>i5BE00

### Typical Response Message, Display Format:

```
<SOH>
I5BE00
JUN 22, 2001 3:15 PM

CUSTOM ALARM LABELS

IN-TANK ALARMS
OVERFILL ALARM
(custom alarm label)
LOW PRODUCT ALARM
T 1:(custom alarm label)
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i5BE00YYMMDDHHmmnnAANNfaaaaaaaaaaaaaaaaaaaaa...
AANNfaaaaaaaaaaaaaaaaaaaaa...&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. nn - Number of Custom Alarm Labels to follow (Hex)
2. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
4. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
5. f - Custom Alarm Label Flag  
0=Disabled  
1=Enabled
6. a - Custom Alarm Label (19 ASCII characters [20h-7Eh])
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 5BF**

Version 26

**Function Type:** Set Custom Alarm Label, device number, and indications

**Command Format:**

**Display:** <SOH>S5BF00AANNTTflpbdaaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s5BF00AANNTTflpbdaaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I5BF00

<SOH>i5BF00

### Notes:

1. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
2. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
3. TT - Device (or Tank) Number (Decimal, 00=all)
4. f - Custom Alarm Flag  
0=Disabled  
1=Enabled
5. l - LCD Indication Flag  
0=Disabled  
1=Enabled
6. p - PRINTOUT Indication Flag  
0=Disabled  
1=Enabled
7. b - BEEP Indication Flag  
0=Disabled  
1=Enabled
8. d - LED Indication Flag  
0=Disabled  
1=Enabled
9. a - Custom Alarm Label (19 ASCII characters [20h-7Eh])

### Typical Response Message, Display Format:

```
<SOH>
I5BF00
JUN 22, 2001 3:15 PM

CUSTOM ALARM LABELS

IN-TANK ALARMS
OVERFILL ALARM
T 1:(custom alarm label)
LCD: ENABLED
PRINT: ENABLED
BEEP: DISABLED
LED: ENABLED
T 2:(custom alarm label)
LCD: ENABLED
PRINT: ENABLED
BEEP: DISABLED
LED: ENABLED
<ETX>
```

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code 5BF Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i5BF00YYMDDHHmmnnAANNTTlpbdaaaaaaaaaaaaaaaaaaaaa...
AANNTTlpbdaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. nn - Number of Custom Alarms to follow (Hex)
3. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
4. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
5. TT - Device (or Tank) Number (Decimal, 00=all)
6. l - LCD Indication Flag  
0=Disabled  
1=Enabled
7. p - PRINTOUT Indication Flag  
0=Disabled  
1=Enabled
8. b - BEEP Indication Flag  
0=Disabled  
1=Enabled
9. d - LED Indication Flag  
0=Disabled  
1=Enabled
10. a - Custom Alarm Label (19 ASCII characters [20h-7Eh])
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 5E2

**Function Type:** Set Inventory Record Time 1, 2, 3, 4

Version 14

**Command Format:**

**Display:** <SOH>S5E2SSHHmm

**Computer:** <SOH>s5E2SSHHmm

**Inquire:**

<SOH>I5E2SS

<SOH>i5E2SS

**Typical Response Message, Display Format:**

<SOH>  
I5E201  
JAN 22, 1996 3:12 PM  
  
RECORD 1 : 2:22 PM  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i5E2SSYYMMDDHHmmSSHHmm&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Inventory Record Time (01, 02, 03, 04)
3. HHmm - Hour and Minute (EE00=Disabled)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.4 IN-TANK SETUP

**Function Code:** 601  
**Function Type:** Set Tank Configuration

Version 1

**Command Format:**  
**Display:** <SOH>S601TTf  
**Computer:** <SOH>s601TTf

**Inquire:**  
<SOH>I601TT  
<SOH>i601TT

#### Typical Response Message, Display Format:

<SOH>  
I601TT  
JAN 22, 1996 3:16 PM

#### TANK CONFIGURATION

| DEVICE | LABEL            | CONFIGURED |
|--------|------------------|------------|
| 1      | REGULAR UNLEADED | ON         |

<ETX>

#### Typical Response Message, Computer Format:

<SOH>i601TTYMMDDHHmmTTf...  
TTf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - Tank Configuration Flag:  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 602**  
**Function Type:** Set Tank Product Label

Version 1

**Command Format:**  
**Display:** <SOH>S602TTaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s602TTaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I602TT  
<SOH>i602TT

### Typical Response Message, Display Format:

```
<SOH>
I602TT
JAN 22, 1996 3:16 PM

TANK PRODUCT LABEL

TANK PRODUCT LABEL
 1 REGULAR UNLEADED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i602TTYMMDDHHmmTTaaaaaaaaaaaaaaaaaaaaa...
 TTaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. a - Product Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 603**  
**Function Type:** Set Tank Product Code

Version 1

**Command Format:**  
**Display:** <SOH>S603TTa  
**Computer:** <SOH>s603TTa

**Inquire:**  
<SOH>I603TT  
<SOH>i603TT

### Typical Response Message, Display Format:

<SOH>  
I603TT  
JAN 22, 1996 3:16 PM

TANK PRODUCT CODE

| TANK | PRODUCT LABEL    |   |
|------|------------------|---|
| 1    | REGULAR UNLEADED | 1 |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i603TTYMMDDHHmmTTa...  
TTa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. a - Product Code (one ASCII character [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 604**

Version 1

**Function Type:** Set Tank 1 Point Full Height Volume

**Command Format:**

**Display:** <SOH>S604TTGGGGGG

**Computer:** <SOH>s604TTFFFFFFFF

**Inquire:**

<SOH>I604TT

<SOH>i604TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Full Height Volume, Gallons (Decimal)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I604TT  
JAN 22, 1996 3:16 PM

TANK FULL VOLUME

| TANK | PRODUCT LABEL    | GALLONS |
|------|------------------|---------|
| 1    | REGULAR UNLEADED | 9728    |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i604TTYMMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Function Code: 605

Version 1

**Function Type:** Set Tank 4 Point Full, 3/4, 1/2, 1/4 Volumes

### Command Format:

**Display:** <S0H>S605TTGGGGGg ggggggGGGGGg gggggg

```
or: <SOH>S605TTGGGG,gggg,GGGG,ggg
```

**Computer:** <SOH>s605TTFFFFFFFFffffffffFFFFFf

**Inquire:**

<SOH>I605TT

<SOH>i605TT

**Notes:**

- ```

1.          TT - Tank Number (Decimal, 00=all)
2.      GGGGGG - Full Height Volume, Gallons (Decimal)
3.      gggggg - 3/4 Height Volume, Gallons (Decimal)
4.      GGGGGG - 1/2 Height Volume, Gallons (Decimal)
5.      gggggg - 1/4 Height Volume, Gallons (Decimal)
6.      FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)
7.      ffffffff - 3/4 Height Volume, Gallons (ASCII Hex IEEE float)
8.      FFFFFFFF - 1/2 Height Volume, Gallons (ASCII Hex IEEE float)
9.      ffffffff - 1/4 Height Volume, Gallons (ASCII Hex IEEE float)

```

Typical Response Message, Display Format:

```
<SOH>
I605TT
JAN 22, 1996  3:16 PM
```

TANK 4 POINT VOLUMES

| | | | | | | |
|-------|---------|----------|------|---------|------|------|
| TANK | PRODUCT | LABEL | | GALLONS | | |
| 1 | REGULAR | UNLEADED | 9728 | 7296 | 4864 | 2432 |
| <ETX> | | | | | | |

Typical Response Message, Computer Format:

```
<SOH>i605TTYMMDDHHmmTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT...  
                TTTTTTTTTTTTTTTTTTTTTTTTTTTTTT&&CCCC<ETX>
```

Notes:

- ```

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)
4. ffffffff - 3/4 Height Volume, Gallons (ASCII Hex IEEE float)
5. FFFFFFFF - 1/2 Height Volume, Gallons (ASCII Hex IEEE float)
6. ffffffff - 1/4 Height Volume, Gallons (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Version 1

<SOH>i606TT

```

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGGgggggg - Series of 20 Volumes, Gallons (Decimal)
3. FFFFFFFF - Series of 20 Volumes, Gallons (ASCII Hex IEEE float)

```

**Typical Response Message, Display Format:**

&lt;ETX&gt;

**Typical Response Message, Computer Format:**

[illegible]

```

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Series of 20 Volumes, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 607**  
**Function Type:** Set Tank Diameter

Version 1

**Command Format:**  
**Display:** <SOH>S607TTIII.hh  
**Computer:** <SOH>s607TTFFFFFFFF

**Inquire:**  
<SOH>I607TT  
<SOH>i607TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. IIII.hh - Tank Diameter, Inches and hundredths (Decimal)
3. FFFFFFFF - Tank Diameter, Inches (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I607TT  
JAN 22, 1996 3:16 PM

TANK DIAMETER

| TANK | PRODUCT LABEL    | INCHES |
|------|------------------|--------|
| 1    | REGULAR UNLEADED | 96.00  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i607TTYMMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Tank Diameter, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 608  
**Function Type:** Set Tank Tilt

Version 1

**Command Format:**  
**Display:** <SOH>S608TTIII.hh  
**Computer:** <SOH>s608TTFFFFFFFF

**Inquire:**  
<SOH>I608TT  
<SOH>i608TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. IIII.hh - Tank Tilt, Inches and hundredths (Decimal)
3. FFFFFFFF - Tank Tilt, Inches (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I608TT  
JAN 22, 1996 3:16 PM

TANK TILT

| TANK | PRODUCT LABEL    | INCHES |
|------|------------------|--------|
| 1    | REGULAR UNLEADED | 2.40   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i608TTYMMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Tank Tilt, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 609**

Version 1

**Function Type:** Set Tank Thermal Expansion Coefficient

**Command Format:**

**Display:** <SOH>S609TTc.cccccc

**Computer:** <SOH>s609TTFFFFFFFF

**Inquire:**

<SOH>I609TT

<SOH>i609TT

**Notes:**

1. TT - Tank Number (Decimal, 00=all)
2. c.cccccc - Thermal Expansion Coefficient (decimal)
3. FFFFFFFF - Thermal Expansion Coefficient (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I609TT
JAN 22, 1996 3:17 PM

TANK THERMAL COEFFICIENT

TANK PRODUCT LABEL
1 REGULAR UNLEADED 0.000700
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i609TTYMMDDHHmmTTFFFFFFFF...
 TFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Thermal Expansion Coefficient (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 60A**

Version 9

**Function Type:** Set Tank Linear Calculated Full Volume

**Command Format:**

**Display:** <SOH>S60ATTGGGGGG

**Computer:** <SOH>s60ATTFFFFFFFF

**Inquire:**

<SOH>I60ATT

<SOH>i60ATT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Full Height Volume, Gallons (Decimal)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I60ATT  
JAN 22, 1996 3:17 PM

TANK FULL VOLUME

| TANK | PRODUCT LABEL    | TANK PROFILE | GALLONS |
|------|------------------|--------------|---------|
| 1    | REGULAR UNLEADED | 1 PT         | 10000   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i60ATTYYMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Full height volume (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 60B**

**Function Type:** Set Tank Stick Height Function Enable

Version 15

**Command Format:**

**Display:** <SOH>S60B00f

**Computer:** <SOH>s60B00f

**Inquire:**

<SOH>I60B00

<SOH>i60B00

**Typical Response Message, Display Format:**

<SOH>

I60B00

JUL 29, 1997 9:07 AM

STICK HEIGHT OFFSET ENABLE STATUS

DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i60B00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Stick Height Function:  
0=Disabled  
1=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 60C

Version 15

**Function Type:** Set Tank Stick Height Offset

**Command Format:**

**Display:** <SOH>S60CTTIII.hh

**Computer:** <SOH>s60CTTFFFFFFF

**Inquire:**

<SOH>I60CTT

<SOH>i60CTT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. IIII.hh - Stick Height Offset, Inches and hundredths (Decimal)
3. FFFFFFFF - Stick Height Offset, Inches (ASCII Hex IEEE float). Value must be within the range of +144 to -144 inches. It is used to calculate stick height=height (without tilt) + stick offset

### Typical Response Message, Display Format:

<SOH>

I60CTT

JUL 29, 1997 9:07 AM

TANK STICK HEIGHT OFFSET

| TANK | PRODUCT LABEL    | INCHES |
|------|------------------|--------|
| 1    | REGULAR UNLEADED | 0.00   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i60CTTYMMDDHHmmTTTTTTTTTT...  
TTTTTTTTTT&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Stick Height Offset, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 60E**

Version 22

**Function Type:** Set Tank Programmable Float Parameters

**Command Format:**

**Display:** <SOH>S60ETTIIIII.tttIIIII.tttIIIII.tttIIIII.ttt  
**or:** <SOH>S60ETTIIII.ttt,IIII.ttt,IIII.ttt,IIII.ttt

**Inquire:**  
<SOH>I60ETT

**Computer:** <SOH>s60ETTFFFFFFFF...FFFFFFFF

<SOH>i60ETT

### Notes:

1. CUSTOM float size must be chosen (Function Code 62F) for these parameters to be set and used.
2. TT - Tank Number (Decimal, 00=all)
3. IIII.ttt - Float Parameters, Inches and thousandths (Decimal)
4. FFFFFFFF - Float Parameters, Inches (ASCII Hex IEEE floats)

### Typical Response Message, Display Format:

<SOH>  
I60ETT  
JAN 22, 2001 10:02 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

CUSTOM FLOAT PARAMETERS

| TANK | WATER OFFSET | FUEL OFFSET | INVALID FUEL | WATER MINIMUM |
|------|--------------|-------------|--------------|---------------|
| 1    | -3.160       | 0.270       | 8.000        | 0.750         |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i60ETTYMMDDHHmmTTNNFFFFFFFF...  
TTNNFFFFFFFF&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date
2. TT - Tank Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - Float Parameters, Inches (ASCII Hex IEEE floats):
  1. Water Offset
  2. Fuel Offset
  3. Invalid Fuel Level
  4. Minimum Water Level
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 60F**  
**Function Type:** Set Tank Probe Offset

Version 22

**Command Format:**  
**Display:** <SOH>S60FTTIII.hh  
**Computer:** <SOH>s60FTTFFFFFFFF

**Inquire:**  
<SOH>I60FTT  
<SOH>i60FTT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. IIII.hh - Probe offset, Inches and hundredths (Decimal)
3. FFFFFFFF - Probe offset, Inches (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I60FTT
JAN 22, 1996 3:16 PM

PROBE OFFSET

TANK PRODUCT LABEL INCHES
1 REGULAR UNLEADED 2.40
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i60FTTYMMDDHHmmTTFFFFFFFF...
 TFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Probe offset, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 610  
**Function Type:** Set Tank Delivery Delay

Version 1

**Command Format:**  
**Display:** <SOH>S610TTdd  
**Computer:** <SOH>s610TTdd

**Inquire:**  
<SOH>I610TT  
<SOH>i610TT

### Typical Response Message, Display Format:

<SOH>  
I610TT  
JAN 22, 1996 3:17 PM

TANK DELIVERY DELAY

| TANK | PRODUCT LABEL    |   |
|------|------------------|---|
| 1    | REGULAR UNLEADED | 5 |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i610TTYMMDDHHmmTTdd...  
TTdd&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. dd - Indicates the length of time in minutes (01-99)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 611**

Version 1

**Function Type:** Set Tank Leak Test Type & Start Time

**Command Format:**

**Display:** <SOH>S611TTDDRMYYMMDDHHmm<CR> (if M=1)  
 MMWDHHmm<CR> (if M=2)  
 WDHHmm<CR> (if M=3)  
 DHHmm<CR> (if M=4)  
 HHmm<CR> (if M=5)  
 <CR> (if M=6)  
 <CR> (if M=7)

**Inquire:**  
 <SOH>I611TT

**Computer:** <SOH>s611TTDDRMYYMMDDHHmm<CR> (if M=1)  
 MMWDHHmm<CR> (if M=2)  
 WDHHmm<CR> (if M=3)  
 DHHmm<CR> (if M=4)  
 HHmm<CR> (if M=5)  
 <CR> (if M=6)  
 <CR> (if M=7)

<SOH>i611TT

### Typical Response Message, Display Format:

```
<SOH>
I611TT
JUN 1, 2000 8:06 AM

LEAK TEST METHOD
- - - - -
TEST ON DATE : TANK 1
JUN 1, 2000
START TIME : DISABLED
TEST RATE :0.20 GAL/HR
DURATION : 2 HOURS
TST EARLY STOP:DISABLED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i611TTYMMDDHHmmTTDDRMYYMMDDHHmm (if M=1)
 MMWDHHmm (if M=2)
 WDHHmm (if M=3)
 DHHmm (if M=4)
 HHmm (if M=5)
 (none) (if M=6)
 (none) (if M=7)
 TTDDRMYYMMDDHHmm&&CCCC<ETX> (if M=1)
 MMWDHHmm&&CCCC<ETX> (if M=2)
 WDHHmm&&CCCC<ETX> (if M=3)
 DHHmm&&CCCC<ETX> (if M=4)
 HHmm&&CCCC<ETX> (if M=5)
 &&CCCC<ETX> (if M=6)
 &&CCCC<ETX> (if M=7)
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. DD - Leak test Duration in hours (2 <= DD <= 24)
4. R - Leak test Rate (0=0.2, 1=0.1)

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 611 Notes: (Continued)

- 5.                   M - Leak test Method:
  - 1=On Date
  - 2=Annually
  - 3=Monthly
  - 4=Weekly
  - 5=Daily
  - 6=Automatic
  - 7=CSLD
- If M=1 ON DATE, YYMMDDHHmm:
  - YY =Year
  - MM =Month (01-12)
  - DD =Day
  - HHmm=Hour, Minute (EE00=Disabled)
- If M=2 ANNUALLY, MMWDHHmm:
  - MM =Month (01-12)
  - W =Week Number (1-4)
  - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
  - HHmm=Hour, Minute (EE00=Disabled)
- If M=3 MONTHLY, WDHHmm:
  - W =Week Number (1-4)
  - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
  - HHmm=Hour, Minute (EE00=Disabled)
- If M=4 WEEKLY, DHHmm:
  - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
  - HHmm=Hour, Minute (EE00=Disabled)
- If M=5 DAILY, HHmm:
  - HHmm=Hour, Minute (EE00=Disabled)
- 6.                   && - Data Termination Flag
- 7.                   CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 612**

Version 1

**Function Type:** Set Tank SIPHON Manifolded Partners

**Command Format:**

**Display:** <SOH>S612TTttTTtt...<CR>

**Computer:** <SOH>s612TTttTTtt...<CR>

**Inquire:**

<SOH>I612TT

<SOH>i612TT

### Typical Response Message, Display Format:

<SOH>

I612TT

JAN 22, 2002 3:17 PM

TANK MANIFOLDED PARTNERS

| TANK | PRODUCT LABEL    |
|------|------------------|
| 2    | REGULAR UNLEADED |

| SIPHON MANIFOLDED TANKS |
|-------------------------|
| 1                       |

| LINE MANIFOLDED TANKS |
|-----------------------|
| 3                     |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i612TTYMMDDHHmmTTNNtt...

TTNNtt&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Number of the first tank to be SIPHON manifolded
3. NN - Number of tanks that are SIPHON manifolded together
4. tt - Tank numbers of other tanks to be SIPHON manifolded to first tank
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 613**

**Function Type:** Set CSLD Probability of Detection

Version 3

**Command Format:**

**Display:** <SOH>S613TTf

**Computer:** <SOH>s613TTf

**Inquire:**

<SOH>I613TT

<SOH>i613TT

### Typical Response Message, Display Format:

<SOH>  
I613TT  
JAN 22, 1996 3:17 PM  
CSLD PROBABILITY OF DETECTION

T 1:REGULAR UNLEADED : Pd=95%  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i613TTYMMDDHHmmTTf...  
TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number
3. f - Probability of Detection  
1=95%  
2=99%  
3=CUSTOM (Inquiry Command Only)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 614**  
**Function Type:** Set CSLD Climate Factor

Version 5

**Command Format:**  
**Display:** <SOH>S614TTf  
**Computer:** <SOH>s614TTf

**Inquire:**  
<SOH>I614TT  
<SOH>i614TT

### Typical Response Message, Display Format:

<SOH>  
I614TT  
JAN 22, 1996 3:17 PM  
CSLD CLIMATE FACTOR

T 1:REGULAR UNLEADED : MODERATE  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i614TTYMMDDHHmmTTf...  
TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number
3. f - Climate Factor  
1=Moderate  
2=Extreme
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 615**

**Function Type:** Set BIR Meter Data Present

Version 108

**Command Format:**

**Display:** <SOH>S615TTf

**Computer:** <SOH>s615TTf

**Inquire:**

<SOH>I615TT

<SOH>i615TT

### Typical Response Message, Display Format:

<SOH>

I615TT

JAN 22, 1996 3:18 PM

| TANK | PRODUCT LABEL    | METER DATA |
|------|------------------|------------|
| 1    | REGULAR UNLEADED | YES        |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i615TTYMMDDHHmmTTf...

TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number (Decimal, 00=All)
3. f - Meter data availability:  
0=No Meter Data Available  
1=Meter Data Present
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 616**

**Function Type:** Set AccuChart Update Scheduling

Version 110

**Command Format:**

**Display:** <SOH>S616TTf

**Computer:** <SOH>s616TTf

**Inquire:**

<SOH>I616TT

<SOH>i616TT

### Typical Response Message, Display Format:

<SOH>

I616TT

JAN 22, 1996 3:18 PM

| TANK | PRODUCT LABEL    | CAL UPDATE |
|------|------------------|------------|
| 1    | REGULAR UNLEADED | IMMEDIATE  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>s616TTYMMDDHHmmTTf...

TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number (Decimal, 00=All)
3. f - AccuChart Update Scheduling:
  - 1=Immediate
  - 2=Periodic
  - 3=Complete
  - 4=Never
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 618**

Version 19

**Function Type:** Set Tank CSLD Evaporation Compensation

**Command Format:**

**Display:** <SOH>S618TTf

**Computer:** <SOH>s618TTf

**Inquire:**

<SOH>I618TT

<SOH>i618TT

**Notes:**

1. Only accepted if CSLD has been selected as the leak test method (S611TT) for the addressed tank and its Climate Factor (S614TT) has been set to Extreme. Also, for this feature to take effect, there must be valid entries in the RVP table (S54C00).

**Typical Response Message, Display Format:**

```
<SOH>
I618TT
JAN 22, 1996 3:16 PM

CSLD EVAPORATION COMPENSATION

DEVICE LABEL ENABLED
T 1:UNLEADED GASOLINE YES
T 2:SUPER UNLEADED YES
T 3:PREMIUM UNLEADED NO
T 4:REGULAR GASOLINE YES
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i618TTYMMDDHHmmTTf...
 Ttf&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - CSLD Evaporation Compensation flag:  
0=NO  
1=YES
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 619**

Version 19

**Function Type:** Set Tank Stage II Vapor Recovery

**Command Format:**

**Display:** <SOH>S619TTf

**Computer:** <SOH>s619TTf

**Inquire:**

<SOH>I619TT

<SOH>i619TT

**Notes:**

1. Only allowed if CSLD Evaporation Compensation is enabled

**Typical Response Message, Display Format:**

<SOH>

I619TT

JAN 22, 1996 3:16 PM

STAGE II VAPOR RECOVERY

| DEVICE | LABEL | ENABLED |
|--------|-------|---------|
|--------|-------|---------|

|      |                   |     |
|------|-------------------|-----|
| T 1: | UNLEADED GASOLINE | YES |
|------|-------------------|-----|

|      |                |     |
|------|----------------|-----|
| T 2: | SUPER UNLEADED | YES |
|------|----------------|-----|

|      |                  |     |
|------|------------------|-----|
| T 3: | PREMIUM UNLEADED | YES |
|------|------------------|-----|

|      |                  |     |
|------|------------------|-----|
| T 4: | REGULAR GASOLINE | YES |
|------|------------------|-----|

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i619TTYMMDDHHmmTTf...

TTf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - Stage II Vapor Recovery flag:  
0=NO  
1=YES
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 61A**

**Function Type:** Set In-Tank Leak Test Early Stop

Version 20

**Command Format:**

**Display:** <SOH>S61ATTf

**Computer:** <SOH>s61ATTf

**Inquire:**

<SOH>I61ATT

<SOH>i61ATT

### Typical Response Message, Display Format:

<SOH>  
I61ATT  
JUN 1, 2000 8:06 AM  
  
IN-TANK LEAK TEST EARLY STOP

| TANK | PRODUCT LABEL | TST EARLY STOP: |
|------|---------------|-----------------|
| 1    | * PRODUCT 1 * | DISABLED        |
| 2    | * PRODUCT 2 * | DISABLED        |
| 3    | * PRODUCT 3 * | DISABLED        |
| 4    | * PRODUCT 4 * | DISABLED        |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i6A000YYMMDDHHmmTTf...  
TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - In-Tank Leak Test Early Stop Flag:  
0=DISABLED  
1=ENABLED
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 61B**

**Function Type:** Set In-Tank Static Gross Test Auto-Confirm

Version 121

**Command Format:**

**Display:** <SOH>S61BTTf

**Computer:** <SOH>s61BTTf

**Inquire:**

<SOH>I61BTT

<SOH>i61BTT

**Typical Response Message, Display Format:**

<SOH>

I61BTT

OCT 10, 2000 3:11 PM

IN-TANK STATIC GROSS TEST AUTO-CONFIRM:

| TANK | PRODUCT LABEL | AUTO-CONFIRM |
|------|---------------|--------------|
|------|---------------|--------------|

|   |                  |          |
|---|------------------|----------|
| 1 | REGULAR UNLEADED | DISABLED |
|---|------------------|----------|

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i61BTTYMMDDHHmmTTf...

TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - In-Tank Static Gross Test Auto-Confirm flag  
0=Disabled  
1=Enabled
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 61C  
**Function Type:** Set CSLD Report Only Mode

Version 121

**Command Format:**  
**Display:** <SOH>S61CTTf  
**Computer:** <SOH>s61CTTf

**Inquire:**  
<SOH>I61CTT  
<SOH>i61CTT

### Typical Response Message, Display Format:

<SOH>  
I61CTT  
OCT 10, 2000 10:00 AM

CSLD REPORT ONLY

| TANK | PRODUCT LABEL     | CSLD REPORT ONLY |
|------|-------------------|------------------|
| 1    | UNLEADED GASOLINE | DISABLED         |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i61CTTYMMDDHHmmTTf...  
TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - CSLD Report Only flag  
0=Disabled  
1=End of Month  
2=Day 15 and End of Month  
3=Day 25 and End of Month
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 61D

Version 23

**Function Type:** Set Tank LINE Manifolded Partners

**Command Format:**

**Display:** <SOH>S61DTTttTTtt...<CR>

**Computer:** <SOH>s61DTTttTTtt...<CR>

**Inquire:**

<SOH>I61DTT

<SOH>i61DTT

### Typical Response Message, Display Format:

<SOH>

I61DTT

JAN 22, 2002 3:17 PM

TANK MANIFOLDED PARTNERS

| TANK | PRODUCT LABEL    |
|------|------------------|
| 2    | REGULAR UNLEADED |

| SIPHON MANIFOLDED TANKS |
|-------------------------|
| 1                       |

| LINE MANIFOLDED TANKS |
|-----------------------|
| 3                     |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i61DTTYMMDDHHmmTTNNtt...

TTNNtt&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Number of the first tank to be LINE manifolded
3. NN - Number of tanks that are LINE manifolded together
4. tt - Tank numbers of other tanks to be LINE manifolded to first tank
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 61E  
**Function Type:** Set Tank Density

Version 26

**Command Format:**  
**Display:** <SOH>S61ETTdd.ddddd  
**Computer:** <SOH>s61ETTFFFFFFFF

**Inquire:**  
<SOH>I61ETT  
<SOH>i61ETT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. dd.dddd - Entered Density, relative, actual or API (Decimal)
3. FFFFFFFF - Entered Density, relative, actual or API (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I61ETT  
JUN 22, 2001 3:15 PM

TANK DENSITY

| TANK | PRODUCT LABEL    | DENSITY |
|------|------------------|---------|
| 1    | REGULAR UNLEADED | 5.9987  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i61ETTYMMDDHHmmTTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Entered Density (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 61F**  
**Function Type:** Set Delivery Density

Version 26

**Command Format:**  
**Display:** <SOH>S61FTTtdd.ddddd  
**Computer:** <SOH>s61FTTtFFFFFFFF

**Inquire:**  
<SOH>I61FTTt  
<SOH>i61FTTt

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. t - Delivery Type (0=next, 1=last)
3. dd.dddd - Entered Density, relative, actual or API (Decimal)
4. FFFFFFFF - Entered Density, relative, actual or API (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I61FTT0
JUN 22, 2001 3:15 PM

NEXT DELIVERY DENSITY

TANK PRODUCT LABEL DENSITY
1 REGULAR UNLEADED 5.9987
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i61FTTYMMDDHHmmTTtFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. t - Delivery Type (0=next, 1=last)
4. FFFFFFFF - Entered Density (ASCII Hex IEEE float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 621  
**Function Type:** Set Tank Low Level Limit

Version 1

**Command Format:**  
**Display:** <SOH>S621TTGGGGGG  
**Computer:** <SOH>s621TTFFFFFFFF

**Inquire:**  
<SOH>I621TT  
<SOH>i621TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Low Level Limit, Gallons (Decimal)
3. FFFFFFFF - Low Level Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I621TT
JAN 22, 1996 3:18 PM

TANK LOW PRODUCT LIMIT

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 1000
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i621TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Low Level Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 622  
**Function Type:** Set Tank High Level Limit

Version 1

**Command Format:**  
**Display:** <SOH>S622TTGGGGGG  
**Computer:** <SOH>s622TTFFFFFFFF

**Inquire:**  
<SOH>I622TT  
<SOH>i622TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - High Level Limit, Gallons (Decimal)
3. FFFFFFFF - High Level Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I622TT
JAN 22, 1996 3:18 PM

TANK HIGH PRODUCT LIMIT

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 9500
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i622TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - High Level Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 623

Version 1

**Function Type:** Set Tank Overfill Level Limit

**Command Format:**

**Display:** <SOH>S623TTGGGGGG

**Computer:** <SOH>s623TTFFFFFFFF

**Inquire:**

<SOH>I623TT

<SOH>i623TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Overfill Level Limit, Gallons (Decimal)
3. FFFFFFFF - Overfill Level Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I623TT
JAN 22, 1996 3:18 PM

TANK OVERFILL LEVEL LIMIT

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 9300
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i623TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Overfill Level Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 624  
**Function Type:** Set Tank High Water Level Limit

Version 1

**Command Format:**  
**Display:** <SOH>S624TTII.t  
**Computer:** <SOH>s624TTFFFFFFFF

**Inquire:**  
<SOH>I624TT  
<SOH>i624TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. II.t - High Water Level Limit, Inches and tenths (Decimal, Max=05.0)
3. FFFFFFFF - High Water Level Limit, Inches (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I624TT  
JAN 22, 1996 3:18 PM  
  
TANK HIGH WATER LEVEL LIMIT

| TANK | PRODUCT LABEL    | INCHES |
|------|------------------|--------|
| 1    | REGULAR UNLEADED | 4.5    |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i624TTYMMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - High Water Level Limit, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 625  
**Function Type:** Set Tank Sudden Loss Limit

Version 1

**Command Format:**  
**Display:** <SOH>S625TTGGGGGG  
**Computer:** <SOH>s625TTFFFFFFFF

**Inquire:**  
<SOH>I625TT  
<SOH>i625TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Sudden Loss Limit, Gallons (Decimal)
3. FFFFFFFF - Sudden Loss Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I625TT
JAN 22, 1996 3:18 PM

TANK SUDDEN LOSS LIMIT

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 100
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i625TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Sudden Loss Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 626  
**Function Type:** Set Tank Leak Alarm Limit

Version 1

**Command Format:**  
**Display:** <SOH>S626TTGGGGGG  
**Computer:** <SOH>s626TTFFFFFFFF

**Inquire:**  
<SOH>I626TT  
<SOH>i626TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Leak Alarm Limit, Gallons (Decimal)
3. FFFFFFFF - Leak Alarm Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I626TT
JAN 22, 1996 3:18 PM

TANK LEAK ALARM LIMIT

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 50
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i626TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Leak Alarm Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 627**

Version 2

**Function Type:** Set Tank High Water Warning Limit

**Command Format:**

**Display:** <SOH>S627TTII.t

**Computer:** <SOH>s627TTFFFFFFFF

**Inquire:**

<SOH>I627TT

<SOH>i627TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. II.t - High Water Warning Limit, Inches and tenths (Decimal, Max=05.0)
3. FFFFFFFF - High Water Warning Limit, Inches (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>

I627TT

JAN 22, 1996 3:18 PM

TANK HIGH WATER WARNING LIMIT

TANK PRODUCT LABEL

INCHES

1 REGULAR UNLEADED

3.5

<ETX>

### Typical Response Message, Computer Format:

<SOH>i627TTYMMDDHHmmTTFFFFFFFF...

TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - High Water Warning Limit, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 628**

Version 2

**Function Type:** Set Tank Maximum Volume Limit

**Command Format:**

**Display:** <SOH>S628TTGGGGGG

**Computer:** <SOH>s628TTFFFFFFFF

**Inquire:**

<SOH>I628TT

<SOH>i628TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Maximum Volume Limit, Gallons (Decimal)
3. FFFFFFFF - Maximum Volume Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I628TT
JAN 22, 1996 3:19 PM

TANK MAXIMUM VOLUME LIMIT

TANK PRODUCT LABEL GALLONS
1 REGULAR UNLEADED 9600
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i628TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Maximum Volume Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 629**

Version 2

**Function Type:** Set Tank Delivery Required Limit

**Command Format:**

**Display:** <SOH>S629TTGGGGGG

**Computer:** <SOH>s629TTFFFFFFFF

**Inquire:**

<SOH>I629TT

<SOH>i629TT

**Notes:**

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Delivery Required Limit, Gallons (Decimal)
3. FFFFFFFF - Delivery Required Limit, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I629TT
JAN 22, 1996 3:19 PM

TANK DELIVERY REQUIRED LIMIT

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 1500
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i629TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Delivery Required Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 62A**

Version 2

**Function Type:** Set Tank Annual Leak Test Minimum Volume

**Command Format:**

**Display:** <SOH>S62ATTGGGGGG

**Computer:** <SOH>s62ATTFFFFFFFF

**Inquire:**

<SOH>I62ATT

<SOH>i62ATT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Annual Test Minimum Volume, Gallons (Decimal)
3. FFFFFFFF - Annual Test Minimum Volume, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I62ATT
JAN 22, 1996 3:19 PM

ANNUAL LEAK TEST MIN VOLUME

TANK PRODUCT LABEL GALLONS
 1 REGULAR UNLEADED 6000
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i62ATTYYMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Annual Test Minimum Volume, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 62B  
**Function Type:** Set Tank Last Annual Test

Version 2

**Command Format:**  
**Display:** <SOH>S62BTTYMMDD  
**Computer:** <SOH>s62BTTYMMDD

**Inquire:**  
<SOH>I62BTT  
<SOH>i62BTT

### Typical Response Message, Display Format:

<SOH>  
I62BTT  
JAN 22, 1996 3:19 PM

TANK LAST ANNUAL TEST

| TANK | PRODUCT LABEL    | DATE   |
|------|------------------|--------|
| 1    | REGULAR UNLEADED | 940225 |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i62BTTYMMDDHHmmTTYMMDD...  
TTYMMDD&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. YYMMDD - Year, Month, Day
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 62C**

**Function Type:** Set Tank Periodic Test Type

Version 2

**Command Format:**

**Display:** <SOH>S62CTTp

**Computer:** <SOH>s62CTTp

**Inquire:**

<SOH>I62CTT

<SOH>i62CTT

### Typical Response Message, Display Format:

<SOH>

I62CTT

JAN 22, 1996 3:19 PM

TANK PERIODIC TEST TYPE

| TANK | PRODUCT LABEL    |
|------|------------------|
| 1    | REGULAR UNLEADED |

| PERIODIC TEST TYPE |
|--------------------|
| QUICK              |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i62CTTYMMDDHHmmTTp...

TTp&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Periodic Test Type:  
0=Standard Test  
1=Quick Test (only Mag Probes may be set to QUICK)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 62D**

**Function Type:** Set Enable/Disable Tank Leak Test Fail Alarms

Version 2

**Command Format:**

**Display:** <SOH>S62DDTTgpa

**Computer:** <SOH>s62DDTTgpa

**Inquire:**

<SOH>I62DDTT

<SOH>i62DDTT

### Typical Response Message, Display Format:

<SOH>

I62DDTT

JAN 22, 1996 3:19 PM

TANK LEAK TEST FAIL ALARMS

| TANK | PRODUCT LABEL    |
|------|------------------|
| 1    | REGULAR UNLEADED |

|                    |
|--------------------|
| GROSS TEST FAIL    |
| PERIODIC TEST FAIL |
| ANNUAL TEST FAIL   |

|                |
|----------------|
| ALARM DISABLED |
| ALARM DISABLED |
| ALARM DISABLED |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i62DDTTYMMDDHHmmTTgpa...

TTgpa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. g - Gross Test Fail Alarm  
0=Disabled  
1=Enabled
4. p - Periodic Test Fail Alarm  
0=Disabled  
1=Enabled
5. a - Annual Test Fail Alarm  
0=Disabled  
1=Enabled
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 62E**

**Function Type:** Set CAP0 Probe Conductive Boot Flag

Version 3

**Command Format:**

**Display:** <SOH>S62ETTc

**Computer:** <SOH>s62ETTc

**Inquire:**

<SOH>I62ETT

<SOH>i62ETT

### Typical Response Message, Display Format:

<SOH>

I62ETT

JAN 22, 1996 3:19 PM

CAP0 PROBE CONDUCTIVE BOOT FLAG

| TANK | PRODUCT LABEL    | CAP0 CONDUCTIVE BOOT: |
|------|------------------|-----------------------|
| 1    | REGULAR UNLEADED | YES                   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i62ETTYMMDDHHmmTTc...  
TTc&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. c - CAP0 Conductive Boot Flag  
0=OFF  
1=ON
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 62F**  
**Function Type:** Set Mag Probe Float Size

Version 3

**Command Format:**  
**Display:** <SOH>S62FTTf  
**Computer:** <SOH>s62FTTf

**Inquire:**  
<SOH>I62FTT  
<SOH>i62FTT

### Typical Response Message, Display Format:

```
<SOH>
I62FTT
JAN 22, 1996 3:19 PM

MAG PROBE FLOAT SIZE

TANK PRODUCT LABEL FLOAT SIZE:
 1 REGULAR UNLEADED 4.0 IN
 2 PREMIUM 4.0 IN PS
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i62FTTYMMDDHHmmTTf...
 TTf&&CCCC<ETX>
```

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - Mag Probe Float Size
  - 0=4.0"
  - 1=2.0"
  - 2=3.0"
  - 3=1.0"
  - 4=4.0" Phase Separation
  - 9=CUSTOM
4. && - Data Termination Flag
5. CCCC - Message Checksum

(Added in V22)  
(Added in V30)  
(Added in V22)

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 630  
**Function Type:** Set Tank Leak Test Notify

Version 3

**Command Format:**  
**Display:** <SOH>S630TTf  
**Computer:** <SOH>s630TTf

**Inquire:**  
<SOH>I630TT  
<SOH>i630TT

### Typical Response Message, Display Format:

```
<SOH>
I630TT
JAN 22, 1996 3:20 PM

IN-TANK LEAK TEST NOTIFY

TANK PRODUCT LABEL TANK TEST NOTIFY:
 1 REGULAR UNLEADED OFF
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i630TTYMMDDHHmmTTf...
 Ttf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - Tank Leak Test Notify  
0=OFF  
1=ON
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 631**

**Function Type:** Set Tank Leak Test Averaging

Version 5

**Command Format:**

**Display:** <SOH>S631TTap

**Computer:** <SOH>s631TTap

**Inquire:**

<SOH>I631TT

<SOH>i631TT

### Typical Response Message, Display Format:

<SOH>

I631TT

JAN 22, 1996 3:20 PM

TANK LEAK TEST AVERAGING

| TANK | PRODUCT LABEL    | ANNUAL | PERIODIC |
|------|------------------|--------|----------|
| 1    | REGULAR UNLEADED | OFF    | OFF      |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i631TTYMMDDHHmmTTap...  
TTap&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. a - Annual Leak Test Averaging  
0=OFF  
1=ON
4. p - Periodic Leak Test Averaging  
0=OFF  
1=ON
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 632  
**Function Type:** Set Tank Test Siphon Break

Version 5

**Command Format:**  
**Display:** <SOH>S632TTf  
**Computer:** <SOH>s632TTf

**Inquire:**  
<SOH>I632TT  
<SOH>i632TT

### Typical Response Message, Display Format:

```
<SOH>
I632TT
JAN 22, 1996 3:20 PM

TANK TEST SIPHON BREAK

TANK PRODUCT LABEL SIPHON BREAK
 1 REGULAR UNLEADED OFF
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i632TTYMMDDHHmmTTf...
 Ttf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - Tank Test Siphon Break  
0=OFF  
1=ON
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 633**

**Function Type:** Set Leak Test Report Type

Version 9

**Command Format:**

**Display:** <SOH>S63300f

**Computer:** <SOH>s63300f

**Inquire:**

<SOH>I63300

<SOH>i63300

**Typical Response Message, Display Format:**

<SOH>

I63300

JAN 22, 1996 3:20 PM

LEAK TEST REPORT FORMAT: NORMAL

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i63300YYMMDDHHmmf&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Leak test Report Type:  
0=Normal  
1=Enhanced
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 634**

Version 110

**Function Type:** Set Tank HRM Reconciliation Warning Limit

**Command Format:**

**Display:** <SOH>S634TTGGGGGG

**Computer:** <SOH>s634TTFFFFFFFF

**Inquire:**

<SOH>I634TT

<SOH>i634TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - HRM Reconciliation Warning Limit, Gallons (Decimal)
3. FFFFFFFF - HRM Reconciliation Warning Limit, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I634TT  
JAN 22, 1996 3:20 PM  
  
RECONCILIATION WARNING LIMIT

| TANK | PRODUCT LABEL    | GALLONS |
|------|------------------|---------|
| 1    | REGULAR UNLEADED | 50      |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i634TTYMMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - HRM Reconciliation Warning Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 635**

Version 110

**Function Type:** Set Tank HRM Reconciliation Alarm Limit

**Command Format:**

**Display:** <SOH>S635TTGGGGGG

**Computer:** <SOH>s635TTFFFFFFFF

**Inquire:**

<SOH>I635TT

<SOH>i635TT

**Notes:**

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - HRM Reconciliation Alarm Limit, Gallons (Decimal)
3. FFFFFFFF - HRM Reconciliation Alarm Limit, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>  
I635TT  
JAN 22, 1996 3:20 PM  
  
RECONCILIATION ALARM LIMIT

| TANK | PRODUCT LABEL    | GALLONS |
|------|------------------|---------|
| 1    | REGULAR UNLEADED | 90      |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i635TTYMMDDHHmmTTFFFFFFFF...  
TTFFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - HRM Reconciliation Alarm Limit, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 636**

Version 14

**Function Type:** Set Tank Periodic Leak Test Minimum Volume

**Command Format:**

**Display:** <SOH>S636TTGGGGGG

**Computer:** <SOH>s636TTFFFFFFFF

**Inquire:**

<SOH>I636TT

<SOH>i636TT

**Notes:**

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Periodic Test Minimum Volume, Gallons (Decimal)
3. FFFFFFFF - Periodic Test Minimum Volume, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I636TT
JAN 22, 1996 3:19 PM

PERIODIC LEAK TEST MIN VOLUME

TANK PRODUCT LABEL GALLONS
1 REGULAR UNLEADED 3000
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i636TTYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Periodic Test Minimum Volume, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 639**

Version 115

**Function Type:** Set Tank AccuChart End Shape Type and Factor

**Command Format:**

**Display:** <SOH>S639TTSU.t

**Computer:** <SOH>s639TTSFFFFFFFF

**Inquire:**

<SOH>I639TT

<SOH>i639TT

**Notes:**

1. TT - Tank Number (Decimal, 00=all)
2. S - End Shape Type
  - 0=None
  - 1=Flat
  - 2=Hemispheric
  - 3=Other (requires factor)
3. U.t - End Shape Factor, Units and tenths (Decimal, 0.0-1.0)
4. FFFFFFFF - End Shape Factor (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I639TT
JUL 29, 1997 9:08 AM
1 REGULAR UNLEADED
END FACTOR: OTHER
END VALUE: 0.1
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i639TTYMMDDHHmmTTSFFFFFFFF...
TTSFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. S - End Shape Type
  - 0=None
  - 1=Flat
  - 2=Hemispheric
  - 3=Other (requires factor)
4. FFFFFFFF - End Shape Factor (ASCII Hex IEEE float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 63A**

Version 22

**Function Type:** Set Tank Low Level Threshold for Sequential Line Manifold

**Command Format:**

**Display:** <SOH>S63ATTTPP.hh

**Computer:** <SOH>s63ATTFFFFFFFF

**Inquire:**

<SOH>I63ATT

<SOH>i63ATT

**Notes:**

1. TT - Tank Number (Decimal, set for primary tank)
2. PP.hh - Low Level Pump Threshold, Percent and hundredths (Decimal)
3. FFFFFFFF - Low Level Pump Threshold, Percent (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I63A00
JUN 1, 2001 8:07 AM

LOW LEVEL PUMP THRESHOLD FOR SEQUENTIAL LINE MANIFOLD

TANK PRODUCT LABEL PUMP THRESHOLD
 1 REGULAR UNLEADED 10.00%
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i79800YYMMDDHHmmTTFFFFFFFF...
 TTTFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, set for primary tank)
3. FFFFFFFF - Low Level Pump Threshold, Percent (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 63B**

Version 26

**Function Type:** Set Tank 50 Point Heights and Volumes

**Command Format:**

**Display:** <SOH>S63BTTnnffIIII.hhGGGGGG...ffIIII.hhGGGGGG

**or:** <SOH>S63BTTnnffII.h, GGGG, ...ffII.h, GGGG

**Computer:** <SOH>s63BTTnnffHHHHHHHHVVVVVVVV...ffHHH...

**Inquire:**

<SOH>I63BTT

<SOH>i63BTT

**Notes:**

1. Set command is only valid if Tank Chart Security is disabled
2. nn - Number of Height/Volume Pairs to Follow (Decimal). A maximum of 14 pairs can be set per command to avoid overflowing the buffer
3. ff - Added/Remove Pair Flag (Hex):  
01=Added Height/Volume Pair  
02=Remove Height/Volume Pair
4. IIII.hh - Height Inches and Hundreds (Decimal)
5. GGGGGG - Volume, Gallons (Decimal)
6. HHHHHH - Height, Inches (ASCII Hex IEEE float)
7. VVVVVVVV - Volume, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>

I63BTT

SEP 16, 2004 3:15 PM

TANK 50 POINT HEIGHTS AND VOLUMES

T 1: REGULAR UNLEADED

TANK CAPACITY : 10000

CONSOLE SERIAL NUMBER:

XXXXXXXXXXXXXXXXXXXX

PROBE S/N : YYYYYY

WEIGHTS AND MEASURES:

ZZZZZZZZZZZZZZZZZZZZ

|      | DIAMETER | FULL VOLUME |
|------|----------|-------------|
|      | 96.00    | 10000       |
| PAIR | HEIGHT   | VOLUME      |
| 1    | 94.08    | 9800        |
| 2    | 92.16    | 9600        |
| 3    | 90.24    | 9400        |
| 4    | 88.32    | 9200        |
| 5    | 86.44    | 9000        |
|      | :        |             |
|      | :        |             |
| 45   | 9.60     | 1000        |
| 46   | 7.68     | 800         |
| 47   | 5.76     | 600         |
| 48   | 3.84     | 400         |
| 49   | 1.92     | 200         |

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 63B Notes:** (Continued)

**Typical Response Message, Computer Format:**

[illegible]

**Notes:**

- ```

1.      YYMMDDHHmm - Current Date and Time
2.      TT - Tank Number (Decimal, 00=all)
3.      f - Tank Chart Security Flag
           1=enabled
           0=disabled

```

The following 4 fields marked with an asterisk are only present if Tank Chart Security is enabled.

- ```

4. cccccccc - * Tank Capacity, Gallons (ASCII Hex IEEE float)
5. x.x - * Console Serial Number (20 ASCII characters [20h-7Eh])
6. yyyyyy - * Probe Serial Number (Decimal)
7. z.z - * Weights and Measures Office (20 ASCII characters [20h-
 7Eh])

8. dddddddd - Tank Diameter, Inches (ASCII Hex IEEE float)
9. ffffffff - Full Volume, Gallons (ASCII Hex IEEE float)
10. nn - Number of Height/Volume Pairs to Follow (Hex)
11. HHHHHHHH - Height, Inches (ASCII Hex IEEE float)
12. VVVVVVVV - Volume, Gallons (ASCII Hex IEEE float)
13. && - Data Termination Flag
14. CCCC - Message Checksum

```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 63C**

**Function Type:** Set Tank 50 Point Full Volume

Version 26

**Command Format:**

**Display:** <SOH>S63CTTG GGGGGG

**Computer:** <SOH>s63CTTVVVVVVVV

**Inquire:**

<SOH>I63CTT

<SOH>i63CTT

**Notes:**

1. TT - Tank Number (Decimal, 00=all)
2. GGGGGG - Volume, Gallons (Decimal)
3. VVVVVVVV - Volume, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>

I63CTT

SEP 16, 2004 3:15 PM

TANK 50 POINT FULL VOLUME

TANK PRODUCT LABEL

1 REGULAR UNLEADED

VOLUME

100000

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i63CTTYMMDDHHmmnnTTVVVVVVVV...

TTVVVVVVVV&&CCCC<ETX>

**Notes:**

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. VVVVVVVV - Volume, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 63D  
**Function Type:** Set Tank Vapor Loss Factor

Version 29

**Command Format:**  
**Display:** <SOH>S63DTT0.00  
**Computer:** <SOH>s63DTT00000000

**Inquire:**  
<SOH>I63DTT  
<SOH>i63DTT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. 0.00 - Vapor Loss Factor, Percent(Decimal, 0.00 B 0.20)
3. 00000000 - Vapor Loss Factor, Percent(ASCII Hex IEEE Float 0.00B0.20)

### Typical Response Message, Display Format:

<SOH>  
I63D00  
APR 10, 2007 10:15 AM

TANK VAPOR LOSS FACTOR

| TANK | PRODUCT LABEL | FACTOR |
|------|---------------|--------|
| 1    | REGULAR       | 0.14%  |
| 2    | PREMIUM       | 0.15%  |
| 3    | DIESEL        | 0.00%  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i63DTTYMMDDHHmmNNTT00000000...  
TT00000000&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. NN - Number of tank entries to follow(Decimal)
3. TT - Tank Number (Decimal, 00=all)
4. 00000000 - Vapor Loss Factor, Percent(ASCII Hex IEEE Float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 642**  
**Function Type:** Set Tank Water Alarm Filter Level

Version 31

**Command Format:**  
**Display:** <SOH>S642TTf  
**Computer:** <SOH>s642TTf

**Inquire:**  
<SOH>I642TT  
<SOH>i642TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. f - Water alarm filter level

### Typical Response Message, Display Format:

<SOH>  
I64200  
JAN 22, 2010 3:12 PM  
  
WATER ALARM FILTER LEVEL

| TANK | PRODUCT LABEL |        |
|------|---------------|--------|
| 1    | REGULAR       | LOW    |
| 2    | MID GRADE     | MEDIUM |
| 3    | PREMIUM       | HIGH   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i642TTYMMDDHHmmTTf...  
TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. f - Tank Water Alarm Filter Level
  - 1 = Low
  - 2 = Medium
  - 3 = High
  - 4 = Off
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 648**  
**Function Type:** Set Probe Water Minimum

Version 33

**Command Format:**  
**Display:** <SOH>S648TTI.hhh  
**Computer:** <SOH>s648TTFFFFFFFF

**Inquire:**  
<SOH>I648TT  
<SOH>i648TT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. I.hhh - Water Minimum, Inches and thousandths (Decimal)
3. FFFFFFFF - Tank Number (Decimal, 00=all)

### Typical Response Message, Display Format:

<SOH>  
I64800  
JAN 22, 2012 3:12 PM

WATER MINIMUM

| TANK | PRODUCT LABEL | INCHES |
|------|---------------|--------|
| 1    | REGULAR       | 0.633  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i648TTYMMDDHHmmTFFFFFFFFF...TFFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Probe Offset, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 64B**

Version 33

**Function Type:** Set Tank Water Alarm Filter Delay

**Command Format:**

**Display:** <SOH>S64BTTf

**Computer:** <SOH>s64BTTf

**Inquire:**

<SOH>I64BTT

<SOH>i64BTT

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. f - Water alarm delay level
3. The set command is only operational for the water alarm filter level OFF.  
For filter levels Low, Medium and High the delay time is fixed at 180 seconds.

### Typical Response Message, Display Format:

<SOH>

I64B00

JAN 22, 2010 3:12 PM

WATER ALARM DELAY LEVEL

TANK PRODUCT LABEL

1 REGULAR 30 S

2 MID GRADE 120 S

3 PREMIUM 180 S

<ETX>

### Typical Response Message, Computer Format:

<SOH>i64BTTYMMDDHHmmTTf...

TTf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal)
3. f - Tank Water Alarm Filter Delay
  - 1 = 30 seconds
  - 2 = 60 seconds
  - 3 = 90 seconds
  - 4 = 120 seconds
  - 5 = 150 seconds
  - 6 = 180 seconds
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 651  
**Function Type:** Set Tank Max or Label Alarm Threshold  
**Command Format:**  
    **Display:** <SOH>S651TTffffff  
    **Computer:** <SOH>s651TTFFFFFFFF

Version 33

**Inquire:**  
<SOH>I651TT  
<SOH>i651TT

#### Typical Response Message, Display Format:

```
<SOH>
I65100
JAN 22, 2012 3:12 PM

TANK MAX OR LABEL ALARM THRESHOLD

TANK PRODUCT LABEL GALLONS
 1 REGULAR 9000
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i651TTYMMDDHHmmTTTTTTTTTT...
 TTTTTTTTTT&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Max or Label Threshold (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 652  
**Function Type:** Set Tank High Product Alarm Threshold  
**Command Format:**  
    **Display:** <SOH>S652TTffffff  
    **Computer:** <SOH>s652TTFFFFFFFF

Version 33

**Inquire:**  
<SOH>I652TT  
<SOH>i652TT

#### Typical Response Message, Display Format:

```
<SOH>
I65200
JAN 22, 2012 3:12 PM

TANK HIGH PRODUCT ALARM THRESHOLD

TANK PRODUCT LABEL % MAX VOLUME
 1 REGULAR 97
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i652TTYMMDDHHmmTTTTTTTTTT...
 TTTTTTTTTT&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - High Product Threshold (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 653  
**Function Type:** Set Tank Overfill Alarm Threshold  
**Command Format:**  
    **Display:** <SOH>S653TTffffff  
    **Computer:** <SOH>s653TTFFFFFFFF

Version 33

**Inquire:**  
<SOH>I653TT  
<SOH>i653TT

#### Typical Response Message, Display Format:

```
<SOH>
I65300
JAN 22, 2012 3:12 PM

TANK OVERFILL ALARM THRESHOLD

TANK PRODUCT LABEL % MAX VOLUME
 1 REGULAR 95
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i653TTYMMDDHHmmTTTTTTTTTTTT...
 TTTTTTTTTT&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Overfill Threshold (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 654  
**Function Type:** Set Tank Delivery Needed Alarm Threshold  
**Command Format:**  
    **Display:** <SOH>S654TTffffff  
    **Computer:** <SOH>s654TTFFFFFFFF

Version 33

**Inquire:**  
<SOH>I654TT  
<SOH>i654TT

#### Typical Response Message, Display Format:

```
<SOH>
I65400
JAN 22, 2012 3:12 PM

TANK DELIVERY NEEDED ALARM THRESHOLD

TANK PRODUCT LABEL % MAX VOLUME
 1 REGULAR 15
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i654TTYMMDDHHmmTTTTTTTTTT...
 TTTTTTTTTT&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Delivery Needed Threshold (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 655  
**Function Type:** Set Tank Low Product Alarm Threshold  
**Command Format:**  
    **Display:** <SOH>S655TTffffff  
    **Computer:** <SOH>s655TTFFFFFFFF

Version 33

**Inquire:**  
<SOH>I655TT  
<SOH>i655TT

#### Typical Response Message, Display Format:

```
<SOH>
I65500
JAN 22, 2012 3:12 PM

TANK LOW PRODUCT ALARM THRESHOLD

TANK PRODUCT LABEL INCHES
 1 REGULAR 12.5
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i655TTYMMDDHHmmTTTTTTTTTT...
 TTTTTTTTTT&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. FFFFFFFF - Low Product Threshold (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 680

Version 6

**Function Type:** Fuel Management General Setup Inquiry

**Command Format:**

**Display:** <SOH>I680TT

**Computer:** Computer format is not supported for this command

### Typical Response Message, Display Format:

```
<SOH>
I680TT
JAN 22, 1996 3:20 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

FUEL MANAGEMENT SETUP

DELIVERY WARN DAYS: 3.5
AUTO PRINT: 10:00 AM

FUEL MANAGEMENT AVERAGE SALES (GALLONS)

REGULAR UNLEADED (TANK 1)
 SUN MON TUE WED THR FRI SAT
 2696 2075 2602 2046 2471 2805 2824
<ETX>
```

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 681**

Version 6

**Function Type:** Set Fuel Management Delivery Needed Warning

**Command Format:**

**Display:** <SOH>S68100DD.hh

**Computer:** <SOH>s68100FFFFFFFF

**Inquire:**

<SOH>I68100

<SOH>i68100

**Notes:**

1. DD.hh - Delivery Needed Warning, Days and hundredths (Decimal)
2. FFFFFFFF - Delivery Needed Warning, Days (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I68100
JAN 22, 1996 3:20 PM

FUEL MANAGEMENT DELIVERY NEEDED WARNING DAYS

DELIVERY WARN DAYS: 2.50
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i68100YYMMDDHHmmFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. FFFFFFFF - Delivery Needed Warning, Days (ASCII Hex IEEE float)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 682**

Version 6

**Function Type:** Set Fuel Management Automatic Report Print Time

**Command Format:**

**Display:** <SOH>S68200hhmm

**Computer:** <SOH>s68200hhmm

**Inquire:**

<SOH>I68200

<SOH>i68200

### Typical Response Message, Display Format:

<SOH>

I68200

JAN 22, 1996 3:21 PM

FUEL MANAGEMENT AUTOMATIC REPORT PRINT TIME

AUTO PRINT: 10:00 AM

<ETX>

### Typical Response Message, Computer Format:

<SOH>i68200YYMMDDHHmmhhmm&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. hhmm - Report Printout Time (hours, minutes; EE00=disabled)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 683**

Version 6

**Function Type:** Set Fuel Management Average Daily Sales

**Command Format:**

**Display:** <SOH>S683TTDVVVVVV

**Computer:** <SOH>s683TTDvvvvvvvv

**Inquire:**

<SOH>I683TT

<SOH>i683TT

### Notes:

1. TT - Tank Number for any Tank Containing the Product
2. D - Day for which to Program the Average Sales Volume (0=All Days, 1=Sunday, 2=Monday, ...7=Saturday)
3. VVVVVV - Average Sales for the Day, Gallons (Decimal, Only one day is programmed per serial command)
4. vvvvvvvv - Average Sales for the Day, Gallons (ASCII Hex IEEE float, Only one day is programmed per serial command)

### Typical Response Message, Display Format:

```
<SOH>
I683TT
JAN 22, 1996 3:21 PM

FUEL MANAGEMENT AVERAGE SALES (GALLONS)

REGULAR UNLEADED (TANK 1)
 SUN MON TUE WED THR FRI SAT
 2696 2075 2602 2046 2471 2805 2824
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i683TTYMMDDHHmmNNTTpSSSSSSSSMMMMMMMMTTTTTTTTTWWWWWWW
RRRRRRRRFFFFFFFFFssssssss...
NNTTpSSSSSSSSMMMMMMMMTTTTTTTTTWWWWWWW
RRRRRRRRFFFFFFFFFssssssss&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of Tank/Product Sets (TTP) to Follow (Hex)
3. TTP - Tank Number (decimal) and Product Code (ASCII character)
4. SSSSSSSS - Avg Sales on Sundays (ASCII Hex IEEE float)
5. MMMMMMMM - Avg Sales on Mondays (ASCII Hex IEEE float)
6. TTTTTTTT - Avg Sales on Tuesdays (ASCII Hex IEEE float)
7. WWWWWWWW - Avg Sales on Wednesdays (ASCII Hex IEEE float)
8. RRRRRRRR - Avg Sales on Thursdays (ASCII Hex IEEE float)
9. FFFFFFFF - Avg Sales on Fridays (ASCII Hex IEEE float)
10. ssssssss - Avg Sales on Saturdays (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.5 SENSOR SETUP

**Function Code:** 701  
**Function Type:** Set Liquid Sensor Configuration

Version 1

**Command Format:**  
**Display:** <SOH>S701SSf  
**Computer:** <SOH>s701SSf

**Inquire:**  
<SOH>I701SS  
<SOH>i701SS

#### Typical Response Message, Display Format:

```
<SOH>
I701SS
JAN 28, 1995 10:39 AM

LIQUID CONFIGURATION

DEVICE LABEL CONFIGURED
 1 LIQUID SENSOR #1 ON
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i701SSYYMMDDHHmmSSf...
SSf&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Liquid Sensor Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 702**

**Function Type:** Set Liquid Sensor Location Label

Version 1

**Command Format:**

**Display:** <SOH>S702SSaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s702SSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I702SS

<SOH>i702SS

#### Typical Response Message, Display Format:

```
<SOH>
I702SS
JAN 28, 1995 10:39 AM

LIQUID LABEL

DEVICE LABEL
 1 LIQUID SENSOR #1
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i702SSYYMMDDHHmmSSaaaaaaaaaaaaaaaaaaaaa...
SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Liquid Sensor Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 703**  
**Function Type:** Set Liquid Sensor Type

Version 1

**Command Format:**  
**Display:** <SOH>S703SSt  
**Computer:** <SOH>s703SSt

**Inquire:**  
<SOH>I703SS  
<SOH>i703SS

#### Typical Response Message, Display Format:

```
<SOH>
I703SS
JAN 28, 1995 10:40 AM

LIQUID TYPE

SENSOR LOCATION TYPE
 1 LIQUID SENSOR #1 TRI-STATE (SINGLE FLOAT)
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i703SSYYMMDDHHmmSSt...
 SSt&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Liquid Sensor Number (Decimal, 00=all)
3. t - Liquid Sensor Type:
  - 1=Tri-State
  - 2=Normally Closed
  - 3=Dual Float Hydrostatic
  - 4=Dual Float Discriminating
  - 5=Dual Float High Vapor
  - 6=Interceptor Sensor
  - 7=DW Sump 2-1 Sensor
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 704**  
**Function Type:** Set Liquid Sensor Category

Version 2

**Command Format:**  
**Display:** <SOH>S704SSc  
**Computer:** <SOH>s704SSc

**Inquire:**  
<SOH>I704SS  
<SOH>i704SS

### Typical Response Message, Display Format:

```
<SOH>
I704SS
JAN 28, 1995 10:40 AM

LIQUID CATEGORY

SENSOR LOCATION TYPE
 1 LIQUID SENSOR #1 OTHER
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i704SSYYMMDDHHmmSSc...
 SSc&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Liquid Sensor Number (Decimal, 00=all)
3. c - Liquid Sensor Category:
  - 1=Other
  - 2=Annular
  - 3=Dispenser Pan
  - 4=Monitoring Well
  - 5=STP Sump
  - 6=Piping Sump
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 706**

**Function Type:** Set Vapor Sensor Configuration

Version 1

**Command Format:**

**Display:** <SOH>S706SSf

**Computer:** <SOH>s706SSf

**Inquire:**

<SOH>I706SS

<SOH>i706SS

### Typical Response Message, Display Format:

<SOH>

I706SS

JAN 28, 1995 10:40 AM

VAPOR CONFIGURATION

| DEVICE | LABEL           | CONFIGURED |
|--------|-----------------|------------|
| 1      | VAPOR SENSOR #1 | ON         |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i706SSYYMMDDHHmmSSf...  
SSf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Vapor Sensor Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 707**  
**Function Type:** Set Vapor Sensor Location Label

Version 1

**Command Format:**  
**Display:** <SOH>S707SSaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s707SSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I707SS  
<SOH>i707SS

### Typical Response Message, Display Format:

<SOH>  
I707SS  
JAN 28, 1995 10:40 AM  
  
VAPOR LABEL  
  
DEVICE LABEL  
1 VAPOR SENSOR #1  
<ETX>

### Typical Response Message, Computer Format:

SOH>i707SSYYMMDDHHmmSSaaaaaaaaaaaaaaaaaaaaa...  
SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Vapor Sensor Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 708**

Version 1

**Function Type:** Set Vapor Sensor Alarm Threshold

**Command Format:**

**Display:** <SOH>S708SSVVVVVV

**Computer:** <SOH>s708SSFFFFFFFF

**Inquire:**

<SOH>I708SS

<SOH>i708SS

### Notes:

1. SS - Vapor Sensor Number (Decimal, 00=all)
2. VVVVVV - Vapor alarm threshold (Decimal)
3. FFFFFFFF - Vapor alarm threshold (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I708SS
JAN 28, 1995 10:41 AM

VAPOR ALARM THRESHOLD

SENSOR LOCATION THRESHOLD
1 VAPOR SENSOR #1 100000
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i708SSYYMMDDHHmmSSFFFFFFFF...
SSFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Vapor Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Vapor alarm threshold (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 709**  
**Function Type:** Set Vapor Sensor Category

Version 2

**Command Format:**  
**Display:** <SOH>S709SSt  
**Computer:** <SOH>s709SSt

**Inquire:**  
<SOH>I709SS  
<SOH>i709SS

### Typical Response Message, Display Format:

```
<SOH>
I709SS
JAN 28, 1995 10:40 AM

VAPOR CATEGORY

SENSOR LOCATION CATEGORY
 1 VAPOR SENSOR #1 OTHER
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i709SSYYMMDDHHmmSSc...
 SSc&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Vapor Sensor Number (Decimal, 00=all)
3. c - Vapor Sensor Category:
  - 1=Other
  - 2=Annular
  - 3=Dispenser Pan
  - 4=Monitoring Well
  - 5=STP Sump
  - 6=Piping Sump
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 711  
**Function Type:** Set Groundwater Sensor Configuration

Version 1

**Command Format:**  
**Display:** <SOH>S711SSf  
**Computer:** <SOH>s711SSf

**Inquire:**  
<SOH>I711SS  
<SOH>i711SS

### Typical Response Message, Display Format:

```
<SOH>
I711SS
JAN 28, 1995 10:41 AM

GROUNDWATER CONFIGURATION

DEVICE LABEL CONFIGURED
 1 GROUNDWATER #1 ON
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i711SSYYMMDDHHmmSSf...
 SSf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Groundwater Sensor Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 712**

**Function Type:** Set Groundwater Sensor Location Label

Version 1

**Command Format:**

**Display:** <SOH>S712SSaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s712SSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I712SS

<SOH>i712SS

**Typical Response Message, Display Format:**

<SOH>

I712SS

JAN 28, 1995 10:41 AM

GROUNDWATER LABEL

DEVICE LABEL

1 GROUNDWATER #1

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i712SSYYMMDDHHmmSSaaaaaaaaaaaaaaaaaaaaa...

SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Groundwater Sensor Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 713**

**Function Type:** Set Groundwater Sensor Category

Version 2

**Command Format:**

**Display:** <SOH>S713SSt

**Computer:** <SOH>s713SSt

**Inquire:**

<SOH>I713SS

<SOH>i713SS

### Typical Response Message, Display Format:

<SOH>

I713SS

JAN 28, 1995 10:41 AM

GROUNDWATER CATEGORY

| SENSOR | LOCATION       | CATEGORY |
|--------|----------------|----------|
| 1      | GROUNDWATER #1 | OTHER    |

<ETX>

### Typical Response Message, Computer Format:

SOH>i713SSYYMMDDHHmmSSc...  
SSc&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Groundwater Sensor Number (Decimal, 00=all)
3. c - Groundwater Sensor Category:
  - 1=Other
  - 2=Annular
  - 3=Dispenser Pan
  - 4=Monitoring Well
  - 5=STP Sump
  - 6=Piping Sump
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 721**

**Function Type:** Set Smart Sensor Configuration

Version 24

**Command Format:**

**Display:** <SOH>S721SSc

**Computer:** <SOH>s721SSc

**Inquire:**

<SOH>I721SS

<SOH>i721SS

**Notes:**

1. Smart Sensor card must be installed
2. SS - Smart Sensor number, 00=all sensors
3. c - configured  
0=off  
1=on

**Typical Response Message, Display Format:**

<SOH>

I721SS

JUN 1, 2002 8:07 AM

SMART SENSOR CONFIGURATION

| DEVICE | LABEL  | CONFIGURED |
|--------|--------|------------|
| 01     | FP 1-2 | ON         |
| 02     | FP 3-4 | ON         |
| 03     | FP 5-6 | OFF        |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i721nnYYMMDDHHnnYYMMDDHHmmSSc...SSc&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor number
3. c - Configured  
0=off  
1=on
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 722**  
**Function Type:** Set Smart Sensor Label

Version 24

**Command Format:**  
**Display:** <SOH>S722SSaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s722SSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I722SS  
<SOH>i722SS

### Notes:

1. Smart Sensor card must be installed
2. If SS=00, only configured sensors are used
3. SS - Smart Sensor number, 00=all sensors
4. a - 20 ASCII characters [20h-7Eh]

### Typical Response Message, Display Format:

<SOH>  
I72200  
JUN 1, 2002 8:07 AM

SMART SENSOR LABEL

| DEVICE | LABEL  |
|--------|--------|
| 01     | FP 1-2 |
| 02     | FP 3-4 |
| 03     | FP 5-6 |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i722SSYYMDDHHSSaaaaaaaaaaaaaaaaaaaaa...  
SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Smart Sensor number
3. a - 20 ASCII characters [20h-7Eh]
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 723**  
**Function Type:** Set Smart Sensor Category

Version 25

**Command Format:**  
**Display:** <SOH>S723sscc  
**Computer:** <SOH>s723sscc

**Inquire:**  
<SOH>I723ss  
<SOH>i723ss

### Notes:

1. Smart Sensor card must be installed
2. If category is known, it cannot be changed to another known type
3. If ss=00, only configured sensors are used
4. ss - Smart Sensor number, 00=all sensors
5. cc - category  
00=unknown  
01=rotary air flow meter  
02=vapor pressure sensor  
03=mag sensor  
04=vac Sensor  
05=atmospheric sensor  
08=vapor valve

### Typical Response Message, Display Format:

```
<SOH>
I72300
JUN 1, 2002 8:07 AM

SMARTSENSOR ASSIGNMENT

SENSOR# LABEL CATEGORY
01 FP 1-2 VAPOR PRESSURE
02 FP 3-4 AIR FLOW METER
03 FP 5-6 AIR FLOW METER
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i723ssYYMMDDHHmmsscc...
 ssc&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor number
3. cc - category  
00=unknown  
01=rotary air flow meter  
02=vapor pressure sensor  
03=mag sensor  
04=vac Sensor  
05=atmospheric sensor  
08=vapor valve
4. && - Data Termination Flag
5. CCCC - Message Checksum

(Version 29)

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 727**

Version 24

**Function Type:** Set MAG Sensor Alarm Upgrade Delay

**Command Format:**

**Display:** <SOH>S727SSHHHH

**Computer:** <SOH>s727SSHHHH

**Inquire:**

<SOH>I727SS

<SOH>i727SS

**Notes:**

1. Only responds to Smart Sensors that are of type Mag Sensor.
2. SS - Smart Sensor Number (Decimal, 00=all)
3. HHHH - MAG Sensor Alarm Upgrade Delay, Hours (ASCII Decimal)

**Typical Response Message, Display Format:**

<SOH>

I727SS

JAN 22, 2003 3:18 PM

MAG SENSOR ALM UPGRADE DELAY

SENSOR LABEL

DELAY

1 STP SUMP 1

120

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i727SSYYMMDDHHmmSSFFFF...

SSFFFF&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. FFFF - Alarm Upgrade Delay (Hex)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 728**

Version 24

**Function Type:** Set MAG Sensor Alarm Threshold

**Command Format:**

**Display:** <SOH>S728SSAAxxx.xx

**Computer:** <SOH>sXXXSSAAFFFFFFFF

**Inquire:**

<SOH>I728SS

<SOH>i728SS

**Notes:**

1. Only responds when the Smart Sensor is a Mag Sensor type.
2. SS - Smart Sensor Number (ASCII Decimal, 00=all)
3. AA - Alarm Definition Record ID, (ASCII Decimal)
4. xxx.xx - Alarm Threshold, Inches or Deg. F (ASCII Decimal)
5. FFFFFFFF - Alarm Threshold, Inches or Deg. F (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>

I728SS

JAN 22, 2003 3:18 PM

MAG SENSOR ALARM THRESHOLD

s 1:SS-01

| ID | VALUE       | THRESHOLD | ALARM               | PROGRAMMABLE | UPGRADE |
|----|-------------|-----------|---------------------|--------------|---------|
| 1  | FUEL HT     | > 2.0     | FUEL ALARM          | YES          | NO      |
| 2  | WATER HT    | > 5.0     | WATER WARNING       | YES          | YES     |
| 3  | WATER HT    | > 10.0    | WATER ALARM         | YES          | NO      |
| 4  | INSTALL POS | > 5.0     | INSTALL ALARM       | NO           | NO      |
| 5  | FLUID TEMP  | < -40.0   | TEMPERATURE WARNING | YES          | NO      |

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 728 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i728SSYYMMDDHHmmSSrrPPaaFFppUUnnFFFFFFFFPPaaFFppUUnnFFFFFFFF...
SSrrPPaaFFppUUnnFFFFFFFFPPaaFFppUUnnFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (ASCII Decimal)
3. rr - Number of alarm definition records to follow (ASCII Decimal)
4. PP - Value for comparison (Hex)
  - 01=Total Height
  - 02=Fuel Height
  - 03=Water Height
  - 04=Install Position
  - 05=Fluid Temperature
  - 06=Board Temperature
5. aa - Alarm to monitor (Hex)
  - 01=Setup Data Warning
  - 02=Communication Alarm
  - 03=Sensor Fault Alarm
  - 04=Fuel Warning
  - 05=Fuel Alarm
  - 06=Water Warning
  - 07=Water Alarm
  - 08=High Liquid Warning
  - 09=High Liquid Alarm
  - 0A=Low Liquid Warning
  - 0B=Low Liquid Alarm
  - 0C=Temperature Warning
  - 0D=Relay Active
  - 0E=Install Alarm
6. FF - Compare Direction, 00="<", 01=">"
7. pp - Programmable Threshold, 00="No", 01="Yes"
8. UU - Alarm Upgrade, 00="No", 01="Yes"
9. nn - Number of 8-character ASCII Hex Characters to follow
10. FFFFFFFF - Alarm Threshold, Inches or Deg F (ASCII Hex IEEE float)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 729**

**Function Type:** Set Vacuum Sensor Pump Number

Version 24

**Command Format:**

**Display:** <SOH>S729SSAATT

**Computer:** <SOH>s729SSAATT

**Inquire:**

<SOH>I729SS

<SOH>i729SS

**Typical Response Message, Display Format:**

<SOH>

I729SS

FEB 14, 2004 10:15 PM

VACUUM SENSOR PUMP NUMBER

DEVICE LABEL

1 VACUUM #1

PUMP NUMBER

Q 1:UNLEADED REGULAR

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i729SSYYMMDDHHmmSSAATT...

SSAATT&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. AA - Device Type (Decimal)
  - 00=None
  - 11=Output Relay
  - 21=PLLD
  - 26=WPLLD
4. TT - Device Number (Decimal)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 72A**  
**Function Type:** Set Vacuum Sensor Volume

Version 24

**Command Format:**  
**Display:** <SOH>S72ASSGGGG.t  
**Computer:** <SOH>s72ASSFFFFFFFF

**Inquire:**  
<SOH>I72ASS  
<SOH>i72ASS

### Notes:

1. GGGG - Volume, Gallons and tenths (Decimal)
2. FFFFFFFF - Volume, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
I72ASS  
FEB 14, 2004 10:15 PM

VACUUM SENSOR VOLUME

| DEVICE | LABEL     | VOLUME        |
|--------|-----------|---------------|
| 1      | VACUUM #1 | 200.0 GALLONS |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i72ASSYYMDDHHmmSSFFFFFFFF...  
SSFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Volume, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 72B

**Function Type:** Set Vacuum Sensor Relief Valve Present

Version 24

**Command Format:**

**Display:** <SOH>S72BSSf

**Computer:** <SOH>s72BSSf

**Inquire:**

<SOH>I72BSS

<SOH>i72BSS

#### Typical Response Message, Display Format:

<SOH>

I72BSS

FEB 14, 2004 10:15 PM

VACUUM SENSOR RELIEF VALVE PRESENT

DEVICE LABEL

1 VACUUM #1

RELIEF VALVE

YES

<ETX>

#### Typical Response Message, Computer Format:

<SOH>i72BSSYYMMDDHHmmSSf...

SSf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. f - Relief Valve Present  
0=No Relief Valve  
1=Relief Valve
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 72C

Version 24

**Function Type:** Set Vacuum Sensor Relief Valve Pressure

**Command Format:**

**Display:** <SOH>S72CSSPPPP

**Computer:** <SOH>s72CSSFFFFFFFF

**Inquire:**

<SOH>I72CSS

<SOH>i72CSS

**Notes:**

1. PPPP - Relief Valve Pressure, PSI (Decimal)
2. FFFFFFFF - Relief Valve Pressure, PSI (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>  
I72CSS  
FEB 14, 2004 10:15 PM

VACUUM SENSOR RELIEF VALVE PRESSURE

| DEVICE | LABEL     | RELIEF VALVE PRESSURE |
|--------|-----------|-----------------------|
| 1      | VACUUM #1 | -9.0 PSI              |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i72CSSYYMDDHHmmSSFFFFFFFF...  
SSFFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Relief Valve Pressure, PSI (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 741**

**Function Type:** Set Type A (2 Wire CL) Sensor Configuration

Version 2

**Command Format:**

**Display:** <SOH>S741SSf

**Computer:** <SOH>s741SSf

**Inquire:**

<SOH>I741SS

<SOH>i741SS

### Typical Response Message, Display Format:

```
<SOH>
I741SS
JAN 28, 1995 10:41 AM

2 WIRE CL CONFIGURATION

DEVICE LABEL CONFIGURED
 1 2 WIRE CL SENSOR #1 ON
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i741SSYYMMDDHHmmSSf...
 SSf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type A Sensor Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 742**

**Function Type:** Set Type A (2 Wire CL) Sensor Location Label

Version 2

**Command Format:**

**Display:** <SOH>S742SSaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s742SSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I742SS

<SOH>i742SS

#### Typical Response Message, Display Format:

```
<SOH>
I742SS
JAN 28, 1995 10:41 AM

2 WIRE CL LABEL

DEVICE LABEL
 1 2 WIRE CL SENSOR #1
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i742SSYYMMDDHHmmSSaaaaaaaaaaaaaaaaaaaaa...
SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type A Sensor Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 743**

**Function Type:** Set Type A (2 Wire CL) Sensor Type

Version 2

**Command Format:**

**Display:** <SOH>S743SSt

**Computer:** <SOH>s743SSt

**Inquire:**

<SOH>I743SS

<SOH>i743SS

#### Typical Response Message, Display Format:

<SOH>

I743SS

JAN 28, 1995 10:41 AM

2 WIRE CL TYPE

SENSOR LOCATION

TYPE

1 2 WIRE CL SENSOR #1 ULTRA 2

<ETX>

#### Typical Response Message, Computer Format:

<SOH>i743SSYYMMDDHHmmSSt...

SSt&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type A Sensor Number (Decimal, 00=all)
3. t - Type A Sensor Type:  
1=ULTRA 2  
2=ULTRA 3
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 744**

**Function Type:** Set Type A (2 Wire CL) Sensor Category

Version 2

**Command Format:**

**Display:** <SOH>S744SSa

**Computer:** <SOH>s744SSa

**Inquire:**

<SOH>I744SS

<SOH>i744SS

### Typical Response Message, Display Format:

<SOH>

I743SS

JAN 28, 1995 10:41 AM

2 WIRE CL CATEGORY

| SENSOR | LOCATION            | CATEGORY |
|--------|---------------------|----------|
| 1      | 2 WIRE CL SENSOR #1 | ANNULAR  |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i744SSYYMMDDHHmmSSc...  
SSc&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type A Sensor Number (Decimal, 00=all)
3. c - Type A Sensor Category:
  - 1=Other
  - 2=Annular
  - 3=Dispenser Pan
  - 4=Monitoring Well
  - 5=STP Sump
  - 6=Piping Sump
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 746**

**Function Type:** Set Type B (3 Wire CL) Sensor Configuration

Version 2

**Command Format:**

**Display:** <SOH>S746SSf

**Computer:** <SOH>s746SSf

**Inquire:**

<SOH>I746SS

<SOH>i746SS

### Typical Response Message, Display Format:

```
<SOH>
I746SS
JAN 28, 1995 10:41 AM

3 WIRE CL CONFIGURATION

DEVICE LABEL CONFIGURED
 1 3 WIRE CL SENSOR #1 ON
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i746SSYYMMDDHHmmSSf...
 SSf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type B Sensor Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 747**

**Function Type:** Set Type B (3 Wire CL) Sensor Location Label

Version 2

**Command Format:**

**Display:** <SOH>S747SSaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s747SSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I742SS

<SOH>i742SS

### Typical Response Message, Display Format:

```
<SOH>
I747SS
JAN 28, 1995 10:41 AM

3 WIRE CL LABEL

DEVICE LABEL
1 3 WIRE CL SENSOR #1
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i747SSYYMMDDHHmmSSaaaaaaaaaaaaaaaaaaaaa...
SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type B Sensor Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 748**

**Function Type:** Set Type B (3 Wire CL) Sensor Type

Version 5

**Command Format:**

**Display:** <SOH>S748SSt

**Computer:** <SOH>s748SSt

**Inquire:**

<SOH>I748SS

<SOH>i748SS

### Typical Response Message, Display Format:

```
<SOH>
I748SS
JAN 28, 1995 10:41 AM

3 WIRE CL TYPE

SENSOR LOCATION TYPE
 1 3 WIRE CL SENSOR #1 ULTRA/Z-1
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i748SSYYMMDDHHmmSSt...
 SSt&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal)
3. t - Sensor Type  
1=ULTRA/Z-1  
2=ULTRA/Z-1 HV
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 749**

**Function Type:** Set Type B (3 Wire CL) Sensor Category

Version 2

**Command Format:**

**Display:** <SOH>S749SSa

**Computer:** <SOH>s749SSa

**Inquire:**

<SOH>I749SS

<SOH>i749SS

### Typical Response Message, Display Format:

```
<SOH>
I749SS
JAN 28, 1995 10:41 AM

3 WIRE CL CATEGORY

SENSOR LOCATION CATEGORY
 1 3 WIRE CL SENSOR #1 ANNULAR
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i749SSYYMMDDHHmmSSc...
 SSc&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Type B Sensor Number (Decimal, 00=all)
3. t - Type B Sensor Category:
  - 1=Other
  - 2=Annular
  - 3=Dispenser Pan
  - 4=Monitoring Well
  - 5=STP Sump
  - 6=Piping Sump
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 74B  
**Function Type:** Set Universal Sensor Configuration

Version 4

**Command Format:**  
**Display:** <SOH>S74BSSf  
**Computer:** <SOH>s74BSSf

**Inquire:**  
<SOH>I74BSS  
<SOH>i74BSS

### Typical Response Message, Display Format:

```
<SOH>
I74BSS
JAN 28, 1995 10:41 AM

UNIVERSAL CONFIGURATION

DEVICE LABEL CONFIGURED
 1 UNIVERSAL SENSOR #1 ON
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i74BSSYYMMDDHHmmSSf...
 SSf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 74C**

Version 4

**Function Type:** Set Universal Sensor Location Label

**Command Format:**

**Display:** <SOH>S74CSSaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s74CSSaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I74CSS

<SOH>i74CSS

**Typical Response Message, Display Format:**

<SOH>

I74CSS

JAN 28, 1995 10:41 AM

UNIVERSAL LABEL

DEVICE LABEL

1 UNIVERSAL SENSOR #1

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i74CSSYYMMDDHHmmSSaaaaaaaaaaaaaaaaaaaaa...

SSaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 74D  
**Function Type:** Set Universal Sensor Type

Version 4

**Command Format:**  
**Display:** <SOH>S74DSSt  
**Computer:** <SOH>s74DSSt

**Inquire:**  
<SOH>I74DSS  
<SOH>i74DSS

### Typical Response Message, Display Format:

```
<SOH>
I74DSS
JAN 28, 1995 10:41 AM

UNIVERSAL TYPE

SENSOR LOCATION TYPE
 1 UNIVERSAL SENSOR #1 ULTRA/Z-1
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i74DSSYYMMDDHHmmSSt...
 SSt&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal)
3. t - Sensor Type
  - 1=TRI-STATE
  - 2=NORMALLY CLOSED
  - 3=DUAL DIFFERENTIATING
  - 4=ULTRA 2
  - 5=ULTRA 3
  - 6=ULTRA/Z-1
  - 7=ULTRA/Z-1 HV
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 74E**

**Function Type:** Set Universal Sensor Category

Version 4

**Command Format:**

**Display:** <SOH>S74ESSa

**Computer:** <SOH>s74ESSa

**Inquire:**

<SOH>I74ESS

<SOH>i74ESS

### Typical Response Message, Display Format:

<SOH>

I74ESS

JAN 28, 1995 10:41 AM

UNIVERSAL CATEGORY

| SENSOR | LOCATION | CATEGORY |
|--------|----------|----------|
|--------|----------|----------|

|   |                     |         |
|---|---------------------|---------|
| 1 | UNIVERSAL SENSOR #1 | ANNULAR |
|---|---------------------|---------|

<ETX>

### Typical Response Message, Computer Format:

<SOH>i74ESSYYMMDDHHmmSSc...

SSc&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal)
3. c - Category
  - 1=Other
  - 2=Annular
  - 3=Dispenser Pan
  - 4=Monitoring Well
  - 5=STP Sump
  - 6=Piping Sump
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.6 VOLUMETRIC LINE LEAK SETUP

**Function Code:** 751

Version 1

**Function Type:** Set Volumetric Line Leak Configuration

**Command Format:**

**Display:** <SOH>S751PPf

**Computer:** <SOH>s751PPf

**Inquire:**

<SOH>I751PP

<SOH>i751PP

**Typical Response Message, Display Format:**

<SOH>

I751PP

MAR 26, 1996 1:53 PM

LINE LEAK CONFIGURATION

| DEVICE | LABEL            | CONFIGURED |
|--------|------------------|------------|
| 1      | REGULAR UNLEADED | ON         |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i751PPYYMMDDHHmmPPf...

PPf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 752**

**Function Type:** Set Volumetric Line Leak Tank Number

Version 1

**Command Format:**

**Display:** <SOH>S752PPtt

**Computer:** <SOH>s752PPtt

**Inquire:**

<SOH>I752PP

<SOH>i752PP

**Typical Response Message, Display Format:**

<SOH>

I752PP

MAR 26, 1996 1:53 PM

LINE LEAK TANK ASSIGNMENT

| LINE | LABEL            | TANK |
|------|------------------|------|
| 1    | REGULAR UNLEADED | 1    |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i752PPYYMMDDHHmmPPtt...  
PPtt&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. tt - Tank number (00=not assigned)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 753**

**Function Type:** Set Volumetric Line Leak 2 Inch Pipe Length

Version 1

**Command Format:**

**Display:** <SOH>S753PPLLL

**Computer:** <SOH>s753PPFFFFFFF

**Inquire:**

<SOH>I753PP

<SOH>i753PP

**Notes:**

1. PP - Pipeline Number (Decimal, 00=all)
2. LLL - 2" Pipe Length, Feet (Decimal)
3. FFFFFFFF - 2" Pipe Length, Feet (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I753PP
MAR 26, 1996 1:53 PM

LINE LEAK 2" INCH PIPING LENGTH

P 1:REGULAR UNLEADED
2" PIPING LENGTH: 250
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i753PPYYMMDDHHmmPPFFFFFFF...
PPFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. FFFFFFFF - 2" Pipe Length, Feet (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 754**

**Function Type:** Set Volumetric Line Leak 3 Inch Pipe Length

Version 1

**Command Format:**

**Display:** <SOH>S754PPLLL

**Computer:** <SOH>s754PPFFFFFFF

**Inquire:**

<SOH>I754PP

<SOH>i754PP

**Notes:**

1. PP - Pipeline Number (Decimal, 00=all)
2. LLL - 3" Pipe Length, Feet (Decimal)
3. FFFFFFFF - 3" Pipe Length, Feet (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I754PP
MAR 26, 1996 1:53 PM

LINE LEAK 3" INCH PIPING LENGTH

P 1:REGULAR UNLEADED
3" PIPING LENGTH: 0
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i754PPYYMMDDHHmmPPFFFFFFF...
PPFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. FFFFFFFF - 3" Pipe Length, Feet (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 755**

**Function Type:** Set Volumetric Line Leak Pump PSI

Version 1

**Command Format:**

**Display:** <SOH>S755PPppp

**Computer:** <SOH>s755PPFFFFFFFF

**Inquire:**

<SOH>I755PP

<SOH>i755PP

### Notes:

1. PP - Pipeline Number (Decimal, 00=all)
2. ppp - Pump Pressure, PSI (Decimal)
3. FFFFFFFF - Pump Pressure, PSI (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I755PP
MAR 26, 1996 1:53 PM

LINE LEAK PUMP PSI

P 1:REGULAR UNLEADED
PUMP PSI : 27
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i755PPYYMMDDHHmmPPPPPPPPPP...
PPPPPPPPPP&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. FFFFFFFF - Pump Pressure, PSI (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 756**

**Function Type:** Set Volumetric Line Leak Piping Material

Version 1

**Command Format:**

**Display:** <SOH>S756PPmm

**Computer:** <SOH>s756PPmm

**Inquire:**

<SOH>I756PP

<SOH>i756PP

### Typical Response Message, Display Format:

```
<SOH>
I756PP
MAR 26, 1996 1:53 PM

LINE LEAK PIPING MATERIAL

P 1:REGULAR UNLEADED
PIPE TYPE: FIBERGLASS
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i756PPYYMMDDHHmmPPmm...
PPmm&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. mm - Piping Material:
  - 01=Steel
  - 02=Fiberglass
  - 03=2-Wall Fiberglass
  - 04=Flexible
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 757**

**Function Type:** Set Volumetric Line Leak Shutdown Rate

Version 1

**Command Format:**

**Display:** <SOH>S757PPrr

**Computer:** <SOH>s757PPrr

**Inquire:**

<SOH>I757PP

<SOH>i757PP

**Typical Response Message, Display Format:**

```
<SOH>
I757PP
MAR 26, 1996 1:53 PM

LINE LEAK SHUTDOWN RATE

P 1:REGULAR UNLEADED
SHUTDOWN : 3.0 GAL/HR
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i757PPYYMMDDHHmmPPrr...
 PPrr&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. rr - Line Leak Shutdown Rate:
  - 01=3.00 Gal/Hr
  - 02=0.20 Gal/Hr
  - 03=0.10 Gal/Hr
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 758**

**Function Type:** Set Volumetric Line Leak Pump Side Test

Version 1

**Command Format:**

**Display:** <SOH>S758PPss

**Computer:** <SOH>s758PPss

**Inquire:**

<SOH>I758PP

<SOH>i758PP

**Typical Response Message, Display Format:**

```
<SOH>
I758PP
MAR 26, 1996 1:53 PM

LINE LEAK PUMP SIDE TEST

P 1:REGULAR UNLEADED
PUMPSIDE TEST: ENABLED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i758PPYYMMDDHHmmPPss...
 PPss&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. ss - Line Leak Pump Side Test:  
00=Disable  
01=Enable
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 759**

Version 1

**Function Type:** Set Volumetric Line Leak Test Type & Start Time

**Command Format:**

**Display:** <SOH>S759PPrrMYMMDDHHmm<CR> (if M=1)  
MMWDHHmm<CR> (if M=2)  
WDHHmm<CR> (if M=3)  
DHHmm<CR> (if M=4)  
HHmm<CR> (if M=5)  
**Computer:** <SOH>s759PPrrMYMMDDHHmm<CR> (if M=1)  
MMWDHHmm<CR> (if M=2)  
WDHHmm<CR> (if M=3)  
DHHmm<CR> (if M=4)  
HHmm<CR> (if M=5)

**Inquire:**  
<SOH>I759PP

<SOH>i759PP

### Typical Response Message, Display Format:

```
<SOH>
I759PP
MAR 26, 1996 1:53 PM

LINE LEAK TEST SETUP
- - - - -
TEST ON DATE : ALL LINES
APR 1, 1996
START TIME : 2:15 PM
TEST RATE :0.20 GAL/HR
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i759PPYYMMDDHHmmPPrrMYMMDDHHmm (if M=1)
MMWDHHmm (if M=2)
WDHHmm (if M=3)
DHHmm (if M=4)
HHmm (if M=5)
PPrrMYMMDDHHmm&&CCCC<ETX> (if M=1)
MMWDHHmm&&CCCC<ETX> (if M=2)
WDHHmm&&CCCC<ETX> (if M=3)
DHHmm&&CCCC<ETX> (if M=4)
HHmm&&CCCC<ETX> (if M=5)
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. rr - Volumetric Line Leak Test Type:
  - 01=0.20 Gal/Hr
  - 02=0.10 Gal/Hr

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code 759 Notes: (Continued)

4. M - Volumetric Line Leak Test Method:
  - 1=On Date
  - 2=Annually
  - 3=Monthly
  - 4=Weekly
  - 5=Daily
  - If M=1 ON DATE, YYMMDDHHmm:
    - YY =Year
    - MM =Month (01-12)
    - DD =Day
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=2 ANNUALLY, MMWDHHmm:
    - MM =Month (01-12)
    - W =Week Number (1-4)
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=3 MONTHLY, WDHHmm:
    - W =Week Number (1-4)
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=4 WEEKLY, DHHmm:
    - D =Day (1=Monday, 2=Tuesday, . . . 7=Sunday)
    - HHmm=Hour, Minute (EE00=Disabled)
  - If M=5 DAILY, HHmm:
    - HHmm=Hour, Minute (EE00=Disabled)
5. && - Data Termination Flag
6. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 75A**

Version 1

**Function Type:** Set Line Leak Lockout Schedule (All Types)

**Command Format:**

**Display:** <SOH>S75A00SHHmmHHmm<CR> (if S=0)

                    NsHHmmeHHmm<CR> (if S=1)

**Computer:** <SOH>s75A00SHHmmHHmm<CR> (if S=0)

                    NsHHmmeHHmm<CR> (if S=1)

**Inquire:**

<SOH>I75A00

<SOH>i75A00

**Typical Response Message, Display Format:**

```
<SOH>
I75A00
MAR 26, 1996 1:54 PM

LINE LEAK LOCKOUT SETUP
- - - - -
LOCKOUT SCHEDULE
DAILY
START TIME: 10:45 PM
STOP TIME : 4:45 AM
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i75A00YYMMDDHHmmSHHmmHHmm (if S=0)
 NsHHmmeHHmm (if S=1)
 SHHmmHHmm&&CCCC<ETX> (if S=0)
 NsHHmmeHHmm&&CCCC<ETX> (if S=1)
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. S - Lockout Schedule Type:
3. - If S=0 (Daily):  
HHmm=Start Lockout Time (Hours, minutes)  
HHmm=End Lockout Time (Hours, minutes)
4. - If S=1 (Individual):  
N = Lockout Number (0=All Lockouts, 1..7)  
s = Start Lockout Day (1=Mon, 2=Tue, ..., 7=Sun)  
HHmm= Start Lockout Time (Hours, minutes)  
e = End Lockout Day (1=Mon, 2=Tue, ..., 7=Sun)  
HHmm= End Lockout Time (Hours, minutes)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 75B**

**Function Type:** Set Line Disable Alarm Assignments

Version 2

**Command Format:**

**Display:** <SOH>S75BPPAANNTTSS

**Computer:** <SOH>s75BPPAANNTTSS

**Inquire:**

<SOH>I75BPP

<SOH>i75BPP

### Typical Response Message, Display Format:

```
<SOH>
I75BPP
MAR 26, 1996 1:54 PM

LINE LEAK SETUP REPORT

P 1:REGULAR UNLEADED
- NO ALARM ASSIGNMENTS -
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i75BPPYYMMDDHHmmPPnnAANNTTSS...
 PPnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. nn - Number of Alarms to Follow
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:  
00=Clear  
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 75C

**Function Type:** Set Volumetric Line Leak Last Annual Test

Version 2

**Command Format:**

**Display:** <SOH>S75CPPYYMMDD

**Computer:** <SOH>s75CPPYYMMDD

**Inquire:**

<SOH>I75CPP

<SOH>i75CPP

**Typical Response Message, Display Format:**

```
<SOH>
I75CPP
MAR 26, 1996 1:54 PM

LINE LEAK LAST ANNUAL TEST

P 1:REGULAR UNLEADED
MAR 26, 1996
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i75CPPYYMMDDHHmmPPYYMMDD...
PPYYMMDD&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. YYMMDD - Year, Month, Day of Last Annual Test
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 75D

**Function Type:** Set Volumetric Line Leak Dispense Mode

Version 4

**Command Format:**

**Display:** <SOH>S75DPPf

**Computer:** <SOH>s75DPPf

**Inquire:**

<SOH>I75DPP

<SOH>i75DPP

### Typical Response Message, Display Format:

```
<SOH>
I75DPP
MAR 26, 1996 1:54 PM

LINE LEAK DISPENSE MODE

LINE LABEL DISPENSE MODE
 1 REGULAR UNLEADED STANDARD
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i75DPPYYMMDDHHmmPPf...
 PPf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. f - Dispensing Mode:
  - 1=Standard
  - 2=Manifolded: Alternate
  - 3=Manifolded: Sequential
  - 4=Manifolded: All Pumps
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 75E**

**Function Type:** Set Volumetric Line Leak Fuel Type

Version 4

**Command Format:**

**Display:** <SOH>S75EPPss

**Computer:** <SOH>s75EPPss

**Inquire:**

<SOH>I75EPP

<SOH>i75EPP

**Typical Response Message, Display Format:**

```
<SOH>
I75EPP
MAR 26, 1996 1:54 PM

LINE LEAK FUEL TYPE

P 1:REGULAR UNLEADED
FUEL TYPE: GASOLINE
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i75PPYYMMDDHHmmPPss...
 PPss&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. ss - Fuel Type:  
00=Gasoline  
01=Diesel
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 75F**

**Function Type:** Set Volumetric Line Leak Wait Method

Version 5

**Command Format:**

**Display:** <SOH>S75FPPr

**Computer:** <SOH>s75FPPr

**Inquire:**

<SOH>I7F7PP

<SOH>i7F7PP

**Typical Response Message, Display Format:**

```
<SOH>
I75FPP
MAR 26, 1996 1:54 PM

LINE LEAK WAIT MODE

P 1:REGULAR UNLEADED
WAIT MODE: TEMP. MEAS.
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i75FPPYYMMDDHHmmPPrr...
 PPrr&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. rr - Line Leak Wait Method:
  - 1=Temperature Measurement
  - 2=Volume Change Measurement
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 760**

Version 6

**Function Type:** Set Volumetric Line Leak Location Label

**Command Format:**

**Display:** <SOH>S760PPaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s760PPaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I760SS

<SOH>i760SS

**Typical Response Message, Display Format:**

```
<SOH>
I760PP
MAR 26, 1996 1:52 PM

LINE LEAK LABEL

DEVICE LABEL
 1 REGULAR UNLEADED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i760PPYYMMDDHHmmPPaaaaaaaaaaaaaaaaaaaaa...
PPaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 761

**Function Type:** Set Volumetric Line Leak Blend Partner

Version 7

**Command Format:**

**Display:** <SOH>S761PPss

**Computer:** <SOH>s761PPss

**Inquire:**

<SOH>I761PP

<SOH>i761PP

#### Typical Response Message, Display Format:

```
<SOH>
I761PP
MAR 26, 1996 1:52 PM
LINE LABEL NBP PARTNER
P 1:REGULAR UNLEADED NONE
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i761PPYYMDDHHmmPPss...
 PPss&&CCCC<ETX>
```

#### Notes:

1. YYMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. ss - Pipeline Number of Blend Partner (Decimal, 00=all)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7BC

**Function Type:** Set Line Disable Alarm Assignments II

Version 19

**Command Format:**

**Display:** <SOH>S7BCPPAANNTTSS

**Computer:** <SOH>s7BCPPAANNTTSS

**Inquire:**

<SOH>I7BCPP

<SOH>i7BCPP

### Typical Response Message, Display Format:

```
<SOH>
I7BCPP
JAN 15, 1996 4:29 PM

LINE LEAK SETUP REPORT

P 1: LLD NUMBER 1

LINE LEAK
P 1:ANNUAL LINE FAIL
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7BCPPYYMMDDHHmmPPnnAANNTTSS...
PPnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. nn - Number of Alarms to Follow (Hex)
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:  
00=Clear  
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.7 PUMP SENSOR SETUP

**Function Code:** 771

Version 2

**Function Type:** Set Pump Sensor Configuration

**Command Format:**

**Display:** <SOH>S771SSf

**Computer:** <SOH>s771SSf

**Inquire:**

<SOH>I771SS

<SOH>i771SS

**Typical Response Message, Display Format:**

<SOH>

I771SS

MAR 27, 1996 5:49 PM

PUMP SENSE CONFIGURATION

| DEVICE | LABEL            | CONFIGURED |
|--------|------------------|------------|
| 1      | UNLEADED REGULAR | ON         |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i771SSYYMMDDHHmmSSf...

SSf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 772  
**Function Type:** Set Pump Sensor Tank Number

Version 2

**Command Format:**  
**Display:** <SOH>S772SStt  
**Computer:** <SOH>s772SStt

**Inquire:**  
<SOH>I772SS  
<SOH>i772SS

### Typical Response Message, Display Format:

```
<SOH>
I772SS
MAR 27, 1996 5:49 PM

PUMP SENSOR TANK ASSIGNMENT

PUMP SENSOR TANK
 1 1
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i772SSYYMMDDHHmmSStt...
 SStt&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal, 00=all)
3. tt - Tank Number (Decimal, 00=not assigned)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 773**

**Function Type:** Set Pump Sensor Dispense Mode

Version 4

**Command Format:**

**Display:** <SOH>S773SSf

**Computer:** <SOH>s773SSf

**Inquire:**

<SOH>I773SS

<SOH>i773SS

#### Typical Response Message, Display Format:

```
<SOH>
I773SS
MAR 27, 1996 5:50 PM

PUMP SENSOR DISPENSE MODE

PUMP SENSOR MODE
 1 MANIFOLDED: SEQUENTIAL
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i773SSYYMMDDHHmmSSf...
 SSf&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal)
3. f - Dispense Mode:
  - 1=Standard
  - 2=Manifolded: Alternate
  - 3=Manifolded: Sequential
  - 4=Manifolded: All Pumps
  - 5=Manifolded: Alternate-Height
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7DA  
**Function Type:** Set Pump Sensor Alternate Modes  
Auto Active Pump Switchover Enable

Version 33

**Command Format:**  
**Display:** <SOH>S7DASSf  
**Computer:** <SOH>s7DASSf

**Inquire:**  
<SOH>I7DASS  
<SOH>i7DASS

**Notes:**

1. f - 0=disabled; 1=enabled

**Typical Response Message, Display Format:**

```
<SOH>
I7DASS
MAR 27, 2014 5:50 PM

PUMP SENSOR ALTERNATE MODE SWITCHOVER ENABLE

DEVICE LABEL ENABLED
S 1:UNLEADED GASOLINE YES
S 2:UNLEADED GASOLINE NO
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i7DASSYYMMDDHHmmSSf...
SSf&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal, 00=all)
3. f - Auto Switchover Enabled:  
0=No  
1=Yes
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7DB  
**Function Type:** Set Pump Sensor Alternate Mode  
Auto Active Pump Switchover Volume Threshold

Version 33

**Command Format:**  
**Display:** <SOH>S7DBSSGGGG  
**Computer:** <SOH>s7DBSSFFFFFFFFF

**Inquire:**  
<SOH>I7DBSS  
<SOH>i7DBSS

### Notes:

1. SS - Pump Sensor Number (Decimal, 00=all)
2. GGGG - Full Height Volume, Gallons (Decimal)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I7DBSS
MAR 27, 2014 5:50 PM

PUMP SENSOR ALTERNATE MODE SWITCHOVER THRESHOLD

DEVICE LABEL GALLONS
 1 REGULAR UNLEADED 200
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7DBSSYYMDDHHmmSSFFFFFFFFF...
 SSFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Switchover threshold, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7DC

Version 33

**Function Type:** Set Pump Sensor Alternate-Height Mode  
Auto Active Pump Switchover Height Threshold

**Command Format:**

**Display:** <SOH>S7DCSShhhh.h

**Computer:** <SOH>s7DCSSFFFFFFFF

**Inquire:**

<SOH>I7DCSS

<SOH>i7DCSS

**Notes:**

1. SS - Pump Sensor Number (Decimal, 00=all)
2. hhhh.h - Switchover Threshold, Inches and tenths (Decimal)
3. FFFFFFFF - Switchover Threshold, Inches (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I7DCSS
MAR 27, 1996 5:50 PM

PUMP SENSOR ALTERNATE-HEIGHT MODE SWITCHOVER THRESHOLD

DEVICE LABEL INCHES
S 1:UNLEADED 2.0
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i7DCSSYYMMDDHHmmSSFFFFFFFF...
SSFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Switchover threshold, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.8 PRESSURE LINE LEAK SETUP

**Function Code:** 774

Version 27

**Function Type:** Set Pressure Line Leak Continuous Handle Alarm Timeout

**Command Format:**

**Display:** <SOH>S774QQtt

**Computer:** <SOH>s774QQtt

**Inquire:**

<SOH>I774QQ

<SOH>i774QQ

**Notes:**

1. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
2. tt - Continuous Handle Alarm Timeout (Decimal, in hours, 1-16)

**Typical Response Message, Display Format:**

```
<SOH>
I774QQ
SEP 16, 2006 3:15 PM

PLLD CONTINUOUS HANDLE ALARM TIMEOUT

LINE TIMEOUT
Q 1:REGULAR UNLEADED 16 HOURS
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i774QQYYMMDDHHmmQQttQQtt...
 QQtt&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. tt - Continuous Handle Alarm Timeout (Decimal, in hours, 1-16)
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 775**

Version 23

**Function Type:** Set Pressure Line Leak Profile Line Test Leak Rate

**Command Format:**

**Display:** <SOH>S775QQrr.rr

**Computer:** <SOH>s775QQFFFFFFF

**Inquire:**

<SOH>I775QQ

<SOH>i775QQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
2. rr.rr - Profile Line Test Leak Rate, GPH (Decimal)
3. FFFFFFFF - Profile Line Test Leak Rate, GPH (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I775QQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK PROFILE LINE TEST LEAK RATE

LINE TEST LEAK RATE
Q 1:UNLEADED REGULAR 3.00 GPH
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s775QQYYMMDDHHmmQQFFFFFFF
QQFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
3. FFFFFFFF - Profile Line Test Leak Rate, GPH (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 776**

Version 23

**Function Type:** Set Pressure Line Leak Profile Line Test Reference Pressure

**Command Format:**

**Display:** <SOH>S776QQppp.pp

**Computer:** <SOH>s776QQFFFFFFFF

**Inquire:**

<SOH>I776QQ

<SOH>i776QQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
2. ppp.pp - Profile Line Test Reference Pressure, PSI (Decimal)
3. FFFFFFFF - Profile Line Test Reference Pressure, PSI (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I776QQ
JAN 14, 1995 10:15 PM

PROFILE LINE TEST REFERENCE PRESSURE

LINE TEST REF PRESSURE
Q 1:UNLEADED REGULAR 10.00 PSI
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s776QQYYMMDDHHmmQQFFFFFFFF
QQFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00 = all)
3. FFFFFFFF - Profile Line Test Reference Pressure, PSI (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 777**

Version 23

**Function Type:** Set Pressure Line Leak Primary Pipe Diameter

**Command Format:**

**Display:** <SOH>S777QQI.hh

**Computer:** <SOH>s777QQFFFFFFFF

**Inquire:**

<SOH>I777QQ

<SOH>i777QQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. I.hh - Pipe Diameter, Inches and hundredths (Decimal)
3. FFFFFFFF - Pipe Diameter, Inches (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I777QQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK PRIMARY PIPE DIAMETER

LINE 1ST LINE DIAMETER
Q 1:UNLEADED REGULAR 1.75 INCHES
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s777QQYYMMDDHHmmQQFFFFFFFF...
 QQFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Diameter, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 778**

Version 23

**Function Type:** Set Pressure Line Leak Secondary Pipe Diameter

**Command Format:**

**Display:** <SOH>S778QQI.hh

**Computer:** <SOH>s778QQFFFFFFF

**Inquire:**

<SOH>I778QQ

<SOH>i778QQ

**Notes:**

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. I.hh - Pipe Diameter, Inches and hundredths (Decimal)
3. FFFFFFFF - Pipe Diameter, Inches (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I778QQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK SECONDARY PIPE DIAMETER

LINE 2ND LINE DIAMETER
Q 1:UNLEADED REGULAR 1.75 INCHES
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>s778QQYYMMDDHHmmQQFFFFFFF...
 QQFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Diameter, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 779**

Version 23

**Function Type:** Set Pressure Line Leak Primary Pipe Bulk Modulus

**Command Format:**

**Display:** <SOH>S779QQBBBBB

**Computer:** <SOH>s779QQFFFFFFFF

**Inquire:**

<SOH>I779QQ

<SOH>i779QQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. BBBBB - Pipe Bulk Modulus, PSI (Decimal)
3. FFFFFFFF - Pipe Bulk Modulus, PSI (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I779QQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK PRIMARY PIPE BULK MODULUS

LINE 1ST BULK MODULUS
Q 1:UNLEADED REGULAR 12000 PSI
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s779QQYYMMDDHHmmQQFFFFFFFF...
 QQFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Bulk Modulus, PSI (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 77A**

Version 23

**Function Type:** Set Pressure Line Leak Secondary Pipe Bulk Modulus

**Command Format:**

**Display:** <SOH>S77AQQBBBBB

**Computer:** <SOH>s77AQQFFFFFFF

**Inquire:**

<SOH>I77AQQ

<SOH>i77AQQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. BBBBB - Pipe Bulk Modulus, PSI (Decimal)
3. FFFFFFFF - Pipe Bulk Modulus, PSI (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I77AQQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK SECONDARY PIPE BULK MODULUS

LINE 2ND BULK MODULUS
Q 1:UNLEADED REGULAR 12000 PSI
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s77AQQYYMMDDHHmmQQFFFFFFF...
 QQFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Bulk Modulus, PSI (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 77B**

Version 23

**Function Type:** Set Pressure Line Leak Thermal Expansion Coefficient

**Command Format:**

**Display:** <SOH>S77BQQc.cccccc

**Computer:** <SOH>s77BQQFFFFFFF

**Inquire:**

<SOH>I77BQQ

<SOH>i77BQQ

**Notes:**

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. c.cccccc - Thermal Expansion Coefficient (Decimal)
3. FFFFFFFF - Thermal Expansion Coefficient (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>  
I77BQQ  
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK THERMAL COEFFICIENT

| LINE                 | THERMAL COEFFICIENT |
|----------------------|---------------------|
| Q 1:UNLEADED REGULAR | 0.000700            |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>s77BQQYYMMDDHHmmQQFFFFFFF...  
QQFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Thermal Expansion Coefficient (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 77C

**Function Type:** Set Pressure Line Leak Low Pressure Shutoff

Version 19

**Command Format:**

**Display:** <SOH>S77CQQf

**Computer:** <SOH>s77CQQf

**Inquire:**

<SOH>I77CQQ

<SOH>i77CQQ

**Typical Response Message, Display Format:**

<SOH>

I77CQQ

JAN 24, 2000 2:54 PM

PRESSURE LINE LEAK LOW PRESSURE SHUTOFF

LINE

LOW PRESSURE SHUTOFF

Q 1:REGULAR UNLEADED

YES

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i77CQQYYMMDDHHmmQQf...

QQf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. f - Enabled/disabled flag  
0=disabled (no)  
1=enabled (yes)
4. && - Data Termination Flag
5. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 77D

Version 19

**Function Type:** Set Pressure Line Leak Altitude Pressure Offset

**Command Format:**

**Display:** <SOH>S77DQQII.p

**Computer:** <SOH>s77DQQFFFFFFFF

**Inquire:**

<SOH>I77DQQ

<SOH>i77DQQ

**Notes:**

1. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
2. II.p - Altitude Pressure Offset, PSI or KPA (Decimal)
3. FFFFFFFF - Altitude Pressure Offset, PSI or KPA (ASCII Hex IEEE float)
4. Value must be within the range of +5.0 to -5.0 PSI or 34.4 to -34.4 KPA

**Typical Response Message, Display Format:**

<SOH>

I77DQQ

JAN 1, 2000 1:44 AM

ALTITUDE PRESSURE OFFSET ADJUSTMENT

LINE

PRESSURE OFFSET

Q 1:REGULAR UNLEADED

0.0 PSI

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i77DQQYYMMDDHHmmQQFFFFFFFF...  
QQFFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. FFFFFFFF - Altitude Pressure offset, PSI or KPA (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 77E**

Version 24

**Function Type:** Set Pressure Line Leak Passive 0.10 GPH Test Enable Flag

**Command Format:**

**Display:** <SOH>S77EQQf

**Computer:** <SOH>s77EQQf

**Inquire:**

<SOH>I77EQQ

<SOH>i77EQQ

**Typical Response Message, Display Format:**

```
<SOH>
I77EQQ
JUL 14, 2004 10:15 PM

PRESSURE LINE LEAK PASSIVE 0.10 GPH

LINE PASSIVE 0.10 GPH
Q 1:UNLEADED REGULAR YES
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i777QQYYMMDDHHmmQQf...
 QQf&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. f - Passive 0.10 GPH Test Enable Flag (Decimal)  
0=Disabled  
1=Enabled
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 77F**

Version 17

**Function Type:** Set Pressure Line Leak Secondary Pipe Length

Only used for the larger diameter line in dual diameter piping configurations

**Command Format:**

**Display:** <SOH>S77FQQLLL

**Computer:** <SOH>s77FQQFFFFFFFFF

**Inquire:**

<SOH>I77FQQ

<SOH>i77FQQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. LLL - Pipe Length, Feet (Decimal)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>

I77FQQ

JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK PIPE LENGTH

LINE

Q 1:UNLEADED REGULAR

<ETX>

1.5 IN DIAM LEN

50 FEET

2.5 IN DIAM LEN

250 FEET

### Typical Response Message, Computer Format:

<SOH>s77FQQYYMDDHHmmQQFFFFFFFFF...  
QQFFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 780

Version 7

**Function Type:** Pressure Line Leak General Setup Inquiry

**Command Format:**

**Display:** <SOH>I780QQ

**Computer:** Computer format is not supported for this command

**Typical Response Message, Display Format:**

```
<SOH>
I780QQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK SETUP

Q 1:UNLEADED REGULAR

PIPE TYPE: FIBERGLASS
0.10 GPH TEST: ENABLED
SHUTDOWN RATE: 3.0 GPH
T 3:REGULAR UNLEADED
DISPENSE MODE:
 STANDARD
<ETX>
```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 781**

**Function Type:** Set Pressure Line Leak Configuration

Version 7

**Command Format:**

**Display:** <SOH>S781QQf

**Computer:** <SOH>s781QQf

**Inquire:**

<SOH>I781QQ

<SOH>i781QQ

**Typical Response Message, Display Format:**

<SOH>

I781QQ

JAN 24, 1996 2:54 PM

PRESSURE LLD CONFIGURATION

| DEVICE | LABEL            | CONFIGURED |
|--------|------------------|------------|
| 1      | REGULAR UNLEADED | ON         |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i781QQYYMMDDHHmmQQf...

QQf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. f - Configuration flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 782**

**Function Type:** Set Pressure Line Leak Label

Version 7

**Command Format:**

**Display:** <SOH>S782QQaaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s782QQaaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I782QQ

<SOH>i782QQ

#### Typical Response Message, Display Format:

```
<SOH>
I782QQ
JAN 24, 1996 2:54 PM

PRESSURE LLD LABEL

DEVICE LABEL
 1 REGULAR UNLEADED
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i782QQYYMMDDHHmmQQaaaaaaaaaaaaaaaaaaaaaa...
 QQaaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. a - Indicates any printable ASCII character
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 783**

Version 7

**Function Type:** Set Pressure Line Leak 0.10 GPH Test Schedule

**Command Format:**

**Display:** <SOH>S783QQf

**Computer:** <SOH>s783QQf

**Inquire:**

<SOH>I783QQ

<SOH>i783QQ

### Typical Response Message, Display Format:

```
<SOH>
I783QQ
JAN 24, 1996 2:54 PM

PRESSURE LINE LEAK 0.10 TEST SCHEDULE

LINE 0.10 GPH TEST
Q 1:REGULAR UNLEADED DISABLED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i783QQYYMMDDHHmmQQf...
 QQf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
  2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
  3. f - 0.10 GPH Test Schedule
    - 0=Disabled
    - 1=Repetitive
    - 2=Auto
    - 3=Manual

(Added in V17)
  4. && - Data Termination Flag
  5. CCCC - Message Checksum
- (Added in V18)

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 784**

Version 7

**Function Type:** Set Pressure Line Leak Shutdown Rate

**Command Format:**

**Display:** <SOH>S784QQrr

**Computer:** <SOH>s784QQrr

**Inquire:**

<SOH>I784QQ

<SOH>i784QQ

**Typical Response Message, Display Format:**

<SOH>

I784QQ

JAN 24, 2000 2:54 PM

PRESSURE LINE LEAK SHUTDOWN RATE

LINE

SHUTDOWN RATE

Q 1:REGULAR UNLEADED

3.0 GPH

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i784QQYYMMDDHHmmQQrr...

QQrr&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. rr - Shutdown rate
  - 01=0.10 gal/hr
  - 02=3.00 gal/hr
  - 03=0.20 gal/hr
  - 04=None
4. && - Data Termination Flag
5. CCCC - Message Checksum

(Added in V19)



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 785**

**Function Type:** Set Pressure Line Leak Tank Number

Version 7

**Command Format:**

**Display:** <SOH>S785QQtt

**Computer:** <SOH>s785QQtt

**Inquire:**

<SOH>I785QQ

<SOH>i785QQ

**Typical Response Message, Display Format:**

<SOH>

I785QQ

JAN 24, 1996 2:54 PM

PRESSURE LINE LEAK TANK NUMBER

LINE

TANK NUMBER

Q 1:REGULAR UNLEADED

3

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i785QQYYMMDDHHmmQQtt...  
QQtt&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. tt - Tank number (Decimal) (00=no tank)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 786**

Version 7

**Function Type:** Set Pressure Line Leak Dispense Mode

**Command Format:**

**Display:** <SOH>S786QQf

**Computer:** <SOH>s786QQf

**Inquire:**

<SOH>I786QQ

<SOH>i786QQ

#### Typical Response Message, Display Format:

<SOH>

I786QQ

JAN 24, 1996 2:54 PM

PRESSURE LINE LEAK DISPENSE MODE

LINE

DISPENSE MODE

Q 1:REGULAR UNLEADED

STANDARD

<ETX>

#### Typical Response Message, Computer Format:

<SOH>i786QQYYMMDDHHmmQQf...

QQf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. f - Dispensing Mode
  - 1=Standard
  - 2=Manifolded: Alternate
  - 3=Manifolded: Sequential
  - 4=Manifolded: All Pumps
  - 5=Manifolded: Alternate-Height
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 787**

Version 7

**Function Type:** Set Pressure Line Leak Disable Alarm Assignments

**Command Format:**

**Display:** <SOH>S787QQAANNTTSS

**Computer:** <SOH>s787QQAANNTTSS

**Inquire:**

<SOH>I787QQ

<SOH>i787QQ

### Typical Response Message, Display Format:

```
<SOH>
I787QQ
JAN 24, 1996 2:54 PM

PRESSURE LLD SETUP REPORT

Q 1:REGULAR UNLEADED
- NO ALARM ASSIGNMENTS -
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i787QQYYMMDDHHmmQQnnAANNTTSS...
 QQnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. nn - Number of Alarms to Follow
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:  
00=Clear  
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 788**

**Function Type:** Set Pressure Line Leak Piping Material

Version 9

**Command Format:**

**Display:** <SOH>S788QQtt

**Computer:** <SOH>s788QQtt

**Inquire:**

<SOH>I788QQ

<SOH>i788QQ

**Typical Response Message, Display Format:**

```
<SOH>
I788QQ
JUN 14, 2001 10:15 PM

PRESSURE LINE LEAK PIPE TYPE

LINE PIPE TYPE:
Q 1:UNLEADED REGULAR USER DEFINED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i788QQYYMMDDHHmmQQtt
 QQtt&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. tt - Pipe Type:
  - 01=2.0"/3.0" Fiberglass
  - 02=2.0" Steel
  - 03=White Enviroflex PP1501
  - 04=1.5" Environ Geoflex II (Added in V11)
  - 05=Omniflex CP1501 (Added in V15)
  - 06=Yellow Enviroflex PP1500
  - 07=1.5"/2.5" Enviroflex PP1502/2502 (Added in V17)
  - 08=OPW Pisces SP-15 (Added in V18)
  - 09=OPW Pisces CP-15 (Added in V18)
  - 10=WFG Coflex 2000 Ribbed (Added in V19)
  - 11=Enviroflex PP1503/2503 (Added in V19)
  - 12=Omniflex CP1503 (Added in V19)
  - 13=1.5"/2.0" Environ Geoflex D (Added in V19)
  - 14=APT P175SC (Added in V121)
  - 15=OPW Pisces CP15DW (Added in V19)
  - 16=OPW Pisces CP20 (Added in V19)
  - 17=OPW PISCES SP20 (Added in V26)
  - 18=User Defined (Added in V22)
  - 19=PETROTECHNIK UPP EXTRA 63MM (Added in V26)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 789**

Version 9

**Function Type:** Set Pressure Line Leak Primary Pipe Length

Also used for the smaller diameter line in dual diameter piping configurations

**Command Format:**

**Display:** <SOH>S789QQLLL

**Computer:** <SOH>s789QQFFFFFFFF

**Inquire:**

<SOH>I789QQ

<SOH>i789QQ

### Notes:

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. LLL - Pipe Length, Feet (Decimal)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I789QQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK PIPE LENGTH

LINE LINE LENGTH
Q 1:UNLEADED REGULAR 250 FEET
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s789QQYYMMDDHHmmQQFFFFFFFF...
 QQFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 78A**

**Function Type:** Set Pressure Line Leak Sensor Type

Version 11

**Command Format:**

**Display:** <SOH>S78AQQp

**Computer:** <SOH>s78AQQp

**Inquire:**

<SOH>I78AQQ

<SOH>i78AQQ

**Typical Response Message, Display Format:**

<SOH>

I78AQQ

JAN 24, 1996 2:54 PM

PRESSURE LINE LEAK

LINE

Q 1:REGULAR UNLEADED

<ETX>

PUMP

NON-VENTED

**Typical Response Message, Computer Format:**

<SOH>i78AQQYYMMDDHHmmQQp...

QQp&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. p - Sensor Type
  - 1=Non-vented
  - 2=Vented
  - 3=High Pressure
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 78B

Version 16 (Obsolete at V17, use 78E)

**Function Type:** Set Pressure Line Leak 0.10 GPH Test Schedule

**Command Format:**

**Display:** <SOH>S78BPPMMDD

**Computer:** <SOH>s78BPPMMDD

**Inquire:**

<SOH>I78BPP

<SOH>i78BPP

#### Typical Response Message, Display Format:

<SOH>

I78BPP

JAN 24, 1998 2:55 PM

PLLD 0.10 GPH SCHEDULE

LINE

SCHEDULE

P 1:REGULAR UNLEADED

02/11

<ETX>

#### Typical Response Message, Computer Format:

<SOH>s78BPPYYMMDDHHmmPPMMDD...

PPMMDD&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - PLLD Line Leak sensor number (Decimal, 00=all)
3. MMDD - Month and Day for 0.10 GPH test to start
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 78C**

Version 12

**Function Type:** Set Pressure Line Leak 0.20 GPH Test Schedule

**Command Format:**

**Display:** <SOH>S78CQQf

**Computer:** <SOH>s78CQQf

**Inquire:**

<SOH>I78CQQ

<SOH>i78CQQ

### Typical Response Message, Display Format:

```
<SOH>
I78CQQ
JAN 24, 1996 2:54 PM

PRESSURE LINE LEAK 0.20 TEST SCHEDULE

LINE 0.20 GPH TEST
Q 1:REGULAR UNLEADED MONTHLY
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i78CQQYYMMDDHHmmQQf...
 QQf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
  2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
  3. f - 0.20 GPH Test Schedule
    - 0=Disabled
    - 1=Repetitive
    - 2=Monthly
    - 3=Manual

(Added in V18)
  4. && - Data Termination Flag
  5. CCCC - Message Checksum
- (Added in V18)



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 78E**

Version 17

**Function Type:** Set Pressure Line Leak 0.10 GPH Auto Test Enable

**Command Format:**

**Display:** <SOH>S78EQQf

**Computer:** <SOH>s78EQQf

**Inquire:**

<SOH>I78EQQ

<SOH>i78EQQ

**Typical Response Message, Display Format:**

<SOH>

I78EQQ

JAN 24, 1996 2:54 PM

PRESSURE LINE LEAK 0.10 AUTO ENABLE

LINE

0.10 GPH AUTO

Q 1:REGULAR UNLEADED

ENABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i78EQQYYMMDDHHmmQQf...

QQf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. f - 0.10 GPH Test  
0=Disabled  
1=Enabled
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 78F**

Version 17

**Function Type:** Set Pressure Line Leak Dispense Threshold

**Command Format:**

**Display:** <SOH>S78FQQPP

**Computer:** <SOH>s78FQQFFFFFFF

**Inquire:**

<SOH>I78FQQ

<SOH>i78FQQ

**Notes:**

1. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
2. PP - Low Pressure, PSI (Decimal)
3. FFFFFFFF - Low Pressure, PSI (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I78FQQ
JAN 14, 1995 10:15 PM

PRESSURE LINE LEAK DISPENSE THRESHOLD

LINE LOW PRESSURE
Q 1:UNLEADED REGULAR 15 PSI
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>s78FQQYYMMDDHHmmQQFFFFFFF...
 QQFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Low Pressure, PSI (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7BD

**Function Type:** Set Pressure Line Disable Alarm Assignments II

Version 19

**Command Format:**

**Display:** <SOH>S7BDQQAANNTTSS

**Computer:** <SOH>s7BDQQAANNTTSS

**Inquire:**

<SOH>I7BDQQ

<SOH>i7BDQQ

### Typical Response Message, Display Format:

```
<SOH>
I7BDQQ
JAN 3, 1996 11:15 PM

PRESSURE LLD SETUP REPORT

Q 1:PLLD NUMBER 1

IN-TANK ALARMS
ALL:LEAK ALARM
ALL:HIGH WATER ALARM
ALL:OVERFILL ALARM

PRESSURE LINE LEAK
ALL:PLLD OPEN ALARM
ALL:CONT HANDLE ALM
ALL:LN EQUIP FAULT ALM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7BDQQYYMMDDHHmmQQnnAANNTTSS...
 QQnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. nn - Number of Alarms to Follow (Hex)
4. AA - Alarm/Warning Category
  - 02=Tank Alarm
  - 21=Pressure Line Leak Alarm
5. NN - Alarm Type Number
  - If AA is 02 and NN is:
    - 02=Tank Leak Alarm
    - 03=Tank High Water Alarm
    - 04=Tank Overfill Alarm
  - If AA is 21 and NN is:
    - 06=PLLD Sensor Open Alarm
    - 16=PLLD Continuous Handle On Alarm
    - 18=PLLD Line Equipment Alarm
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:
  - 00=Clear
  - 01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7D7

Version 33

**Function Type:** Set Pressure Line Leak Alternate Modes  
Auto Active Pump Switchover Enable

**Command Format:**

**Display:** <SOH>S7D7QQf

**Computer:** <SOH>s7D7QQf

**Inquire:**

<SOH>I7D7QQ

<SOH>i7D7QQ

**Notes:**

1. f - 0=disabled; 1=enabled

**Typical Response Message, Display Format:**

<SOH>

I7D7QQ

MAR 27, 1996 5:50 PM

PRESSURE LINE LEAK ALTERNATE MODE SWITCHOVER ENABLE

DEVICE LABEL

ENABLED

S 1:UNLEADED GASOLINE

YES

S 2:UNLEADED GASOLINE

NO

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i7D7QQYYMMDDHHmmQQf...

QQf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Number (Decimal, 00=all)
3. f - Auto Switchover Enable:  
0=No  
1=Yes
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7D8  
**Function Type:** Set Pressure Line Leak Alternate Mode  
Auto Active Pump Switchover Volume Threshold

Version 33

**Command Format:**  
**Display:** <SOH>S7D8QQGGGG  
**Computer:** <SOH>s7D8QQFFFFFFFF

**Inquire:**  
<SOH>I7D8QQ  
<SOH>i7D8QQ

### Notes:

1. QQ - Pressure Line Leak Number (Decimal, 00=all)
2. GGGG - Full Height Volume, Gallons (Decimal)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I7D8QQ
MAR 27, 2014 5:50 PM

PRESSURE LINE LEAK ALTERNATE MODE SWITCHOVER THRESHOLD

DEVICE LABEL GALLONS
 1 REGULAR UNLEADED 200
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7D8QQYYMMDDHHmmQQFFFFFFFF...
 QQFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Number (Decimal, 00=all)
3. FFFFFFFF - Switchover threshold, Gallons (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7D9

Version 33

**Function Type:** Set Pressure Line Leak Alternate-Height Mode  
Auto Active Pump Switchover Height Threshold

**Command Format:**

**Display:** <SOH>S7D9QQhhhh.h

**Computer:** <SOH>s7D9QQFFFFFFFFF

**Inquire:**

<SOH>I7D9QQ

<SOH>i7D9QQ

**Notes:**

1. QQ - Pressure Line Leak Number (Decimal, 00=all)
2. hhhh.h - Switchover Threshold, Inches and tenths (Decimal)
3. FFFFFFFF - Switchover Threshold, Inches (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>

I7D9QQ

MAR 27, 2014 5:50 PM

PRESSURE LINE LEAK ALTERNATE-HEIGHT MODE SWITCHOVER THRESHOLD

DEVICE LABEL

INCHES

S 1:UNLEADED

2.0

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i7D9QQYYMMDDHHmmQQFFFFFFFFF...

QQFFFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak Number (Decimal, 00=all)
3. FFFFFFFF - Switchover threshold, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.9 RECONCILIATION SETUP

**Function Code:** 790  
**Function Type:** DIM Software Revision

Version 118

**Command Format:**  
**Display:** <SOH>I790PP  
**Computer:** <SOH>i790PP

**Notes:**

1. PP - Communication Port Number (Decimal, 00=all)

**Typical Response Message, Display Format:**

```
<SOH>
I790PP
JAN 1, 2000 8:00 AM

EDIM:1 VR:330273-002-C TD:97.11.13.15.52
<ETX>
```

**Typical Response Message, Computer Format:**

**Notes:**

1. Response is the same as display format.

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 791**

**Function Type:** Set Mechanical Dispenser Interface String

Version 106

**Command Format:**

**Display:** <SOH>S791NNaaaaaaaaaaaaa

**Computer:** <SOH>s791NNaaaaaaaaaaaaa

**Inquire:**

<SOH>i791NN

<SOH>i791NN

#### Typical Response Message, Display Format:

```
<SOH>
S791NN
MAR 29, 1996 6:27 PM

DISP. MODULE DATA STRING
MDIM 1: aaaaaaaaaaaaaa
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i791NNYYMMDDHHmmNNaaaaaaaaaaaaa...
NNaaaaaaaaaaaaa&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - MDIM Number (Decimal, 00=all)
3. aaaaaaaaaaaaaa - Data String (12 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 792**

**Function Type:** Set Electronic Dispenser Interface String

Version 106

**Command Format:**

**Display:** <SOH>S792NNaaaaaaaaaaaaaa

**Computer:** <SOH>s792NNaaaaaaaaaaaaaa

**Inquire:**

<SOH>I792NN

<SOH>i792NN

### Typical Response Message, Display Format:

<SOH>  
I792NN  
JAN 22, 1996 3:21 PM  
  
DISP. MODULE DATA STRING  
EDIM 1: aaaaaaaaaaaaaa  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i792NNYYMMDDHHmmNNaaaaaaaaaaaaaa...  
NNaaaaaaaaaaaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - EDIM Number (Decimal, 00=all)
3. aaaaaaaaaaaaaa - Data String (12 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 793**

**Function Type:** Set Reconciliation Auto Daily Closing Time

Version 106

**Command Format:**

**Display:** <SOH>S79300HHmm

**Computer:** <SOH>s79300HHmm

**Inquire:**

<SOH>I79300

<SOH>i79300

**Typical Response Message, Display Format:**

<SOH>

I79300

JAN 22, 1996 3:21 PM

AUTOMATIC DAILY CLOSING

TIME: 2:00 AM

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i79300YYMMDDHHmmHHmm&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. HHmm - Auto Daily Closing Time (hours & minutes)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 794**

**Function Type:** Set Auto Shift Closing Time 1, 2, 3, 4

Version 106

**Command Format:**

**Display:** <SOH>S794SSHmm

**Computer:** <SOH>s794SSHmm

**Inquire:**

<SOH>I794SS

<SOH>i794SS

**Typical Response Message, Display Format:**

<SOH>  
I794SS  
MAR 26, 1996 1:49 PM

AUTO SHIFT #1 CLOSING  
TIME: 8:00 AM  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i794SSYYMMDDHHmmSSHmm&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Shift Close Number (01, 02, 03, 04)
3. HHmm - Hour and Minute (EE00=Disabled)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 795**

**Function Type:** Set Periodic Reconciliation Mode

Version 106

**Command Format:**

**Display:** <SOH>S79500ss

**Computer:** <SOH>s79500ss

**Inquire:**

<SOH>I79500

<SOH>i79500

### Typical Response Message, Display Format:

<SOH>

I79500

JAN 22, 1996 3:22 PM

PERIODIC RECONCILIATION

MODE: MONTHLY

<ETX>

### Typical Response Message, Computer Format:

<SOH>i79500YYMMDDHHmmss&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ss - Periodic Reconciliation Mode  
1=Monthly  
2=Rolling
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 796**

**Function Type:** Set Periodic Reconciliation Report Length

Version 106

**Command Format:**

**Display:** <SOH>S79600dd

**Computer:** <SOH>s79600dd

**Inquire:**

<SOH>I79600

<SOH>i79600

#### Typical Response Message, Display Format:

<SOH>

I79600

JAN 22, 1996 3:22 PM

PERIODIC RECONCILIATION

LENGTH: 31 DAYS

<ETX>

#### Typical Response Message, Computer Format:

<SOH>i79600YYMMDDHHmmdd&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. dd - Number of days for Rolling Report (Decimal, 01-31)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 797**

**Function Type:** Set Periodic Reconciliation Alarm Flag

Version 106

**Command Format:**

**Display:** <SOH>S79700ss

**Computer:** <SOH>s79700ss

**Inquire:**

<SOH>I79700

<SOH>i79700

**Typical Response Message, Display Format:**

<SOH>

I79700

JAN 22, 1996 3:22 PM

PERIODIC RECONCILIATION

ALARM: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i79700YYMMDDHHmmss&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ss - Reconciliation Alarm Flag  
01=Disable  
02=Enable
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 798**

Version 106

**Function Type:** Set Periodic Reconciliation Alarm Threshold

**Command Format:**

**Display:** <SOH>S79800PP.hh

**Computer:** <SOH>s79800FFFFFFFF

**Inquire:**

<SOH>I79800

<SOH>i79800

**Notes:**

1. PP.hh - Alarm Threshold, Percent and hundredths (Decimal)
2. FFFFFFFF - Alarm Threshold, Percent (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I79800
JUN 1, 2000 8:07 AM

PERIODIC RECONCILIATION
ALARM THRESHOLD: 1.00%
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i79800YYMMDDHHmmFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. FFFFFFFF - Alarm Threshold, Percent (ASCII Hex IEEE float)
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 799**

Version 106

**Function Type:** Set Periodic Reconciliation Alarm Offset

**Command Format:**

**Display:** <SOH>S79900GGGGGG

**Computer:** <SOH>s79900FFFFFFFF

**Inquire:**

<SOH>I79900

<SOH>i79900

**Notes:**

1. GGGGGG - Alarm Offset, Gallons (Decimal)
2. FFFFFFFF - Alarm Offset, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I79900
JAN 22, 1996 3:22 PM
```

```
PERIODIC RECONCILIATION
ALARM OFFSET: 130
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i79900YYMMDDHHmmFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. FFFFFFFF - Alarm Offset, Gallons (ASCII Hex IEEE float)
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 79A**

**Function Type:** Set Remote Printer Reconciliation Report Format

Version 106

**Command Format:**

**Display:** <SOH>S79A00tt

**Computer:** <SOH>s79A00tt

**Inquire:**

<SOH>I79A00

<SOH>i79A00

### Typical Response Message, Display Format:

<SOH>  
I79A00  
JAN 22, 1996 3:22 PM

REMOTE REPORT FORMAT  
SELECT: ROW  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i79A00YYMMDDHHmmtt&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. tt - Remote Printer Report Type  
01=Row  
02=Column
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 79B**

**Function Type:** Set Shift Manual Adjustment Value

Version 106

**Command Format:**

**Display:** <SOH>S79BTTssGGGGGG

**Computer:** <SOH>s79BTTssFFFFFFFF

**Inquire:**

<SOH>I79BTT

<SOH>i79BTT

**Notes:**

1. TT - Tank number
2. ss - Shift mode  
01=Current  
02=Previous
3. GGGGGG - Adjustment Value, Gallons (Decimal)
4. FFFFFFFF - Adjustment Value, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I79BTT
MAR 26, 1996 1:50 PM

T 1:REGULAR UNLEADED
CURRENT SHFT ADJ: 300
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i79BTTYMMDDHHmmTTssFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number
3. ss - Shift mode  
01=Current  
02=Previous
4. FFFFFFFF - Adjustment Value, Gallons (ASCII Hex IEEE float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 79C**

Version 106

**Function Type:** Set Daily Manual Adjustment Value

**Command Format:**

**Display:** <SOH>S79CTTMMDDGGGGGG

**Computer:** <SOH>s79CTTMMDDFFFFFFFF

**Inquire:**

<SOH>I79CTT

<SOH>i79CTT

**Notes:**

1. TT - Tank number
2. MMDD - Month and day
3. GGGGGG - Adjustment Value, Gallons (Decimal)
4. FFFFFFFFFF - Adjustment value, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I79CTT
MAR 26, 1996 1:50 PM

T 1:REGULAR UNLEADED
MAR 26 ADJ VOL: 300
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i79CTTYMMDDHHmmTTMMDDFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number
3. MMDD - Month and day
4. FFFFFFFFFF - Adjustment value, Gallons (ASCII Hex IEEE float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 79D**

**Function Type:** Close Current Reconciliation Shift

Version 106

**Command Format:**

**Display:** <SOH>S79D00ff

**Computer:** <SOH>s79D00ff

**Inquire:**

<SOH>I79D00

<SOH>i79D00

### Typical Response Message, Display Format:

```
<SOH>
I79D00
JAN 22, 1996 3:23 PM

MANUAL SHIFT CLOSE
STATION IS BUSY
*** CLOSE SHIFT PENDING ***
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i79D00YYMMDDHHmmff&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ff - Close current shift flag  
01=Close shift pending
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 79E**  
**Function Type:** Clear Tank Map Table

Version 106

**Command Format:**  
**Display:** <SOH>S79E00149  
**Computer:** <SOH>s79E00149

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

```
<SOH>
S79E00
JAN 22, 1996 3:23 PM

RECONCILIATION CLEAR MAPS
MAPS TABLE CLEARED
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i79E00YYMMDDHHmmss&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ss - Clear status  
00=not clear  
01=cleared
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 79F**

**Function Type:** Set BIR Temperature Compensation Flag

Version 108

**Command Format:**

**Display:** <SOH>S79F00f

**Computer:** <SOH>s79F00f

**Inquire:**

<SOH>I79F00

<SOH>i79F00

**Typical Response Message, Display Format:**

<SOH>  
I79F00  
JAN 22, 1996 3:24 PM

TEMP COMPENSATION  
STANDARD  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i79F00YYMMDDHHmmf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. f - Status  
0=Standard  
1=TC Volume
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.10 WIRELESS PLLD SETUP

**Function Code:** 7A0

Version 10

**Function Type:** WPLLD Line Leak General Setup

**Command Format:**

**Display:** <SOH>I7A0WW

**Computer:** Computer format is not supported for this command

**Typical Response Message, Display Format:**

```
<SOH>
I7A0WW
JAN 24, 1996 2:54 PM

WPLLD LINE LEAK SETUP

W 1:REGULAR UNLEADED

PIPE TYPE: FIBERGLASS
LINE LENGTH: 200 FEET
0.20 GPH TEST: ENABLED
SHUTDOWN RATE: 3.0 GPH
T 1:REGULAR UNLEADED
DISPENSE MODE:
 STANDARD
<ETX>
```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7A1

**Function Type:** Set WPLLD Line Leak Configuration

Version 10

**Command Format:**

**Display:** <SOH>S7A1WWf

**Computer:** <SOH>s7A1WWf

**Inquire:**

<SOH>I7A1WW

<SOH>i7A1WW

### Typical Response Message, Display Format:

```
<SOH>
I7A1WW
JAN 24, 1996 2:54 PM

WPLLD LLD CONFIGURATION

DEVICE LABEL CONFIGURED
 1 REGULAR UNLEADED ON
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7A1WWYYMMDDHHmmWWf...
 WWf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. f - Configuration flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7A2  
**Function Type:** Set WPLLD Line Leak Label

Version 10

**Command Format:**  
**Display:** <SOH>S7A2WWaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s7A2WWaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I7A2WW  
<SOH>i7A2WW

#### Typical Response Message, Display Format:

```
<SOH>
I7A2WW
JAN 24, 1996 2:54 PM

WPLLD LLD LABEL

DEVICE LABEL
 1 REGULAR UNLEADED
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i7A2WWYYMMDDHHmmWWaaaaaaaaaaaaaaaaaaaaa...
 WWaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. a - Indicates any printable ASCII character
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 7A3**

Version 10

**Function Type:** Set WPLLD Line Leak 0.20 GPH Test Schedule

**Command Format:**

**Display:** <SOH>S7A3WWf

**Computer:** <SOH>s7A3WWf

**Inquire:**

<SOH>I7A3WW

<SOH>i7A3WW

### Typical Response Message, Display Format:

<SOH>

I7A3WW

JAN 24, 1996 2:54 PM

WPLLD LINE LEAK 0.20 TEST SCHEDULE

LINE

0.20 GPH TEST

W 1:REGULAR UNLEADED

MONTHLY

<ETX>

### Typical Response Message, Computer Format:

<SOH>i7A3WWYYMMDDHHmmWWf...

WWf&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. f - 0.20 GPH Test Schedule
  - 0=Disabled
  - 1=Repetitive
  - 2=Monthly (Added in V18)
  - 3=Manual (Added in V18)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 7A4**

Version 10

**Function Type:** Set WPLLD Line Leak Shutdown Rate

**Command Format:**

**Display:** <SOH>S7A4WWrr

**Computer:** <SOH>s7A4WWrr

**Inquire:**

<SOH>I7A4WW

<SOH>i7A4WW

### Typical Response Message, Display Format:

<SOH>

I7A4WW

JAN 24, 2000 2:55 PM

WPLLD LINE LEAK SHUTDOWN RATE

LINE

SHUTDOWN RATE

W 1:REGULAR UNLEADED

3.0 GPH

<ETX>

### Typical Response Message, Computer Format:

<SOH>i7A4WWYYMMDDHHmmWWrr...

WWrr&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. rr - Shutdown rate
  - 01=0.20 gal/hr
  - 02=3.00 gal/hr
  - 03=0.10 gal/hr
  - 04=None
4. && - Data Termination Flag
5. CCCC - Message Checksum

(Added in V19)

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7A5

**Function Type:** Set WPLLD Line Leak Tank Number

Version 10

**Command Format:**

**Display:** <SOH>S7A5WWtt

**Computer:** <SOH>s7A5WWtt

**Inquire:**

<SOH>I7A5WW

<SOH>i7A5WW

### Typical Response Message, Display Format:

<SOH>

I7A5WW

JAN 24, 1996 2:55 PM

WPLLD LINE LEAK TANK NUMBER

LINE

TANK NUMBER

W 1:REGULAR UNLEADED

1

<ETX>

### Typical Response Message, Computer Format:

<SOH>i7A5WWYYMMDDHHmmWWtt...

WWtt&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. tt - Tank number (Decimal) (00=no tank)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7A6

**Function Type:** Set WPLLD Line Leak Dispense Mode

Version 10

**Command Format:**

**Display:** <SOH>S7A6WWf

**Computer:** <SOH>s7A6WWf

**Inquire:**

<SOH>I7A6WW

<SOH>i7A6WW

#### Typical Response Message, Display Format:

<SOH>

I7A6WW

JAN 24, 1996 2:55 PM

WPLLD LINE LEAK DISPENSE MODE

LINE

W 1:REGULAR UNLEADED

<ETX>

DISPENSE MODE

STANDARD

#### Typical Response Message, Computer Format:

<SOH>i7A6WWYYMMDDHHmmWWf...

WWf&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. f - Dispensing Mode
  - 1=Standard
  - 2=Manifolded: Alternate
  - 3=Manifolded: Sequential
  - 4=Manifolded: All Pumps
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 7A7**

**Function Type:** Set WPLLD Line Disable Alarm Assignments

Version 10

**Command Format:**

**Display:** <SOH>S7A7WWAANNTTSS

**Computer:** <SOH>s7A7WWAANNTTSS

**Inquire:**

<SOH>I7A7WW

<SOH>i7A7WW

### Typical Response Message, Display Format:

```
<SOH>
I7A7WW
JAN 24, 1996 2:55 PM

WPLLD LLD SETUP REPORT

W 1:REGULAR UNLEADED
- NO ALARM ASSIGNMENTS -
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7A7WWYYMMDDHHmmWWnnAANNTTSS...
 WWnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. nn - Number of Alarms to Follow
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:  
00=Clear  
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 7A8**

Version 10

**Function Type:** Set WPLLD Line Leak Pipe Type

**Command Format:**

**Display:** <SOH>S7A8WWzz

**Computer:** <SOH>s7A8WWzz

**Inquire:**

<SOH>I7A8WW

<SOH>i7A8WW

### Typical Response Message, Display Format:

<SOH>

I7A8WW

JAN 24, 1996 2:55 PM

WPLLD LINE LEAK PIPE TYPE

LINE

W 1:REGULAR UNLEADED

<ETX>

PIPE TYPE:

FIBERGLASS

### Typical Response Message, Computer Format:

<SOH>s7A8WWYYMMDDHHmmWWzz...

WWzz&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=all)
3. zz - Pipe Type:
  - 01=2" Fiberglass
  - 02=2" Steel
  - 03=Flexible-A (White Enviroflex PP1501)
  - 04=Flexible-B (1.5" Environ Geoflex D) (Added in V15)
  - 05=Flexible-C (Omniflex CP1501) (Added in V15)
  - 06=Flexible-D (Yellow Enviroflex PP1500) (Added in V15)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 7A9**

Version 10

**Function Type:** Set WPLLD Line Leak Pipe Length

**Command Format:**

**Display:** <SOH>S7A9WWLLL

**Computer:** <SOH>s7A9WWFFFFFFFF

**Inquire:**

<SOH>I7A9WW

<SOH>i7A9WW

### Notes:

1. WW - WPLLD Line Leak sensor number (Decimal, 00=all)
2. LLL - Pipe Length, Feet (Decimal)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

```
<SOH>
I7A9WW
JAN 24, 1996 2:55 PM

WPLLD LINE LEAK LINE LENGTH

LINE LINE LENGTH
W 1:REGULAR UNLEADED 200 FEET
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>s7A8WWYYMMDDHHmmWWFFFFFFFF...
 WWFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7AA

Version 11 (Obsolete at V17, use 7AC)

**Function Type:** Set WPLLD Line Leak 0.10 GPH Test Schedule

**Command Format:**

**Display:** <SOH>S7AAWWMMD

**Computer:** <SOH>s7AAWWMMD

**Inquire:**

<SOH>I7AAWW

<SOH>i7AAWW

#### Typical Response Message, Display Format:

<SOH>

I7AAWW

JAN 24, 1996 2:55 PM

WPLLD 0.10 GPH SCHEDULE

LINE

SCHEDULE

W 1:REGULAR UNLEADED

02/11

<ETX>

#### Typical Response Message, Computer Format:

<SOH>s7AAWYYMMDDHHmmWWMMD...

WWMMD&&CCCC<ETX>

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=all)
3. MMDD - Month and Day for 0.10 GPH test to start
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7AC

Version 17

**Function Type:** Set WPLLD Line Leak 0.10 GPH Test Schedule Enable

**Command Format:**

**Display:** <SOH>S7ACWWf

**Computer:** <SOH>s7ACWWf

**Inquire:**

<SOH>I7ACWW

<SOH>i7ACWW

#### Typical Response Message, Display Format:

```
<SOH>
I7ACWW
JAN 24, 1996 2:54 PM

WPLLD LINE LEAK 0.10 TEST SCHEDULE

LINE 0.10 GPH TEST
W 1:REGULAR UNLEADED DISABLED
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i7ACWWYYMMDDHHmmWWf...
 WWf&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. f - 0.10 GPH Test Schedule
  - 0=Disabled
  - 1=(Reserved)
  - 2=Auto
  - 3=Manual
4. && - Data Termination Flag
5. CCCC - Message Checksum

(Added in V18)

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7AD

Version 20

**Function Type:** Set WPLLD Line Leak Secondary Pipe Length  
(only used for the larger diameter line in dual diameter  
piping configurations)

**Command Format:**

**Display:** <SOH>S7ADWWLLL

**Inquire:**

<SOH>I7ADWW

**Computer:** <SOH>s7ADWWFFFFFFFFF

<SOH>i7ADWW

**Notes:**

1. WW - Wireless Pressure Line Leak Sensor Number (Decimal, 00=all)
2. LLL - Pipe Length, Feet (Decimal)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I7ADWW
JUN 1, 2000 8:09 AM

WPLLD LINE LEAK LINE LENGTH LARGE

LINE LINE LENGTH
W 2:WPLLD NUMBER 2 150 FEET
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>s7ADWWYYMMDDHHmmWWFFFFFFFFF...
 WWFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. WW - Pressure Line Leak Sensor Number (Decimal, 00=all)
3. FFFFFFFF - Pipe Length, Feet (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7AE

Version 27

**Function Type:** WPLLD Continuous Handle Alarm Timeout

**Command Format:**

**Display:** <SOH>S7AEWWtt

**Computer:** <SOH>s7AEWWtt

**Inquire:**

<SOH>I7AEWW

<SOH>i7AEWW

**Notes:**

1. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
2. tt - Continuous Handle Alarm Timeout (Decimal, in hours, 1-16)

**Typical Response Message, Display Format:**

```
<SOH>
I7AEQQ
SEP 16, 2006 3:15 PM
```

WPLLD CONTINUOUS HANDLE ALARM TIMEOUT

| LINE                 | TIMEOUT  |
|----------------------|----------|
| W 1:REGULAR UNLEADED | 16 HOURS |

<ETX>

**Typical Response Message, Computer Format:**

```
<SOH>i7AEWWYYMDDHHmmWWttWWtt...
WWtt&&CCCC<ETX>
```

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. tt - Continuous Handle Alarm Timeout (Decimal, in hours, 1-16)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7AF

Version 19

**Function Type:** Set WPLLD Line Leak Altitude Pressure Offset

**Command Format:**

**Display:** <SOH>S7AFWWII.p

**Computer:** <SOH>s7AFWWFFFFFFFF

**Inquire:**

<SOH>I7AFWW

<SOH>i7AFWW

**Notes:**

1. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
2. II.p - Altitude Pressure Offset, PSI or KPA (Decimal)
3. FFFFFFFF - Altitude Pressure Offset, PSI or KPA (ASCII Hex IEEE float)
4. Value must be within the range of +5.0 to -5.0 PSI or 34.4 to -34.4 KPA

**Typical Response Message, Display Format:**

<SOH>

I7AFWW

JAN 1, 2000 1:44 AM

ALTITUDE PRESSURE OFFSET ADJUSTMENT

LINE

PRESSURE OFFSET

W 1:REGULAR UNLEADED

0.0 PSI

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i7AFWWYYMMDDHHmmWWFFFFFFFF...  
WWFFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. FFFFFFFF - Altitude pressure offset, PSI or KPA (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7BE

**Function Type:** Set WPLLD Line Disable Alarm Assignments II

Version 19

**Command Format:**

**Display:** <SOH>S7BEWWAANNTTSS

**Computer:** <SOH>s7BEWWAANNTTSS

**Inquire:**

<SOH>I7BEWW

<SOH>i7BEWW

### Typical Response Message, Display Format:

```
<SOH>
I7BEWW
JAN 3, 1996 11:15 PM

WPLLD LLD SETUP REPORT

W 1:WPLLD NUMBER 1

IN-TANK ALARMS
ALL:LEAK ALARM
ALL:HIGH WATER ALARM
ALL:OVERFILL ALARM

WPLLD LINE LEAK
ALL:WPLLD OPEN ALARM
ALL:CONT HANDLE ALM
ALL:LN EQUIP FAULT ALM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7BEWWYYMMDDHHmmWWnnAANNTTSS...
 WWnnAANNTTSS&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak Sensor Number (Decimal, 00=all)
3. nn - Number of Alarms to Follow (Hex)
4. AA - Alarm/Warning Category
  - 02=Tank Alarm
  - 26=Wireless PLLD Alarm
5. NN - Alarm Type Number
  - If AA is 02 and NN is:
    - 02=Tank Leak Alarm
    - 03=Tank High Water Alarm
    - 04=Tank Overfill Alarm
  - If AA is 26 and NN is:
    - 06=WPLLD Sensor Open Alarm
    - 16=WPLLD Continuous Handle On Alarm
    - 18=WPLLD Line Equipment Alarm
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:
  - 00=Clear
  - 01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.11 METER MAP & DELIVERY TICKET SETUP

**Function Code:** 7B1

Version 110

**Function Type:** Set BIR Meter/Tank Mapping

**Command Format:**

**Display:** <SOH>S7B100 B SS FP MM TT

**Computer:** Computer format is not supported for this command

**Inquire:**

<SOH>I7B100

#### Notes:

1. B - Bus  
2=Power Bus (MDIM)  
3=Comm Bus
2. SS - Slot  
Bus 2: 09-16  
Bus 3: 01-06
3. FP - Fueling Position (00-99)
4. MM - Meter (00-99) \*\* Double-digit meter mapping implemented in Version 23
5. TT - Tank Number (-1, 00, or any legitimate tank number)  
-1=Probeless tank  
00=Unmap present tank
6. It is not necessary that the meter be in the map prior to mapping the meter to a tank

#### Typical Response Message, Display Format:

<SOH>

I7B100

JUN 22, 2001 3:24 PM

FUELING POSITION - METER - TANK MAP

| BUS | SLOT | FUEL_P | METER | TANK |
|-----|------|--------|-------|------|
| 3   | 3    | 0      | 10    | 1    |
| 3   | 3    | 0      | 11    | 3    |
| 3   | 3    | 0      | 12    | 2    |
| 3   | 3    | 1      | 10    | 1    |
| 3   | 3    | 1      | 11    | 3    |
| 3   | 3    | 1      | 12    | 2    |
| 3   | 3    | 2      | 10    | 2    |
| 3   | 3    | 2      | 11    | 3    |
| 3   | 3    | 2      | 12    | 1    |
| 3   | 3    | 3      | 10    | 2    |
| 3   | 3    | 3      | 11    | 3    |
| 3   | 3    | 3      | 12    | 1    |
| 3   | 3    | 4      | 10    | 1    |
| 3   | 3    | 4      | 11    | 3    |
| 3   | 3    | 4      | 12    | 2    |
| 3   | 3    | 5      | 10    | 1    |
| 3   | 3    | 5      | 11    | 3    |
| 3   | 3    | 5      | 12    | 2    |
| 3   | 3    | 6      | 10    | 2    |
| 3   | 3    | 6      | 11    | 3    |

<ETX>

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7B2

Version 20

**Function Type:** Set Meter Calibration Offset

**Command Format:**

**Display:** <SOH>S7B200pp.ppp

**Computer:** <SOH>s7B200FFFFFFFF

**Inquire:**

<SOH>I7B200

<SOH>i7B200

**Notes:**

1. pp.ppp - Meter Calibration Offset, Percent (Decimal)
2. FFFFFFFF - Meter Calibration Offset, Percent (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I7B200
JUN 1, 2000 8:10 AM
```

```
METER CALIBRATION
OFFSET: 0.000%
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i7B200YYMMDDHHmmFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. FFFFFFFF - Meter Calibration Offset, Percent (ASCII Hex IEEE float)
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7B4  
**Function Type:** Set Individual Meter Offset

Version 29

**Command Format:**  
**Display:** <SOH>S7B400 FF MM TT +o.oo  
**Computer:** Computer format is not supported

**Inquire:**  
<SOH>I7B400

### Notes:

1. FF - Fueling Position (Decimal)
2. MM - Meter Number (Decimal)
3. TT - Tank Number (Decimal)
4. o.oo - Meter Offset, percent (Decimal +/-9.99)

### Typical Response Message, Display Format:

```
<SOH>
I7B400
DEC 22, 2006 3:12 PM

INDIVIDUAL METER OFFSET
```

| FP | METER | TANK               | OFFSET |
|----|-------|--------------------|--------|
| 1  | 1     | 1 REGULAR GASOLINE | +0.10% |
|    | 2     | 2 PREMIUM GASOLINE | -0.10% |
|    | 6     | 3 DIESEL           | 0.00%  |
| 2  | 1     | 1 REGULAR GASOLINE | +0.10% |
|    | 2     | 2 PREMIUM GASOLINE | -0.10% |
|    | 6     | 3 DIESEL           | 0.00%  |
| 3  | 1     | 1 REGULAR GASOLINE | +0.10% |
|    | 2     | 2 PREMIUM GASOLINE | -0.10% |
|    | 6     | 3 DIESEL           | 0.00%  |

<ETX>

### Typical Response Message, Computer Format:

```
<SOH>i7B400YYMMDDHHmmNNNNFFMMTTToooooooooo...
 FFMMTTToooooooooo&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NNNN - Number of entries to follow (ASCII Hex)
3. FF - Fuel Position (Decimal)
4. MM - Meter Number (Decimal)
5. TT - Tank Number (Decimal)  
00=Tank not mapped
6. oooooooooo - Meter Offset, percent (Decimal +/-9.99)
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7B5  
**Function Type:** Set Ticketed Delivery

Version 116

**Command Format:**  
**Display:** <SOH>S7B5TTeeYYMMDDHHmmGGGGGG  
**Computer:** <SOH>s7B5TTeeYYMMDDHHmmFFFFFFFF

### Notes:

1. TT - Tank Number (Decimal, 00=all)
2. ee - edit function  
01=Edit Ticket (enter, modify)  
02=Insert Ticket Delivery
3. YYMMDDHHmm - Delivery Date/Time (End Time)
4. GGGGGG - Ticket Volume, Gallons (Decimal)
5. FFFFFFFF - Ticket Volume, Gallons (ASCII Hex IEEE float)  
Entering 0 volume will cancel ticketed delivery warning.  
VOL TC/STANDARD must match setup for ticketed delivery.

### Typical Response Message, Display Format:

<SOH>  
S7B5TT  
JAN 9, 1998 8:08 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

SET TICKETED DELIVERY

VOLUMES ARE STANDARD

T 1:UNLEADED REGULAR

|                     | TICKET<br>VOLUME | GAUGE<br>VOLUME | VARIANCE |
|---------------------|------------------|-----------------|----------|
| JAN 8, 1993 2:10 AM | 500.0            | 503.0           | 3.0      |
| <ETX>               |                  |                 |          |

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 7B5:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i7B5TTYMMDDHHmmTTpPPRRYYMMDDHHmmNNFFFFFFFF...
 TTpPPRRYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe type (Decimal)
5. RR - Result code - if an error occurs, just error code will be returned (Decimal)
  - 00=OK and data will follow
  - 01=BIR not enabled
  - 02=Tank number is invalid
  - 03=missing time/date
  - 04=Time Date not numeric
  - 05=invalid date
  - 06=time is invalid
  - 07=Date out of range of period (curr & prev via BIR)
  - 08=If there is no matching time/date for edit
  - 09=Invalid volume
  - 10=Try to insert when gauged exists
  - 30=Reserved
  - 31=Reserved
6. YYMMDDHHmm - Delivery Date/Time (End Time)
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
  - 1. Ticketed volume
  - 2. Gauged volume
  - 3. Delivery variance
9. && - Data Termination Flag
10. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7B6  
**Function Type:** Set BOL number

Version 23

**Command Format:**  
**Display:** <SOH>S7B6TTeeYYMMDDHHmmaa..aa  
**Computer:** <SOH>s7B6TTeeYYMMDDHHmmaa..aa

### Notes:

1. TT - Tank Number (Decimal)
2. ee - edit function  
01=Edit Ticket (enter, modify)  
02=Insert Ticketed Delivery
3. YYMMDDHHmm - Delivery Date/Time (End Time)
4. aa..aa - Bill of Lading Number

### Typical Response Message, Display Format:

<SOH>  
I7B60101  
FEB 01, 1997 4:29 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

SET TICKETED DELIVERY BOL NUMBER

| DELIVERY END DATE   | BOL<br>NUMBER | TICKET<br>VOLUME | GAUGE<br>VOLUME | TC GAUGE<br>VOLUME |
|---------------------|---------------|------------------|-----------------|--------------------|
| DEC 2, 1993 2:00 AM | 123456        | 0.0              | 502.0           | 0.0                |

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 7B6 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>s7B6TTYMMDDHHmmTTpPPRRYYMMDDHHmmAAaa..aaNNFFFFFFFF...FFFFFFFF...
TTpPPRRYYMMDDHHmmAAaa..aaNNFFFFFFFF...FFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal)
3. p - Product Code (Decimal)
4. PP - Probe type (Decimal)
5. RR - Result code (Decimal) - if error occurs, only error code is returned
  - 00=OK and data will follow
  - 01=BIR not enabled
  - 02=Tank number is invalid
  - 03=missing time/date
  - 04=Time Date not numeric
  - 05=invalid date
  - 06=time is invalid
  - 07=Date out of range of period (curr & prev via BIR)
  - 08=If there is no matching time/date for edit
  - 30=Reserved
  - 31=Reserved
6. YYMMDDHHmm - Delivery Date/Time (End Time)
7. AA - Number of ASCII characters to follow
8. aa..aa - Bill of Lading Number (ASCII characters [20h-7Eh])
9. NN - Number of eight character Data Fields to follow (Hex)
10. FFFFFFFF - ASCII Hex IEEE floats - VOL TC/STANDARD must match setup for ticketed delivery
  - 1. Ticketed volume
  - 2. Gauged volume
  - 3. Gauged TC volume
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.12 PUMP MONITOR RELAY SETUP

**Function Code:** 7C4

Version 27

**Function Type:** Set Pump Relay Monitor Configuration

**Command Format:**

**Display:** <SOH>S7C4rrf

**Computer:** <SOH>s7C4rrf

**Inquire:**

<SOH>I7C4rr

<SOH>i7C4rr

**Typical Response Message, Display Format:**

<SOH>

I7C4rr

JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR CONFIGURATION

| DEVICE | LABEL               | CONFIGURED |
|--------|---------------------|------------|
| 1      | PUMP RELAY UNLEADED | ON         |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i7C4rrYYMMDDHHmmrrf...

rrf&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. f - Configuration Flag (ASCII Hex)  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7C5

**Function Type:** Set Pump Relay Monitor Label

Version 27

**Command Format:**

**Display:** <SOH>S7C5rraaaaaaaaaaaaaaaaaaaaaa

**Computer:** <SOH>s7C5rraaaaaaaaaaaaaaaaaaaaaa

**Inquire:**

<SOH>I7C5rr

<SOH>i7C5rr

### Typical Response Message, Display Format:

```
<SOH>
I7C5rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR LABEL

DEVICE LABEL
 1 PUMP RELAY UNLEADED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i7C5rrYYMMDDHHmmrraaaaaaaaaaaaaaaaaaaaaa...
 raaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. a - Label (20 ASCII characters from 20 Hex B 7E Hex)
4. && - Data Termination Flag
5. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 7C6

**Function Type:** Set Pump Relay Monitor Pump Relay

Version 27

**Command Format:**

**Display:** <SOH>S7C6rrAATT

**Computer:** <SOH>s7C6rrAATT

**Inquire:**

<SOH>I7C6rr

<SOH>i7C6rr

#### Typical Response Message, Display Format:

```
<SOH>
I7C6rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR PUMP RELAY

DEVICE LABEL PUMP RELAY
 1 PUMP RELAY UNLEADED Q !: UNLEADED
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i7C6rrYYMMDDHHmmrrAATT...
 rrAATT&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. AA - Device Type (Decimal)
  - 00=None
  - 11=Output Relay
  - 15=Pump Sensor
  - 16=VLLD
  - 21=PLLD
  - 26=WPLLD
4. TT - Device Number (Decimal, 00=None)
5. && - Data Termination Flag
6. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7C7

Version 27

**Function Type:** Set Pump Relay Monitor Stuck Relay

**Command Format:**

**Display:** <SOH>S7C7rrSSS

**Computer:** <SOH>s7C7rrFFFFFFFF

**Inquire:**

<SOH>I7C7rr

<SOH>i7C7rr

**Notes:**

1. SSS - Stuck Relay, Seconds (Decimal, 5 B 600 seconds)
2. FFFFFFFF - Stuck Relay, Seconds (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I7C7rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR STUCK RELAY

DEVICE LABEL STUCK RELAY
 1 PUMP RELAY UNLEADED 60 SEC
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i7C7rrYYMMDDHHmmrrFFFFFFFF...
 rrFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. FFFFFFFF - Stuck Relay, Seconds (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7C8

**Function Type:** Set Pump Relay Monitor Max Run Time

Version 27

**Command Format:**

**Display:** <SOH>S7C8rrhh

**Computer:** <SOH>s7C8rrFFFFFFFF

**Inquire:**

<SOH>i7C8rr

<SOH>i7C8rr

**Notes:**

1. hh - Max Run Time, Hours (Decimal, 1 B 8 hours)
2. FFFFFFFF - Max Run Time, Hours (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
i7C8rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR MAX RUN TIME

DEVICE LABEL MAX RUN TIME
 1 PUMP RELAY UNLEADED 8 HR
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i7C8rrYYMMDDHHmmrrFFFFFFFF...
 rrFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. FFFFFFFF - Max Run Time, Hours (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 7C9

**Function Type:** Set Pump Relay Monitor Type

Version 28

**Command Format:**

**Display:** <SOH>S7C9rrt

**Computer:** <SOH>s7C9rrt

**Inquire:**

<SOH>I7C9rr

<SOH>i7C9rr

### Typical Response Message, Display Format:

<SOH>

I7C9rr

DEC 22, 2006 3:12 PM

PUMP RELAY MONITOR TYPE

| DEVICE | LABEL               | TYPE               |
|--------|---------------------|--------------------|
| 1      | PUMP RELAY UNLEADED | PUMP MONITOR RELAY |
| 2      | PROCESSOR           | VAPOR PROCESSOR    |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i7C9rrYYMMDDHHmmrrt...

rrt&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00 = all)
3. t - Type
  - 1 = Pump Relay Monitor
  - 2 = Vapor Processor
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.13 I/O DEVICE SETUP

**Function Code:** 801  
**Function Type:** Set Input Configuration

Version 1

**Command Format:**  
**Display:** <SOH>S801IIf  
**Computer:** <SOH>s801IIf

**Inquire:**  
<SOH>I801II  
<SOH>i801II

#### Typical Response Message, Display Format:

```
<SOH>
I801II
MAR 26, 1996 1:50 PM

EXTERNAL INPUT CONFIGURATION

DEVICE LABEL CONFIGURED
 1 EXTERNAL INPUT #1 OFF
<ETX>
```

#### Typical Response Message, Computer Format:

```
<SOH>i801IIYYMMDDHHmmIIf...
 IIf&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - Input Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 802**  
**Function Type:** Set Input Location Label

Version 1

**Command Format:**  
**Display:** <SOH>S802IIaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s802IIaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I802II  
<SOH>i802II

### Typical Response Message, Display Format:

```
<SOH>
I802II
MAR 26, 1996 1:50 PM

EXTERNAL INPUT LABEL

DEVICE LABEL
 1 aaaaaaaaaaaaaaaaaaaaaa
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i802IIYYMMDDHHmmIIaaaaaaaaaaaaaaaaaaaaa...
 IIaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - Input Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 803**  
**Function Type:** Set Input Type

Version 1

**Command Format:**  
**Display:** <SOH>S803IItnTT  
**Computer:** <SOH>s803IItnTT

**Inquire:**  
<SOH>I803II  
<SOH>i803II

### Typical Response Message, Display Format:

<SOH>  
I803II  
MAR 26, 1996 1:51 PM

EXTERNAL INPUT TYPE

| INPUT | NAME              | TYPE         | ORIENTATION     | TANK# |
|-------|-------------------|--------------|-----------------|-------|
| 1     | EXTERNAL INPUT #1 | GENERATOR    | NORMALLY CLOSED | 2     |
| 2     | DCD INPUT         | STANDARD ACK | NORMALLY OPEN   |       |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i803IIYYMDDHHmmIItnNNTT...  
IItnNNTT&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. II - Input Number (Decimal, 00=all)
3. t - Input type:
  - 1=Standard
  - 2=Generator
  - 3=Pump Sense
  - 4=Acknowledge Alarm
  - 5=Vapor Processor (ISD SEM required)
4. n - Input Orientation
  - (Generator & Pump Sense only, not returned for others)
  - 1=Normally Open
  - 2=Normally Closed
5. NN - Number of Tanks to follow (Hex)
  - (Generator & Pump Sense only, not returned for others)
6. TT - Tank Number (Decimal, 00=none)
  - (Generator & Pump Sense only, not returned for others)
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 804**  
**Function Type:** Set Input Dispense Mode

Version 4

**Command Format:**  
**Display:** <SOH>S804IIIm  
**Computer:** <SOH>s804IIIm

**Inquire:**  
<SOH>I804II  
<SOH>i804II

### Typical Response Message, Display Format:

```
<SOH>
I804II
MAR 27, 1996 5:51 PM

INPUT DISPENSE MODE

INPUT MODE
 1 MANIFOLDED: ALTERNATE
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i804IIYYMMDDHHmmIIIm...
 IIm&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - Input (Pump Sensor) Number (Decimal)
3. m - Dispense Mode:
  - 1=Standard
  - 2=Manifolded: Alternate
  - 3=Manifolded: Sequential
  - 4=Manifolded: All Pumps
  - 5=Manifolded: Alternate-Height
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 806  
**Function Type:** Set Relay Configuration

Version 1

**Command Format:**  
**Display:** <SOH>S806RRf  
**Computer:** <SOH>s806RRf

**Inquire:**  
<SOH>I806RR  
<SOH>i806RR

### Typical Response Message, Display Format:

```
<SOH>
I806RR
MAR 26, 1996 1:51 PM

RELAY CONFIGURATION

DEVICE LABEL CONFIGURED
 1 OUTPUT RELAY #1 ON
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i806RRYYMMDDHHmmRRf...
 RRf&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay Number (Decimal, 00=all)
3. f - Configuration Flag  
0=Off  
1=On
4. && - Data Termination Flag
5. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 807  
**Function Type:** Set Relay Location Label

Version 1

**Command Format:**  
**Display:** <SOH>S807RRaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s807RRaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
<SOH>I807RR  
<SOH>i807RR

### Typical Response Message, Display Format:

```
<SOH>
I807RR
MAR 26, 1996 1:51 PM

RELAY LABEL

DEVICE LABEL
 1 aaaaaaaaaaaaaaaaaaaaaa
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i807RRYYMMDDHHmmRRaaaaaaaaaaaaaaaaaaaaa...
 RRaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay Number (Decimal, 00=all)
3. a - Location Label (20 ASCII characters [20h-7Eh])
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 808**  
**Function Type:** Set Relay Alarm Assignments

Version 1

**Command Format:**  
**Display:** <SOH>S808RRAANNTTss  
**Computer:** <SOH>s808RRAANNTTss

**Inquire:**  
<SOH>I808RR  
<SOH>i808RR

### Notes:

1. RR - Relay number (Decimal, RR>00)
2. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
3. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
4. TT - Tank/Sensor Number (Decimal, 00=all)
5. ss - status  
00=clear  
01=set

### Typical Response Message, Display Format:

```
<SOH>
I808RR
JUN 1, 2002 8:07 AM

RELAY SETUP REPORT
R 1: STP
 TYPE:
 STANDARD
 NORMALLY CLOSED

 ISD BAD DATA ALARM
 ISD BAD TEST ALARM
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i808RRYYMMDDHRRnnAANNTTss...
 RRnnAANNTTss&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - receiver number (Decimal, RR>00)
3. nn - number of alarms to follow (Hex)
4. AA - Alarm/Warning Category:  
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:  
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. ss - status  
00=clear  
01=set
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 809**  
**Function Type:** Set Relay Orientation

Version 2

**Command Format:**  
**Display:** <SOH>S809RRs  
**Computer:** <SOH>s809RRs

**Inquire:**  
<SOH>I809RR  
<SOH>i809RR

### Typical Response Message, Display Format:

```
<SOH>
I809RR
MAR 26, 1996 1:51 PM

RELAY ORIENTATION

RELAY DESIGNATION ORIENTATION
 1 EXTERNAL RELAY #1 NORMALLY OPEN
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i809RRYYMMDDHHmmRRs...
 RRs&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay Number (Decimal, 00=all)
3. s - Orientation:  
    1=Normally Open  
    2=Normally Closed
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 80A**  
**Function Type:** Set Relay Type

Version 4

**Command Format:**  
**Display:** <SOH>S80ARRt  
**Computer:** <SOH>s80ARRt

**Inquire:**  
<SOH>I80ARR  
<SOH>i80ARR

### Notes:

1. RR - Relay number (Decimal, 00=all relays)
2. t - type
  - 1=Standard
  - 2=Pump Control Output
  - 3=Momentary
  - 4=Pump Comm Control
  - 5=Vapor Processor (only one relay can be of this type)

### Typical Response Message, Display Format:

```
<SOH>
I80ARR
JUN 1, 2002 8:07 AM

RELAY TYPE

RELAY DESIGNATION TYPE
 1 EXTERNAL RELAY #1 STANDARD
 2 TANK 1 PUMP CONTROL
 3 VAPOR PROCESSOR VAPOR PROCESSOR
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i80ARRYYMMDDHRRt&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay number (Decimal, 00=all relays)
3. t - type
  - 1=Standard
  - 2=Pump Control Output
  - 3=Momentary
  - 4=Pump Comm Control
  - 5=Vapor Processor (only one relay can be of this type)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 80B  
**Function Type:** Set Relay Tank Assignment

Version 4

**Command Format:**  
**Display:** <SOH>S80BRRtt  
**Computer:** <SOH>s80BRRtt

**Inquire:**  
<SOH>I80BRR  
<SOH>i80BRR

### Typical Response Message, Display Format:

```
<SOH>
I80BRR
MAR 26, 1996 1:51 PM

RELAY TANK ASSIGNMENT

RELAY DESIGNATION TANK
 1 EXTERNAL RELAY #1 1
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i80BRRYYMMDDHHmmRRtt...
 RRtt&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay Number (Decimal, 00=All)
3. tt - Relay Tank Assignment (00=No Assignment)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 80C**  
**Function Type:** Set External Input Type

Version 25

**Command Format:**  
**Display:** <SOH>S80CIIItOTT...TT  
**Computer:** <SOH>s80CIIItOTT...TT

**Inquire:**  
<SOH>I80CII  
<SOH>i80CII

### Notes:

1. II - Input device number (Decimal, 00=all)
2. t - Input type
  - 1=standard
  - 2=generator
  - 3=pump sense
  - 4=standard acknowledge
  - 5=Vapor Processor
3. O - Input orientation
  - 1=normally open
  - 2=normally closed
4. TT...TT - tank numbers (for input type 2 and 3 only) (Decimal)

### Typical Response Message, Display Format:

<SOH>  
I80CII  
JUN 1, 2002 8:07 AM

EXTERNAL INPUT TYPE

| INPUT | NAME                | TYPE            | ORIENTATION     | TANK# |
|-------|---------------------|-----------------|-----------------|-------|
| 1     | EXTERNAL INPUT #1   | STANDARD        | NORMALLY CLOSED | 1     |
| 2     | OPW VAPOR PROCESSOR | VAPOR PROCESSOR | NORMALLY OPEN   |       |

<ETX>

### Typical Response Message, Computer Format:

<SOH>i80CIIYYMMDDHHmmIIItOnnTT...TT  
IIItOnnTT...TT&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - Input device number (Decimal)
3. t - input type
  - 1=standard
  - 2=generator
  - 3=pump sense
  - 4=standard acknowledge
  - 5=Vapor Processor (ISD SEM required)
4. O - orientation
  - 1=normally open
  - 2=normally closed
5. nn - number of tanks to follow (Hex)
6. TT...TT - tank numbers (Decimal, 00=none)
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 811**

Version 33

**Function Type:** Set External Input Alternate Modes  
Auto Active Pump Switchover Enable

**Command Format:**

**Display:** <SOH>S811IIIf

**Computer:** <SOH>s811IIIf

**Inquire:**

<SOH>I811II

<SOH>i811II

**Notes:**

1. f - 0=disabled; 1=enabled

**Typical Response Message, Display Format:**

```
<SOH>
I811II
JUN 1, 2002 8:07 AM

EXTERNAL INPUT ALTERNATE MODE SWITCHOVER ENABLE

DEVICE LABEL ENABLD
S 1:UNLEADED GASOLINE YES
S 2:UNLEADED GASOLINE NO
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i811IIYYMMDDHHmmIIIf
 IIf&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. II - External Input number (Decimal, 00=all)
3. f - Auto Switchover Enabled:  
0=No  
1=Yes
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 812

Version 33

**Function Type:** Set External Input Alternate Mode  
Auto Active Pump Switchover Volume Threshold

**Command Format:**

**Display:** <SOH>S812IIIGGGG

**Computer:** <SOH>s812IIFFFFFFF

**Inquire:**

<SOH>I812II

<SOH>i812II

**Notes:**

1. II - External Input Number (Decimal, 00=all)
2. GGGG - Full Height Volume, Gallons (Decimal)
3. FFFFFFFF - Full Height Volume, Gallons (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

```
<SOH>
I812II
JUN 1, 2002 8:07 AM

EXTERNAL INPUT ALTERNATE MODE SWITCHOVER THRESHOLD

DEVICE LABEL GALLONS
 1 REGULAR UNLEADED 200
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i812IIYYMDDHHmmIIFFFFFFF
 IFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. II - External Input Number (Decimal, 00=all)
3. FFFFFFFF - Switchover Threshold, Gallons (ASCII Hex IEEE Float)
4. && - Data Termination Flag
5. CCCC - Message Checksum



## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code:** 813

Version 33

**Function Type:** Set External Input Alternate-Height Mode  
Auto Active Pump Switchover Height Threshold

**Command Format:**

**Display:** <SOH>S813IIhhhh.h

**Computer:** <SOH>s813IIFFFFFFFFF

**Inquire:**

<SOH>I813II

<SOH>i813II

**Notes:**

1. II - External Input Number (Decimal, 00=all)
2. hhhh.h - Switchover Threshold, Inches and tenths (Decimal)
3. FFFFFFFF - Switchover Threshold, Inches (ASCII Hex IEEE float)

**Typical Response Message, Display Format:**

<SOH>

I813II

JUN 1, 2002 8:07 AM

EXTERNAL INPUT ALTERNATE-HEIGHT MODE SWITCHOVER THRESHOLD

DEVICE LABEL

INCHES

S 1:UNLEADED

2.0

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i813IIYYMDDHHmmIIFFFFFFFFF

IIFFFFFFFFF&&CCCC<ETX>

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. II - External Input Number (Decimal, 00=all)
3. FFFFFFFF - Switchover threshold, Inches (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.14 EEPROM SETUP

**Function Code:** 851

Version 107

**Function Type:** Restore All Setup Data from EEPROM

**Command Format:**

**Display:** <SOH>S85100149

**Computer:** <SOH>s85100149

**Inquire:**

<SOH>I85100

<SOH>i85100

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

<SOH>

I85100

JAN 24, 1996 2:55 PM

RESTORE SETUP DATA: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i85100YYMMDDHHmmSS&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Status  
00=Disabled  
01=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 852**

Version 107

**Function Type:** Save All Setup Data to EEPROM

**Command Format:**

**Display:** <SOH>S85200149

**Computer:** <SOH>s85200149

**Inquire:**

<SOH>I85200

<SOH>i85200

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

<SOH>

I85200

JAN 24, 1996 2:55 PM

SAVE SETUP DATA: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i85200YYMMDDHHmmSS&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Status  
00=Disabled  
01=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

**Function Code: 853**

Version 107

**Function Type:** Clear All Setup Data from EEPROM

**Command Format:**

**Display:** <SOH>S85300149

**Computer:** <SOH>s85300149

**Inquire:**

<SOH>I85300

<SOH>i85300

**Notes:**

1. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

<SOH>

I85300

JAN 24, 1996 2:55 PM

CLEAR SETUP DATA: DISABLED

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i85300YYMMDDHHmmSS&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Status  
00=Disabled  
01=Enabled
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.3.15 MISCELLANEOUS SETUP

**Function Code:** 881  
**Function Type:** Set Communication Port Data

Version 9

**Command Format:**  
**Display:** <SOH>S881PPBBBBBPSDTAA  
**Computer:** <SOH>s881PPBBBBBPSDTAA

**Inquire:**  
<SOH>I881PP  
<SOH>i881PP

**Notes:**

1. PP - Communication Port Number (Decimal 01..06)

**Typical Response Message, Display Format:**

```
<SOH>
I881PP
JUN 1, 2000 8:10 AM
PORT SETTINGS:

COMM BOARD : 1 (RS-232)
BAUD RATE : 9600
PARITY : ODD
STOP BIT : 1 STOP
DATA LENGTH : 7 DATA
RS-232 SECURITY
CODE : 123456
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i881PPYYMMDDHHmmBBBBBPSDTAA&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. BBBBBB - Baud Rate (Decimal)
3. P - Parity (Decimal; 0=None, 1 or 2)
4. S - Stop Bit (Decimal; 1 or 2)
5. D - Data Bit (Decimal; 7 or 8)
6. T - Pulse or Tone (Decimal; 0=Tone, 1=Pulse)
7. AA - Number of Rings before Answer (Decimal)
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 882**

Version 9

**Function Type:** Initialize Communication Port Data

**Command Format:**

**Display:** <SOH>S882PP149

**Computer:** <SOH>s882PP149

**Inquire:**

<SOH>I882PP

<SOH>i882PP

**Notes:**

1. PP - Communication Port Number (Decimal 01..06)
2. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

```
<SOH>
I882PP
JUN 1, 2000 8:10 AM
PORT SETTINGS:

COMM BOARD : 1 (RS-232)
BAUD RATE : 9600
PARITY : ODD
STOP BIT : 1 STOP
DATA LENGTH: 7 DATA
RS-232 SECURITY
CODE : 123456
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i882PPYYMMDDHHmmBBBBBPSDTAA&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. BBBBB - Baud Rate (Decimal)
3. P - Parity (Decimal; 0=None, 1 or 2)
4. S - Stop Bit (Decimal; 1 or 2)
5. D - Data Bit (Decimal; 7 or 8)
6. T - Pulse or Tone (Decimal; 0=Tone, 1=Pulse)
7. AA - Number of Rings before Answer (Decimal)
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 885**  
**Function Type:** Set SiteLink Modem Type

Version 19

**Command Format:**  
**Display:** <SOH>S885PPMM  
**Computer:** <SOH>s885PPMM

**Inquire:**  
<SOH>I885PP  
<SOH>i885PP

### Typical Response Message, Display Format:

<SOH>  
I885PP  
NOV 5, 1999 12:00 AM

COM BOARD 1: S-LINK  
MODEM TYPE : NETCOMM SMART M7F  
<ETX>

### Typical Response Message, Computer Format:

<SOH>i885PPYYMMDDHHmmMM&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. MM - Modem Type:  
00=NETCOMM SMART M7F  
01=US ROBOTICS (UK)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 886  
**Function Type:** Set Modem Setup String

Version 20

**Command Format:**  
**Display:** <SOH>S886PPaaaaaaaaaaaaaaaaaaaaa  
**Computer:** <SOH>s886PPaaaaaaaaaaaaaaaaaaaaa

**Inquire:**  
I886PP  
i886PP

### Notes:

1. PP - Communication Port Number (Decimal 01..06)

### Typical Response Message, Display Format:

```
<SOH>
I886PP
JUN 1, 2000 8:15 AM

COMM BOARD : 3 (FXMOD)
MODEM SETUP STRING : GJMDAQ
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i886PPYYMMDDHHmmaaaaaaaaaaaaaaaaaaaaaa&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. a - Modem Setup String (20 ASCII characters)
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** 887  
**Function Type:** Set Dial Tone Validation Interval

Version 20

**Command Format:**  
**Display:** S887PPHHHH  
**Computer:** s887PPHHHH

**Inquire:**  
I887PP  
i887PP

**Notes:**

1. PP - Modem or SiteLink Board Number (Port #) (Decimal 01..06)

**Typical Response Message, Display Format:**

```
<SOH>
I887PP
JUN 1, 2000 8:15 AM

COMM BOARD : 3 (FXMOD)
DIAL TONE VALIDATION INTERVAL: 32 HOURS
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i887PPYYMMDDHHmmHHHH&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. HHHH - Number of Idle Hours Before Receiver board checks for dial tone (Decimal 0001-9999)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 888**

**Function Type:** Communication Status Information

Version 19

**Command Format:**

**Display:** <SOH>I888PP

**Computer:** <SOH>i888PP

### Typical Response Message, Display Format:

```
<SOH>
I888PP
JAN 1, 1996 9:12 AM

COMM BOARD : 1 (RS-232)
CONNECTION : NONE

COMM BOARD : 2 (FXMOD)
CONNECTION : MODEM DIAL IN
FUNCTION : NONE
ERROR : UART SETTINGS ERROR
BAUD RATE : 2400
PARITY : ODD
STOP BIT : 1 STOP
DATA LENGTH : 7 DATA
TIME OF LAST COMM DATA: JAN 1, 1996 9:12 AM
TIME OF LAST COMM ERROR: JAN 1, 1996 8:00 AM
<ETX>
```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code 888:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>i888PPYYMMDDHHmmNNPPnnCCSSEEBBBBBPSDYMMDDHHmmYYMMDDHHmm...
PPnnCCSSEEBBBBBPSDYMMDDHHmmYYMMDDHHmm&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. NN - Total Number of Error Reports To Follow
3. PP - Communication Port Number (00=all)
4. nn - Number of Errors to follow for each port
5. CC - Connect Type
  - 00=NO CONNECTION
  - 01=AUTO DIAL TELETYPE
  - 02=AUTO DIAL FAX
  - 03=AUTO DIAL COMPUTER
  - 04=AUTO TRANSMIT
  - 05=MODEM DIAL IN
  - 06=RS232 REQUEST
6. SS - State or Function Code (Decimal):
  - 00=NONE
  - 01=OPEN PHONE PORT
  - 02=MODEM CHECK CONNECTION
  - 03=TRANSMITTING DATA
  - 04=CHECKING FOR CARRIER
  - 05=WAITING FOR DATA
  - 06=HANGING UP
  - 07=FAXMODEM INITIALIZING
  - 08=FAX CHECK CONNECTION
  - 09=FAX CHECK PAGE
  - 10=FAX END PAGE
  - 11=FAX BUILD MESSAGE
7. EE - Error Code (Decimal):
  - 01=UART SETTINGS ERROR
  - 02=MODEM INITIALIZATION FAILED
  - 03=MODEM TIMED OUT
  - 04=LOST CARRIER
  - 05=DATA TIMED OUT
  - 06=HANG UP FAILED
  - 07=FAX INITIALIZATION FAILED
  - 08=FAX CONNECTION FAILED
  - 09=FAX TIMED OUT
  - 10=FAX INTERPAGE ERROR
  - 11=FAX END PAGE ERROR
  - 12=FAX BUILD MESSAGE ERROR
8. BBBB - BAUD of UART During Error (Decimal)
9. P - Parity of UART During Error (Decimal):
  - 0: None
  - 1: Odd
  - 2: Even
  - 3: Mark
  - 4: Space
10. S - Stop Bits of UART During Error (Decimal)
11. D - Data Bits of UART During Error (Decimal)
12. YYMMDDHHmm - Last Communication Date/Time
13. YYMMDDHHmm - Last Error's Date/Time
14. && - Data Termination Flag
15. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 889**

**Function Type:** DTR Normal State for Serial Satellite Boards

Version 121

**Command Format:**

**Display:** <SOH>S889PPs

**Computer:** <SOH>s889PPs

**Inquire:**

<SOH>I889PP

<SOH>i889PP

**Notes:**

1. PP - Communication Port Number (01..06)

**Typical Response Message, Display Format:**

<SOH>

I889PP

AUG 22, 2000 4:49 PM

COMM BOARD : 1 (S-SAT )

DTR NORMAL STATE: HIGH

<ETX>

**Typical Response Message, Computer Format:**

<SOH>i889PPYYMMDDHHmms&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. s - DTR Normal State for Serial Satellite Board  
0=Normally Low  
1=Normally High (Default)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 88D**

**Function Type:** Communication Diagnostic for SiteLink

Version 23

**Command Format:**

**Display:** <SOH>I88DPP

**Computer:** <SOH>i88DPP

**Notes:**

1. PP - Communication Port Number (Decimal 01..06)

**Typical Response Message, Display Format:**

```
<SOH>
I88DPP
JUN 1, 2000 8:10 AM

COMMUNICATION DIAGNOSTIC

COMM BOARD : 1 S-LINK

MODEM TYPE : VR TLS GSM MODEM
MODEM AUTO DETECTED: VR TLS GSM MODEM
RSSI: XX BER: XX
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>i88DPPYYMMDDHHmmPPMMDDrree&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Communication Port Number (Decimal 01..06)
3. MM - Modem Type:
  - 00=NETCOMM SMART M7F
  - 01=US ROBOTICS (UK)
  - 02=VR TLS ANALOG MOD
  - 03=VR TLS GSM MODEM
4. DD - Modem Auto Detected:
  - 00=NETCOMM SMART M7F
  - 01=US ROBOTICS (UK)
  - 02=VR TLS ANALOG MOD
  - 03=VR TLS GSM MODEM
5. rr - RSSI received signal strength indication (Decimal), only valid if Modem Type is WAVECOM GSM.
  - 00 : -113 dBm or less
  - 01 : -111 dBm
  - 02...30 : -109 to -53 dBm
  - 31 : -51 dBm or greater
  - 99 : not known or not detectable
6. ee - BER channel bit error (Decimal), only valid if Modem Type is VR TLS GSM MODEM
  - 00...7 : as RXQUAL values in the table GSM 05.08
  - 99 : not known or not detectable
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 891**

Version 108

**Function Type:** Set AccuChart Calibration Restart

**Command Format:**

**Display:** <SOH>S891TT149

**Computer:** <SOH>s891TT149

**Inquire:**

<SOH>I891TT

<SOH>i891TT

**Notes:**

1. TT - Tank Number (command valid for single tank only)
2. 149 - This verification code must be sent to confirm the command

**Typical Response Message, Display Format:**

<SOH>  
S891TT  
MAR 29, 1996 6:27 PM

T 1:REGULAR UNLEADED ACCU\_CHART RESTART  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>i891TTYMMDDHHmmTTSS&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number (Decimal)
3. SS - Status:  
01=AccuChart restarted
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: 8A2**  
**Function Type:** Service Code List

Version 27

**Command Format:**  
**Display:** <SOH>I8A200  
**Computer:** <SOH>i8A200

### Typical Response Message, Display Format:

```
<SOH>
I8A200
JAN 22, 2006 3:11 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SERVICE CODE LIST

STANDARD LABEL CODE
REPROGRAMMED TLS 0101
COLD BOOT SYSTEM 0102
REPLACED PC BOARD 0103
NO PROBLEM FOUND 0104
NO SOLUTION FOUND 0105
OTHER SOLUTION 0106

USER DEFINED LABEL CODE
MAINTENANCE CALL 9902
MANUAL TEST 9910
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>i8A200YYMMDDHHmmNNNnnnnnnnnnnnnnnnnnnnncccc...
nnnnnnnnnnnnnnnnnnnnnncccc&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. NNN - Number of Service Codes to follow (Decimal)
3. nnnYnnn - Service code label (19 characters, ASCII)
4. cccc - Four digit Service Code (ASCII)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Function Code: 8A3

**Function Type:** Maintenance Tracker Active Hardware Key List

Version 27

### Command Format:

**Display:** <SOH>I8A300

Computer: <SOH>i8A300

**Typical Response Message, Display Format:**

<SOH>

I8A300

JAN 22, 2006 3:11 PM

## MAINTENANCE TRACKER ACTIVE HARDWARE KEY LIST

LABEL

ID

J SMITH

A12345

J DOE

A54321

<ETX>

**Typical Response Message, Computer Format:**

```
<SOH>i8A300YYMMDDHHmmNNNNnnnnnnnnnnnnnnnnnnnncccccc...
nnnnnnnnnnnnnnnnnnnncccccc&&CCCC<ETX>
```

**Notes:**

- ```

1.      YYMMDDHHmm - Current Date and Time
2.      NNNN       - Number of hardware keys to follow (Decimal)
3.      nnnNNNN   - ID label (17 characters, ASCII)
4.      cccccc    - Six digit ID code (ASCII)
5.      &&        - Data Termination Flag
6.      CCCC      - Message Checksum

```


Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 8A4

Version 27

Function Type: Maintenance Tracker Block Hardware Key

Command Format:

Display: <SOH>S8A400149cccccc

Computer: <SOH>s8A400149cccccc

Inquire:

<SOH>I8A400

<SOH>i8A400

Notes:

1. 149 - This verification code must be sent to confirm the command
2. ccccc - Six digit ID code to block (ASCII).

Typical Response Message, Display Format:

<SOH>
I8A400
JAN 22, 2006 3:11 PM

MAINTENANCE TRACKER BLOCK HARDWARE KEY

| LABEL | ID |
|---------|--------|
| J SMITH | A12345 |
| J DOE | A54321 |

<ETX>

Typical Response Message, Computer Format:

<SOH>i8A400YYMMDDHHmmNNNnnnnnnnnnnnnnnnnnnnncccccc...
nnnnnnnnnnnnnnnnnnnncccccc&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NNN - Number of blocked hardware keys to follow (Decimal)
3. nnnYnnn - ID label (17 characters, ASCII)
4. ccccc - Six digit blocked ID codes (ASCII)
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 8BC

Function Type: Set Relay Alarm Assignments II

Version 19

Command Format:

Display: <SOH>S8BCRRAANNTTSS

Computer: <SOH>s8BCRRAANNTTSS

Inquire:

<SOH>I8BCRR

<SOH>i8BCRR

Typical Response Message, Display Format:

```
<SOH>
I8BCRR
JAN 15, 1996 4:29 PM

RELAY SETUP REPORT

R 1:
TYPE:
  STANDARD
  NORMALLY OPEN

PRESSURE LINE LEAK
Q 1:ANNUAL LINE FAIL
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i8BCRRYYMMDDHHmmRRnnAANNTTSS...
                                RRnnAANNTTSS&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. RR - Relay Number (Decimal, 00=all)
3. nn - Number of Alarms to Follow (Hex)
4. AA - Alarm/Warning Category:
See explanation for "AA" in Function i10100
5. NN - Alarm Type Number:
See explanation for "NN" in Function i10100
6. TT - Tank/Sensor Number (Decimal, 00=all)
7. SS - Status:
00=Clear
01=Set
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 8C1
Function Type: VMC Edit/Add Serial Number

Version 28

Command Format:
Display: <SOH>S8C1xxIIIIII
Computer: <SOH>s8C1xxIIIIII

Inquire:
<SOH>I8C1xx
<SOH>i8C1xx

Notes:

1. xx - VMC Number (Decimal, 01-18, 00=all)
2. IIIIII - Serial Number (Decimal)

Typical Response Message, Display Format:

```
<SOH>
I8C1xx
JAN 22, 2007  3:11 PM

VMC SETUP

VMC   S/N
 1   111111
 2   222222
 3   333333
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i8C1xxYYMMDDHHmmxxIIIIII...
                        xxIIIIII&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. xx - VMC Number (Decimal, 01-18, 00=all)
3. IIIIII - Serial Number (Decimal)
4. cccc - Four digit Service Code (ASCII)
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 8C2
Function Type: VMC Remove Serial Number

Version 28

Command Format:
Display: <SOH>S8C2xxIIIIII
Computer: <SOH>s8C2xxIIIIII

Inquire:
<SOH>I8C2xx
<SOH>i8C2xx

Notes:

1. xx - VMC Number (Decimal, 01-18, 00=all)
2. IIIIIII - Serial Number (Decimal)

Typical Response Message, Display Format:

```
<SOH>
S8C2xx
JAN 22, 2007  3:11 PM

REMOVE VMC SERIAL NUMBER

VMC   S/N
 1   333333
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i8C2xxYYMMDDHHmmxxIIIIII&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. xx - VMC Number (Decimal, 01-18, 00=all)
3. IIIIIII - Serial Number (Decimal)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 8C3

Function Type: VMC Edit/Add Fueling Position Number

Version 31

Command Format:

Display: <SOH>S8C3xxAABB

Computer: <SOH>s8C3xxAABB

Inquire:

<SOH>I8C3xx

<SOH>i8C3xx

Notes:

1. xx - VMC Number (Decimal, 01-18, 00=all)
2. AA - Side A Fueling Position Number (Decimal 00-99)
3. BB - Side B Fueling Position Number (Decimal 00-99)

Typical Response Message, Display Format:

```
<SOH>
S8C3xx
JAN 22, 2010  3:11 PM

VMC FUELING POSITION SETUP

VMC   S/N    SIDE A    SIDE B
  1   333333    1        2
  2   333333    3        4
  3   333333   11       12
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i8C3xxYYMMDDHHmmxxAABB...
                        xxAABB&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. xx - VMC Number (Decimal, 01-18, 00=all)
3. AA - Side A Fueling Position Number (Decimal 00-99)
4. BB - Side B Fueling Position Number (Decimal 00-99)
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 8C4
Function Type: VMC Communications Timeout Value

Version 31

Command Format:
Display: <SOH>S8C400hh
Computer: <SOH>s8C400hh

Inquire:
<SOH>I8C400
<SOH>i8C400

Typical Response Message, Display Format:

```
<SOH>
S8C4xx
JAN 22, 2010  3:11 PM

VMC COMMUNICATIONS TIMEOUT

TIMEOUT VALUE: 0 HOURS
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i8C4xxYYMMDDHHmmhh&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. hh - Timeout value in hours (Decimal, 00-99, 99=Alarm Disabled)
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.4 DIAGNOSTIC REPORTS

7.4.1 SYSTEM DIAGNOSTIC REPORTS

Function Code: 901
Function Type: Self Test Results Report

Version 1

Command Format:
Display: <SOH>I90100
Computer: <SOH>i90100

Typical Response Message, Display Format:

```
<SOH>
I90100
JAN 22, 1996   3:24 PM

SYSTEM BOARD      I/O      RAM      PROM
                  PASS     PASS     PASS
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i90100YYMMDDHHmmIIRRPP&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - I/O Test result
00=pass
01=fail
3. RR - RAM Test result
00=pass
01=fail
4. PP - PROM Test result
00=pass
01=fail
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 902

Version 1

Function Type: System Revision Level Report

Command Format:

Display: <SOH>I90200

Computer: <SOH>i90200

Typical Response Message, Display Format:

```
<SOH>
I90200
JAN 22, 1996  3:24 PM
SOFTWARE REVISION LEVEL
VERSION 110.01
SOFTWARE# 346110-101-B
CREATED - 95.11.20.13.28
```

```
S-MODULE# 330160-115-A
SYSTEM FEATURES:
  PERIODIC IN-TANK TESTS
  ANNUAL IN-TANK TESTS
  CSLD
  BIR
  FUEL MANAGER
  PLLD
  0.10 REPETITIV
  0.20 REPETITIV
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i90200YYMMDDHHmmSOFTWARE# nnnnnn-vvv-rrrCREATED - YY.MM.DD.HH.mm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. nnnnnn-vvv - Software version number (ASCII text string)
3. rrr - Software revision level (ASCII text string)
4. YY.MM.DD.HH.mm - Date and time of software creation
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 903
Function Type: PC Diagnostic Report

Version 106

Command Format:
Display: <SOH>I90300
Computer: <SOH>i90300

Typical Response Message, Display Format:

```
<SOH>
I90300
JAN 22, 1996  3:24 PM
  PC DIAGNOSTIC DATA
  PERIPHERAL CONTROLLER
- - - - -

PC SWARE# 330269-002-B
CREATED - 94.12.16.13.26
PC ROM CHECKSUM=PASSED

PC RESET COUNTS=      6
PC COMM ERRORS =      0
MC CKSUM ERRS  =    108
MC->PC COMMS= 36261666
MC<-PC COMMS= 36262714
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i90300YYMMDDHHmmP..PT..TNNR..RE..ES..St..tr..r&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. P..P - Software Part Number (14 characters)
3. Y..T - Software Creation Date and Time (14 characters)
YY.MM.DD.HH.MM
4. NN - Number of values to follow (Decimal)
5. R..R - PC Reset Counts (Hex, 8 characters)
6. E..E - PC Communication Errors (Hex, 8 characters)
7. S..S - MC Checksum Errors (Hex, 8 characters)
8. t..t - MC -> PC Command Send Counts (Hex, 8 characters)
9. r..r - MC <- PC Command Receive Counts (Hex, 8 characters)
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 905

Version 15

Function Type: System Revision Level Report II

Command Format:

Display: <SOH>I90500

Computer: <SOH>i90500

Typical Response Message, Display Format:

```
<SOH>
I90500
JUL 29, 1997  9:08 AM
SOFTWARE REVISION LEVEL
VERSION 115.00 TEST #05
SOFTWARE# 346115-199-AX5
CREATED - 97.07.10.20.21
```

```
S-MODULE# 330160-115-A
SYSTEM FEATURES:
  PERIODIC IN-TANK TESTS
  ANNUAL IN-TANK TESTS
  CSLD
  BIR
  FUEL MANAGER
  PLLD
    0.10 REPETITIV
    0.20 REPETITIV
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i90500YYMMDDHHmmSOFTWARE# 346abb-Tvv-rrrCREATED - YY.MM.DD.HH.mm
nnAABBCCDDEEFFGGHHIIJJKLLS-MODULE# nnnnnn-vvv-r&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. 346 - Software Base number (fixed)
3. a - Platform
 - 0=Standard CPU, PLLD only
 - 1=Enhanced CPU
 - 2=(Unused)
 - 3=Enhanced CPU 16 Tank
 - 4=Standard CPU without PLLD & WPLLD
 - 5=Standard CPU, WPLLD only
4. bb - Version level (eg version "15")
5. T - Software Type
 - 1="Real"
 - 2="Demo"
 - 3="IFSF"

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code 905 Notes: (Continued)

- 6. vv - Language
 - 00=English/Spanish
 - 01=English/French
 - 02=English/German
 - 03=English/Swedish
 - 04=English/Portuguese
 - 05=English/Polish
 - 06=English/Finnish
 - 07=English/Japanese
 - 08=English/Greek
 - 09=English/Russian
 - 10=English/Turkish
 - 11=English/Dutch
 - 12=English/Italian
 - 99=English only
- 7. rrr - Revision level (eg revision "AX1")
- 8. YY.MM.DD.HH.mm - Date and time of software creation
- 9. nn - number of 2 byte values to follow (Hex)
- 10. AA - PERIODIC IN-TANK TESTS (00=DISABLE, 01=ENABLE)
- 11. BB - ANNUAL IN-TANK TESTS (00=DISABLE, 01=ENABLE)
- 12. CC - CSLD (00=DISABLE, 01=ENABLE)
- 13. DD - BIR (00=DISABLE, 01=ENABLE)
- 14. EE - FUEL MANAGER (00=DISABLE, 01=ENABLE)
- 15. FF - PRECISION PLLD (00=DISABLE, 01=ENABLE)
- 16. GG - TANKER LOAD (00=DISABLE, 01=ENABLE)
- 17. HH - 0.2 GPH PLLD (00=DISABLE, 01=ENABLE)
- 18. II - PRECISION PLLD ON DEMAND (00=DISABLE, 01=ENABLE)
- 19. JJ - SPECIAL 3-TANK/LINE CONSOLE (00=DISABLE, 01=ENABLE)
- 20. KK - ISD (00=DISABLE, 01=ENABLE)
- 21. LL - UNUSED WAS PMC (00=DISABLE, 01=ENABLE) (Version 29)
- 22. nnnnnn-vvv-r - SEM Info 3 parts, if none "NO SOFTWARE MODULE"
- 23. nnnnnn - SEM number (ASCII text string)
- 24. vvv - SEM Software version number (ASCII text string)
- 25. r - SEM Software revision level (ASCII text string)
- 26. && - Data Termination Flag
- 27. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: 908
Function Type: Power Up Time Report

Version 33

Command Format:
Display: <SOH>I90800
Computer: <SOH>i90800

Typical Response Message, Display Format:

```
<SOH>
I90800
JUL 29, 2012  9:08 AM

SYSTEM POWER UP TIME = 1234 DAYS, 21 HOURS, 31 MINUTES
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>i90800YYMMDDHHmml11111111&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. l1111111 - Power Up Time (minutes) ASCII-Hex long
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.4.2 IN-TANK DIAGNOSTIC REPORTS

Function Code: A01

Version 1

Function Type: Probe Type and Serial Number

Command Format:

Display: <SOH>IA01TT

Computer: <SOH>ia01TT

Typical Response Message, Display Format:

```
<SOH>
IA01TT
JAN 22, 1996  3:25 PM

TANK  1  REGULAR UNLEADED      TYPE  CODE  LENGTH  SERIAL NO.  D/CODE
TANK  2  SUPER UNLEADED       MAG   C000   96.00   000418     1401
TANK  3  PREMIUM UNLEADED     CAP1  A66C   96.00   278147     2410
TANK  3  PREMIUM UNLEADED     CAP0  0001   96.00   200100     0000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>ia01TTYMMDDHHmmTTpPPKKKKFFFFFFFFSSSSSScccc...
TTpPPKKKKFFFFFFFFSSSSSScccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
 - 01=CAP0
 - 02=CAP1
 - 03=MAG1
5. KKKK - Circuit Code (Hex)
6. FFFFFFFF - Probe Length (ASCII Hex IEEE float)
7. SSSSSS - Probe Serial Number (Decimal)
8. cccc - Probe Date Code (Hex)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A02

Version 1

Function Type: Probe Factory Dry Calibration Values

Command Format:

Display: <SOH>IA02TT

Computer: <SOH>ia02TT

Typical Response Message, Display Format:

```
<SOH>
IA02TT
JAN 22, 1996  3:25 PM
TANK  1  REGULAR UNLEADED      MAG      GRADIENT= 178.1400
TANK  2  SUPER UNLEADED        CAP1     FACTORY DRY5
1573.000 1871.000 5020.000 4977.000 4961.000 5006.000 4967.000 5019.000
5033.000 4972.000 5045.000
265.000  311.000  836.000   834.000   827.000   827.000   833.000   834.000
839.000   827.000   837.000
TANK  3  PREMIUM UNLEADED      CAP0     FACTORY DRY5
97.000   180.000  649.000  657.000  652.000  655.000  647.000  657.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>ia02TTYMMDDHHmmTTpPPNNFFFFFFFF...
                        TTpPPNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
01=CAP0
02=CAP1
03=MAG1
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A03

Version 1

Function Type: Probe Factory Wet Calibration Values

Command Format:

Display: <SOH>IA03TT

Computer: <SOH>iA03TT

Typical Response Message, Display Format:

```
<SOH>
IA03TT
JAN 22, 1996  3:25 PM
TANK  1  REGULAR UNLEADED      MAG    GRADIENT= 178.1400
TANK  2  SUPER UNLEADED        CAP1    FACTORY WETS
3066.000  3197.000  8321.000  8213.000  8230.000  8189.000  8251.000  8296.000
8335.000  8205.000  8332.000
569.000   576.000   1485.000  1486.000  1471.000  1477.000  1479.000  1476.000
1479.000  1472.000  1474.000
TANK  3  PREMIUM UNLEADED      CAP0    FACTORY WETS
130.000   335.000  1214.000  1214.000  1204.000  1217.000  1200.000  1222.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA03TTYMMDDHHmmTTpPPNNFFFFFFFF...
TTpPPNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
01=CAP0
02=CAP1
03=MAG1
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A04

Version 1

Function Type: Probe Updated Dry Calibration Values

Command Format:

Display: <SOH>IA04TT

Computer: <SOH>iA04TT

Typical Response Message, Display Format:

```
<SOH>
IA04TT
JAN 22, 1996  3:25 PM
TANK  1  REGULAR UNLEADED      MAG
TANK  2  SUPER UNLEADED      CAP1  UPDATED DRYs
1573.000 1871.000 5020.000 4977.000 4961.000 5006.000 4967.000 5019.000
5033.000 4972.000 5045.000
265.000  311.000  836.000   834.000   827.000   827.000   833.000   834.000
839.000  827.000  837.000
TANK  3  PREMIUM UNLEADED    CAP0  UPDATED DRYs
97.000   180.000  649.000  657.000  652.000  655.000  647.000  657.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA04TTYMMDDHHmmTTpPPNNFFFFFFFF...
                        TTpPPNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
01=CAP0
02=CAP1
03=MAG1
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A05

Version 1

Function Type: Probe Updated Wet Calibration Values

Command Format:

Display: <SOH>IA05TT

Computer: <SOH>iA05TT

Typical Response Message, Display Format:

```
<SOH>
IA05TT
JAN 22, 1996  3:25 PM
TANK  1  REGULAR UNLEADED      MAG
TANK  2  SUPER UNLEADED      CAP1  UPDATED WETS
3119.000 3197.000 8321.000 8213.000 8230.000 8189.000 8251.000 8296.000
8335.000 8205.000 8332.000
569.000  576.000 1485.000 1486.000 1471.000 1477.000 1479.000 1476.000
1479.000 1472.000 1474.000
TANK  3  PREMIUM UNLEADED    CAP0  UPDATED WETS
130.000  335.000 1214.000 1214.000 1204.000 1217.000 1200.000 1222.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA05TTYMMDDHHmmTTpPPNNFFFFFFFF...
                      TTpPPNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
01=CAP0
02=CAP1
03=MAG1
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A06

Version 1

Function Type: Probe Segment Sensitivity Ratios

Command Format:

Display: <SOH>IA06TT

Computer: <SOH>ia06TT

Typical Response Message, Display Format:

```
<SOH>
IA06TT
JAN 22, 1996  3:25 PM
TANK  1  REGULAR UNLEADED      MAG
TANK  2  SUPER UNLEADED      CAP1  SENSITIVITY RATIOS
      0.000      0.703      0.356      1.002      1.011      0.970      1.032      0.982
      1.000      1.007      0.987
      0.000      0.734      0.353      1.006      1.006      1.005      0.985      0.995
      0.989      1.024      0.977
TANK  3  PREMIUM UNLEADED      CAP0  SENSITIVITY RATIOS
      0.000      1.023      0.279      0.971      1.010      1.003      1.010      0.988
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>ia06TTYMMDDHHmmTTpPPNNFFFFFFFF...
                        TTpPPNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
01=CAP0
02=CAP1
03=MAG1
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A07

Version 23

Function Type: Probe Reference Distance Diagnostic

Command Format:

Display: <SOH>IA07TT

Computer: <SOH>iA07TT

Typical Response Message, Display Format:

```
<SOH>
IA07TT
JAN 22, 1996  3:25 PM
```

```
TANK  1  REGULAR UNLEADED      MAG7
ORIG REF DISTANCE  12/01/00  XXXXX.XX
CURR REF DISTANCE  12/01/01  XXXXX.XX
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA07TTYMMDDHHmmTTpPPYYMMDDFFFFFFFFYYMMDDFFFFFFFF...
TTpPPYYMMDDFFFFFFFFYYMMDDFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type: (Probe types 01=CAP0 and 02=CAP1 are not supported by this command)
03=MAG1
5. YYMMDD - Date of reading
6. FFFFFFFF - Original Ref distance reading (ASCII Hex IEEE float)
7. YYMMDD - Date of reading
8. FFFFFFFF - Current Reference distance reading (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A10
Function Type: Probe Last Sample Buffers

Version 1

Command Format:
Display: <SOH>IA10TT
Computer: <SOH>iA10TT

Typical Response Message, Display Format:

```
<SOH>
IA10TT
JAN 22, 1996 3:25 PM
TANK 1 REGULAR UNLEADED MAG NUMBER OF SAMPLES=44520
 694.000 8587.000 8587.000 8587.000 8587.000 8589.000 8589.000
 8586.000 8587.000 8587.000 38250.000 31771.000 30813.000 30617.000 30251.000
30253.000 30261.000 38262.000
TANK 2 SUPER UNLEADED CAP1 NUMBER OF SAMPLES= 1081
 6852.000 6930.000 12054.000 11946.000 11963.000 11922.000 11984.000 12029.000
 9026.000 8705.000 8779.000 8290.000 3733.000 4150.000 4144.000 4137.000
 4132.000 4126.000 4120.000 2954.000 0.000 0.000 0.000 0.000
 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
 0.000
TANK 3 PREMIUM UNLEADED CAP0 NUMBER OF SAMPLES= 1082
 234.000 439.000 1317.000 1319.000 1307.000 1321.000 1104.000 761.000
 104.000 1686.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA10TTYMMDDHHmmTTpPPSSSSNNFFFFFFFFF...
TTpPPSSSSNNFFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
01=CAP0
02=CAP1
03=MAG1
5. SSSS - Sample Number (Hex)
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A11

Version 1

Function Type: Probe Fast Average Buffers

Command Format:

Display: <SOH>IA11TT

Computer: <SOH>iA11TT

Typical Response Message, Display Format:

```
<SOH>
IA11TT
JAN 22, 1996 3:25 PM
TANK 1 REGULAR UNLEADED MAG NUMBER OF SAMPLES= 5
695.000 8587.200 8587.400 8587.400 8587.000 8587.000 8587.000 8587.000
8587.400 8587.000 8587.000 38257.801 31768.199 30813.801 30616.000 30250.398
30252.398 30259.600 38261.801
TANK 2 SUPER UNLEADED CAP1 NUMBER OF SAMPLES= 5
6852.000 6930.000 12054.000 11946.000 11963.000 11922.000 11984.000 12029.000
9026.000 8705.000 8777.000 8290.000 3733.000 4150.000 4144.000 4137.000
4132.000 4126.000 4120.000 2954.000 0.000 0.000 0.000 0.000
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
0.000
TANK 3 PREMIUM UNLEADED CAP0 NUMBER OF SAMPLES= 5
234.000 439.000 1317.000 1319.000 1307.000 1321.000 1104.000 761.000
104.000 1686.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA11TTYMMDDHHmmTTpPPSSSSNNFFFFFFFFF...
TTpPPSSSSNNFFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
 - 01=CAP0
 - 02=CAP1
 - 03=MAG1
5. SSSS - Number of Samples (Hex)
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A12

Version 1

Function Type: Probe Standard Average Buffers

Command Format:

Display: <SOH>IA12TT

Computer: <SOH>iA12TT

Typical Response Message, Display Format:

```
<SOH>
IA12TT
JAN 22, 1996 3:25 PM
TANK 1 REGULAR UNLEADED MAG NUMBER OF SAMPLES= 20
  695.100 8587.000 8587.450 8587.300 8587.050 8587.650 8587.050 8587.050
  8587.200 8587.000 8587.000 38258.148 31767.449 30814.250 30616.801 30250.500
30252.500 30259.801 38261.750
TANK 2 SUPER UNLEADED CAP1 NUMBER OF SAMPLES= 40
  6852.000 6930.000 12054.000 11946.000 11963.000 11922.000 11984.000 12029.000
  9026.000 8705.000 8779.000 8290.000 3733.000 4150.000 4144.000 4137.000
  4132.000 4126.000 4120.000 2954.000 0.000 0.000 0.000 0.000
  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  0.000
TANK 3 PREMIUM UNLEADED CAP0 NUMBER OF SAMPLES= 40
  234.000 439.000 1317.000 1317.000 1307.000 1321.000 1104.000 761.000
  104.000 1686.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA12TTYMMDDHHmmTTpPPSSSSNNFFFFFFFFF...
TTpPPSSSSNNFFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
 - 01=CAP0
 - 02=CAP1
 - 03=MAG1
5. SSSS - Number of Samples (Hex)
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A13

Version 1

Function Type: Probe Long Term Average Buffers

Command Format:

Display: <SOH>IA13TT

Computer: <SOH>ia13TT

Typical Response Message, Display Format:

```
<SOH>
IA13TT
JAN 22, 1996 3:26 PM
TANK 1 REGULAR UNLEADED MAG NUMBER OF SAMPLES=44544
  695.555 9687.276 9687.250 9687.222 9687.210 9687.204 9960.201 9960.196
  9960.193 9960.189 9960.189 38259.258 31891.879 30702.641 30339.914 30188.129
30113.578 30118.578 38260.867
TANK 2 SUPER UNLEADED CAP1 NUMBER OF SAMPLES= 1115
  6852.000 6930.000 12054.000 11946.000 11963.000 11922.000 11984.000 12029.000
  9026.000 8705.000 8777.000 8290.000 3733.000 4150.000 4144.000 4137.000
  4132.000 4126.000 4120.000 2954.000 0.000 0.000 0.000 0.000
  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
  0.000
TANK 3 PREMIUM UNLEADED CAP0 NUMBER OF SAMPLES= 1117
  234.000 439.000 1317.000 1317.000 1307.000 1321.000 1104.000 761.000
  104.000 1686.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>ia13TTYMMDDHHmmTTpPPSSSSNNFFFFFFFFF...
TTpPPSSSSNNFFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
 - 01=CAP0
 - 02=CAP1
 - 03=MAG1
5. SSSS - Number of Samples (Hex)
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - Probe Data (ASCII Hex IEEE float)
8. && - Data Termination Flag
9. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A14
Function Type: Mag Probe Option Table

Version 19

Command Format:
Display: <SOH>IA14TT
Computer: <SOH>iA14TT

Typical Response Message, Display Format:

```
<SOH>
IA14TT
JUN  1, 2000  8:15 AM

MAG PROBE OPTIONS TABLE

TNK    LOW
NUM    TEMP

    1    NO
    2    NO
    3    NO
    4    NO
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iA14TTYMMDDHHmmTTNNL...
                                TTNNL&&CCCC<ETX>
```

Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. NN - Number of option flags to follow
4. L - Low temperature capability
0=NO
1=YES
5. && - Data Termination Flag
6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: A15

Function Type: In-Tank Diagnostic Printout

Version 24

Command Format:

Display: <SOH>IA1500

Computer: <SOH>iA1500

Typical Response Message, Display Format:

```
<SOH>
IA1500
JUN  3, 2002  8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

IN-TANK DIAGNOSTIC
-----
PROBE DIAGNOSTICS
T1:PROBE TYPE MAG 1
SERIAL NUMBER 064924
LENGTH: 2489.2
DATE CODE 2774
ID CHAN=D004
GRADIENT= 350.0000
PROBE INIT:
  AUG  1,2004 12:25PM

NUM SAMPLES=  20

C00 811.0      C01 7196.8
C02 7196.5     C03 7196.7
C04 7196.3     C05 7196.8
C06 7196.8     C07 7196.2
C08 7196.6     C09 7196.1
C10 7196.8     C11 42511.1
C12 18534.4    C13 18615.1
C14 18496.6    C15 18518.9
C16 18456.4    C17 18505.8
C18 18534.4

SAMPLES READ=      2
SAMPLES USED=      2
LAST ERROR  =      0
LAST SAMPLE ERROR TIME:
  AUG  2,2004 11:12PM

TEMP SENSOR DATA
T6:      72.6 F
T5:      72.1 F
T4:      70.9 F
T3:      69.4 F
T2:      68.3 F
T1:      67.6 F

REF DISTANCE
12/01/00 XXXXX.XX - (Original Reference Time/Distance)
12/01/01 XXXXX.XX - (Current Reference Time/Distance)
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code A15 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iA15TTYMMDDHHmmTTppppsssssslllllllllddddYYMMDDHHmm
      ggggggggzzzzoonnnnnNNccccccc...ccccccc
      rrrrrrrruuuuuuuueeeeeeeeYYMMDDHHmm
      AAAAAAAAAA...AAAAAAAA
      YYMMDDhhhhhhhhYYMMDDkkkkkkkk...
TTppppsssssslllllllllddddYYMMDDHHmm
      ggggggggzzzzoonnnnnNNccccccc...ccccccc
      rrrrrrrruuuuuuuueeeeeeeeYYMMDDHHmm
      AAAAAAAAAA...AAAAAAAA
      YYMMDDhhhhhhhhYYMMDDkkkkkkkk&CCCC<ETX>
```

Notes:

- ```

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. pppp - Probe Type (Hex)
4. ssssss - Serial Number (Decimal)
5. 11111111 - Probe Length (ASCII Hex IEEE float)
6. dddd - Date Code (Hex)
7. YYMMDDHHmm - Probe Initialized (Date and Time)
8. gggggggg - Gradient (ASCII Hex IEEE float)
9. zzzz - Id Code (Hex)
10. oo - Probe Options (Hex)
 00=Not Low Temperature Probe
 01=Low Temperature Probe
11. nnnn - Number of Samples (Hex)
12. NN - # of 8-Byte Channel Count Values to Follow (Hex)
13. cccccccc - Channel Count Values (ASCII Hex IEEE float)
14. rrrrrrrr - Samples Read (Hex)
15. uuuuuuuu - Samples Used (Hex)
16. eeeeeeee - Last Error Sample Number (Hex)
17. YYMMDDHHmm - Last Sample Error Time (Date and Time)
18. AA - # of 8-Byte Temperature Sensor Values Follow (Hex)
19. aaaaaaaaaa - Temperature Sensor Values (ASCII Hex IEEE float)
20. YYMMDD - Original Reference Distance Date
21. hhhhhhhh - Original Reference Distance Value (ASCII Hex IEEE float)
22. YYMMDD - Current Reference Distance Date
23. kkkkkkkk - Current Reference Distance Value (ASCII Hex IEEE float)
24. && - Data Termination Flag
25. CCCC - Message Checksum

```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** A20

Version 1

**Function Type:** Probe Leak Test Flags - Present Test

**Command Format:**

**Display:** <SOH>IA20TT

**Computer:** <SOH>ia20TT

### Typical Response Message, Display Format:

```
<SOH>
IA20TT
JAN 28, 1995 10:15 AM
TANK 1 REGULAR UNLEADED MAG PRESENT LEAK TEST ANALYSIS REPORT
0.1 GAL/HR FLAGS:
0.2 GAL/HR FLAGS:
TANK 2 SUPER UNLEADED CAP1 PRESENT LEAK TEST ANALYSIS REPORT
0.1 GAL/HR FLAGS:
0.2 GAL/HR FLAGS:
TANK 3 PREMIUM UNLEADED CAP0 PRESENT LEAK TEST ANALYSIS REPORT
0.2 GAL/HR FLAGS:
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>ia20TTYMMDDHHmmTTpPPNNFFFF...
 TTpPPNNFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
  - 01=CAP0
  - 02=CAP1
  - 03=MAG1
5. NN - Number of 4-character Flag sequences to follow (Hex)
6. FFFF - Flag sequence characters indicating which Flag bits are set
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** A21

Version 1

**Function Type:** Probe Leak Test Flags - Stored Test

**Command Format:**

**Display:** <SOH>IA21TT

**Computer:** <SOH>ia21TT

### Typical Response Message, Display Format:

```
<SOH>
IA21TT
JAN 28, 1995 10:15 AM
TANK 1 REGULAR UNLEADED MAG STORED LEAK TEST ANALYSIS REPORT
0.1 GAL/HR FLAGS:
0.2 GAL/HR FLAGS:
TANK 2 SUPER UNLEADED CAP1 STORED LEAK TEST ANALYSIS REPORT
0.1 GAL/HR FLAGS:
0.2 GAL/HR FLAGS:
TANK 3 PREMIUM UNLEADED CAP0 STORED LEAK TEST ANALYSIS REPORT
0.2 GAL/HR FLAGS:
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>ia21TTYMMDDHHmmTTpPPNNFFFF...
 TTpPPNNFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
  - 01=CAP0
  - 02=CAP1
  - 03=MAG1
5. NN - Number of 4-character Flag sequences to follow (Hex)
6. FFFF - Flag sequence characters indicating which Flag bits are set
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A22**

Version 2

**Function Type:** Probe Leak Test Flags - Gross Test

**Command Format:**

**Display:** <SOH>IA22TT

**Computer:** <SOH>iA22TT

### Typical Response Message, Display Format:

```
<SOH>
IA22TT
APR 14, 1995 9:05 AM
TANK 1 REGULAR UNLEADED MAG GROSS LEAK TEST ANALYSIS REPORT
GROSS LEAK TEST FLAGS:
TANK 2 SUPER UNLEADED CAP1 GROSS LEAK TEST ANALYSIS REPORT
GROSS LEAK TEST FLAGS:
TANK 3 PREMIUM UNLEADED CAP0 GROSS LEAK TEST ANALYSIS REPORT
GROSS LEAK TEST FLAGS:
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iA22TTYMMDDHHmmTTpPPNNFFFF...
 TTpPPNNFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type:
  - 01=CAP0
  - 02=CAP1
  - 03=MAG1
5. NN - Number of 4-character Flag sequences to follow (Hex)
6. FFFF - Flag sequence characters indicating which Flag bits are set
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A23**

Version 5

**Function Type:** Tank Leak Test Averaging Buffers

**Command Format:**

**Display:** <SOH>IA23TT

**Computer:** <SOH>iA23TT

### Typical Response Message, Display Format:

```
<SOH>
IA23TT
APR 8, 1995 8:27 AM
TANK 1 SUPER UNLEADED MAG LEAK TEST AVERAGING BUFFERS
0.20 GAL/HR LEAK TEST BUFFER
START TIME HOURS VOLUME RATE
APR 8, 1995 5:22 AM 3.0 6107 -0.059
APR 8, 1995 1:01 AM 4.0 6107 -0.058
APR 7, 1995 9:56 PM 3.0 6108 -0.060
APR 7, 1995 6:51 PM 3.0 6108 -0.045
APR 7, 1995 4:49 PM 2.0 6108 -0.039
AVERAGE 3.0 6108 -0.052
0.10 GAL/HR LEAK TEST BUFFER
START TIME HOURS VOLUME RATE
APR 8, 1995 5:22 AM 3.0 6107 -0.059
APR 8, 1995 1:01 AM 4.0 6107 -0.058
APR 7, 1995 9:56 PM 3.0 6108 -0.060
APR 7, 1995 6:51 PM 3.0 6108 -0.045
AVERAGE 3.3 6107 -0.056
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iA23TTYMMDDHHmmTTpPPNNYYMMDDHHmmdddddddVVVVVVVVRRRRRRR...
nnYYMMDDHHmmdddddddVVVVVVVVRRRRRRR...
TTpPPNNYYMMDDHHmmdddddddVVVVVVVVRRRRRRR...
nnYYMMDDHHmmdddddddVVVVVVVVRRRRRRR&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all)
3. p - Product Code (one ASCII character [20h-7Eh])
4. PP - Probe Type
5. NN - Number of 34 character 0.20 gal/hr test records to follow
6. YYMMDDHHmm - Leak test start time - year, month, day, hour, min
7. dddddddd - Leak test duration in hours (ASCII Hex IEEE float)
8. VVVVVVVV - Leak test volume (gallons) (ASCII Hex IEEE float)
9. RRRRRRRR - Leak test rate (gal/hr) (ASCII Hex IEEE float)
10. nn - Number of 34 character 0.10 gal/hr test records to follow
11. YYMMDDHHmm - Leak test start time - year, month, day, hour, min
12. dddddddd - Leak test duration in hours (ASCII Hex IEEE float)
13. VVVVVVVV - Leak test volume (gallons) (ASCII Hex IEEE float)
14. RRRRRRRR - Leak test rate (gal/hr) (ASCII Hex IEEE float)
15. && - Data Termination Flag
16. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A51**

Version 3

**Function Type:** CSLD Diagnostics: Rate Table

**Command Format:**

**Display:** <SOH>IA51TT

**Computer:** <SOH>ia51TT

### Typical Response Message, Display Format:

```
<SOH>
IA51TT
JAN 22, 1996 3:26 PM

CSLD DIAGNOSTICS: RATE TABLE
T 1:REGULAR UNLEADED
 TIME ST LRT AVTMP TPTMP BDTMP TMRT DSPNS VOL INTVL DEL ULLG EVAP
9601210514 2 -0.194 35.9 35.6 33.1 0.06 853 9324 53.5 1.4 188 7.8
9601220056 3 -0.028 36.9 35.7 33.3 0.02 1528 6829 134.0 21.1 320 7.8
9601220417 1 -0.007 37.0 35.8 33.3 0.02 1470 6825 25.0 24.5 320 7.8
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>ia51TTYMMDDHHmmTTRRssNNttttttttFFFFFFFFF...
 TTRRssNNttttttttFFFFFFFFF&&ACF7<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All Tanks)
3. RR - Number of records to follow
4. ss - Test acceptability:
  - 00=Acceptable
  - 01=Rejected - less than minimum duration requirement
  - 02=Rejected - within delivery threshold
  - 03=Rejected - excessive dispensing
  - 04=Rejected - excessive temperature change
  - 06=Rejected - outside weighted STD
5. NN - Number of eight character Data Fields to follow (decimal)
6. tttttttt - Test starting time (seconds since 1/1/70, unsigned long)
7. FFFFFFFF - ASCII Hex IEEE floats:
  1. Leak rate
  2. Accept
  3. 0.0 (Obsolete)
  4. Rate of change of temperature
  5. Dispense factor
  6. Volume
  7. Test interval (minutes)
  8. Hours since last delivery
  9. Average temperature
  10. Top temperature
  11. Board temperature
  12. Ullage area
  13. Throughput
  14. Evaporation rate
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A52**

Version 3

**Function Type:** CSLD Diagnostics: Rate Test

**Command Format:**

**Display:** <SOH>IA52TT

**Computer:** <SOH>iA52TT

### Typical Response Message, Display Format:

```
<SOH>
IA52TT
JAN 22, 1996 3:27 PM

CSLD DIAGNOSTICS: RATE TEST

TK DATE LRATE INTVL ST AVL RTE VOL C1 C3 FDBK ACPT THPUT EVAP RJT
1 9601220417 -0.024 22.6 1 -0.030 5436 67 22 30.4 36.8 7.8 0.100 0
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iA52TTYMMDDHHmmTTYMMDDHHmmSSCCccNNFFFFFFFF...
TTYMMDDHHmmSSCCccNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date
2. TT - Tank Number (Decimal, 00=All Tanks)
3. YYMMDDHHmm - Date of last tank evaluation
4. SS - Status code:
  - 01=PASS
  - 02=FAIL
  - 05=NO RESULTS - Insufficient number of records
  - 06=NO RESULTS - Insufficient test time interval
  - 07=NO RESULTS - Insufficient test date range
  - 08=INVALID - excessive positive leak rate
  - 09=INVALID - negative leak waiting period
5. CC - Total count of records
6. cc - Total count of acceptable records
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
  - 1. Compensated leak rate
  - 2. Total test time (hours)
  - 3. Uncompensated leak rate
  - 4. Average volume during tests
  - 5. Feedback factor (minutes)
  - 6. Acceptance factor (minutes)
  - 7. Last throughput \* tank capacity/1000
  - 8. DF multiplier
  - 9. Positive rejects
  - 10. Average evaporation rate
9. && - Data Termination Flag
10. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A53**

Version 3

**Function Type:** CSLD Diagnostics: Volume History Table

**Command Format:**

**Display:** <SOH>IA53TT

**Computer:** <SOH>iA53TT

### Typical Response Message, Display Format:

```
<SOH>
IA53TT
MAR 26, 1996 1:48 PM

CSLD DIAGNOSTICS: VOLUME TABLE
T 1:REGULAR UNLEADED
LAST HOUR=229957
 3141.9 3297.9 3476.7 3625.4 3742.9 3932.8 4085.4 4156.5
 4218.2 4242.4 4242.5 4242.4 4242.0 4247.0 4265.9 4281.5
 4307.5 4339.7 4405.7 4456.5 4573.2 4701.3 4854.2 5022.6
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iA53TTYMMDDHHmmTTNNhhhhhhhhFFFFFFF...
 TTNNhhhhhhhhFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date
2. TT - Tank Number (Decimal, 00=All Tanks)
3. NN - Number of eight character Data Fields to follow (Hex)
4. hhhhhhhh - Last hour recorded (seconds since 1/1/70, unsigned long)
5. FFFFFFFF - ASCII Hex IEEE floats:
  1. Latest recorded hourly volume
  2. Intermediate hourly recorded volumes
  3. Oldest recorded hourly volume
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A54**

**Function Type:** CSLD Diagnostics: Moving Average Table

Version 3

**Command Format:**

**Display:** <SOH>IA54TT

**Computer:** <SOH>ia54TT

### Typical Response Message, Display Format:

```
<SOH>
IA54TT
MAR 26, 1996 1:48 PM

CSLD DIAGNOSTICS: MOVING AVERAGE TABLE

T 1:REGULAR UNLEADED
 TIME SMPLS TCVOL HEIGHT AVGTEMP TOPTEMP BDTEMP
960326132554 31 3074.65 32.279 45.86 45.49 48.19
960326132624 30 3072.62 32.263 45.86 45.49 48.19
960326132654 31 3072.46 32.262 45.86 45.49 48.20
960326132724 30 3072.54 32.263 45.86 45.49 48.20
960326132754 31 3073.13 32.267 45.86 45.49 48.21
960326132824 31 3072.97 32.266 45.86 45.49 48.21
MOVING AVERAGE: 3056.51

DISPENSE STATE: ACTIVE * 702.324829
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>A5401YYMMDDHHmmTTSSRRssNNaaaaaaaaFFFFFFFFF...
 TTSSRRssNNaaaaaaaaFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date
2. TT - Tank Number (Decimal, 00=All Tanks)
3. SS - Current Test State:
  - 0=No test
  - 1=Test pre-start
  - 2=Test in-progress
  - 3=Test complete
  - 4=Abort test
  - 5=Pre-delay
  - 6=End delay
4. RR - Number of records to follow
5. ss - Number of samples averaged into this record
6. NN - Number of eight character Data Fields to follow (Hex)
7. aaaaaaaa - Time recorded (seconds since 1/1/70, unsigned long)
8. FFFFFFFF - ASCII Hex IEEE floats:
  - 1. Time
  - 2. Temperature compensated volume
  - 3. Height
  - 4. Fuel temperature
  - 5. 0.0
  - 6. Current moving average
  - 7. Top temperature
  - 8. Board temperature
9. && - Data Termination Flag
10. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A55**

**Function Type:** CSLD Diagnostics: Leak Test Status

Version 3

**Command Format:**

**Display:** <SOH>IA55TT

**Computer:** <SOH>iA55TT

**Typical Response Message, Display Format:**

```
<SOH>
IA55TT
MAR 26, 1996 1:49 PM

CSLD DIAGNOSTICS: LEAK TEST STATUS

TANK TEST STATUS DURATION
 1 NO TEST 0.0
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iA55TTYMMDDhhmmTTSSFFFFFFFF...
 TTSSFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date
2. TT - Tank Number (Decimal, 00=All Tanks)
3. SS - Status:
  - 00=NO TEST
  - 01=TEST PRE-START
  - 02=TEST IN PROGRESS
  - 03=TEST COMPLETE
  - 04=TEST ABORT
  - 05=TEST PRE-DELAY
  - 06=TEST END DELAY
4. FFFFFFFF - Elapsed time in minutes (ASCII Hex IEEE float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A56**  
**Function Type:** CSLD Monthly Report

Version 121

**Command Format:**  
**Display:** <SOH>IA56TTt  
**Computer:** <SOH>iA56TTt

### Typical Response Message, Display Format:

```
<SOH>
IA56TT
OCT 25, 2000 10:00 AM

CSLD MONTHLY REPORT

CURRENT MONTH
0.2 GAL/HR TEST

T 1:UNLEADED GASOLINE
PROBE SERIAL NUM 627020

OCT 25, 2000 7:15 AM RESULT: NO RESULTS AVAIL
OCT 24, 2000 3:22 PM RESULT: PASS
OCT 23, 2000 6:26 AM RESULT: FAIL
OCT 20, 2000 12:44 PM RESULT: INCR
OCT 20, 2000 5:23 AM RESULT: WARN
OCT 19, 2000 8:23 AM RESULT: INVL
OCT 18, 2000 9:53 PM STATUS: NO IDLE DATA
OCT 16, 2000 6:14 AM STATUS: ACTIVE
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iA56TTYMMDDHHmmtTTNNYYMMDDHHmmrr...
TTNNYYMMDDHHmmrr&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. t - Report Type  
0=Current Month  
1=Previous Month
3. TT - Tank Number (Decimal, 00=all)
4. NN - Number of CSLD State Changes (12 char) to follow (Hex)
5. YYMMDDHHmm - Date and Time of CSLD State Change
6. rr - CSLD State Change:  
01=RESULT: PASS  
02=RESULT: FAIL  
03=RESULT: NO RESULTS AVAILABLE  
04=RESULT: INVALID  
08=RESULT: INCR  
98=STATUS: NO IDLE DATA  
99=STATUS: ACTIVE
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Function Code: A61  
Function Type: HRM Diagnostic Report

Version 110

Command Format:  
Display: <SOH>IA61TT  
Computer: <SOH>iA61TT

### Typical Response Message, Display Format:

```
<SOH>
IA61TT
JUL 29, 1997 9:08 AM
T 1:REGULAR UNLEADED
TIME STAMP ENDTEMP ENDEVOL SALES STAT HR VAR
9707240757 70.61 2633.02 118.2 0 -0.037
9707240918 70.79 2547.48 204.0 0 -0.099
9707240948 70.82 2531.58 220.0 0 0.056
9707241114 70.93 2464.84 275.1 0 -11.729
9707241224 71.09 2420.87 331.2 0 11.767
9707241310 71.25 2347.41 404.2 0 -0.754
9707241412 71.38 2298.75 453.0 0 -0.019
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iA61TTYMMDDHHmmTTpRRYYMMDDHHmmFFEEEEEEEESSSSSSSSVVVVVVVV...
TTpRRYYMMDDHHmmFFEEEEEEEESSSSSSSSVVVVVVVV&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All Tanks)
3. p - Product Code
4. RR - Number of records to follow
5. YYMMDDHHmm - Record Date and Time stamp
6. FF - Status Flag (Hex)
  - 00=Data Used
  - 01=Not mapped
  - 02=Time Set Back
  - 03=Gap Too Long
  - 04=Delivery
  - 05=Temp Low
  - 06=Temp High
  - 07=Temp Increase
  - 08=Volume High
  - 09=Volume Low
  - 0A=Volume Change
  - 0B=Not Calibrated
  - 0C=Cal Time Filter
  - 0D=No Sales Data
  - 0E=Temp Decrease
  - 0F=Reset Filter
  - 10=Therm Flag
  - 11=DIM Reset
  - 12=BDIM Transaction
7. EEEEEEEE - Ending Volume (ASCII Hex IEEE float)
8. SSSSSSSS - Sales (ASCII Hex IEEE float)
9. VVVVVVVV - Hourly Variance (ASCII Hex IEEE float)
10. && - Data Termination Flag
11. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A62**  
**Function Type:** HRM Daily History

Version 112

**Command Format:**  
**Display:** <SOH>IA62TT  
**Computer:** <SOH>iA62TT

### Typical Response Message, Display Format:

<SOH>  
IA62TT  
AUG 26, 1996 1:47 PM

T 1:REGULAR UNLEADED

DAILY HRM HISTORY

| TIME/DATE  | RECORDS | MIN    | MAX   | AVE    | STATUS |
|------------|---------|--------|-------|--------|--------|
| 9510010200 | 24      | -0.562 | 0.000 | -0.230 | PASS   |
| 9510020200 | 21      | -0.385 | 0.650 | -0.057 | PASS   |
| 9510030200 | 24      | -0.402 | 0.092 | -0.135 | PASS   |
| 9510040300 | 24      | -0.436 | 0.150 | -0.147 | PASS   |

<ETX>

### Typical Response Message, Computer Format:

<SOH>iA61TTYMMDDHHmmTTpRRYYMMDDHHmmhhaaaaaaabbabbbbbbccccccccSS...  
TTpRRYYMMDDHHmmhhaaaaaaabbabbbbbbccccccccSS&&CCCC<ETX>

### Notes:

1. YMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All Tanks)
3. p - Product Code (one ASCII character [20h-7Eh])
4. RR - Number of history records to follow
5. YMMDDHHmm - Record Date and Time stamp
6. hh - Number of hours in record (decimal)
7. aaaaaaaa - Minimum Value (ASCII Hex IEEE float)
8. bbbbbbbb - Maximum Value (ASCII Hex IEEE float)
9. cccccccc - Average Value (ASCII Hex IEEE float)
10. SS - Status  
00=No Data Available  
01=Pass  
02=Warning  
03=Fail
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A63**

Version 26

**Function Type:** Extended HRM Diagnostic Report

**Command Format:**

**Display:** <SOH>IA63TT

**Computer:** <SOH>iA63TT

**Typical Response Message, Display Format:**

```
<SOH>
IA63TT
JUL 29, 1997 9:08 AM

T 1:REGULAR UNLEADED
TIME STAMP ENDTEMP ENDVOL SALES STAT HR VAR
9707240757 70.61 2633.02 118.2 0 -0.037
9707240918 70.79 2547.48 204.0 0 -0.099
9707240948 70.82 2531.58 220.0 0 0.056
9707241114 70.93 2464.84 275.1 0 -11.729
9707241224 71.09 2420.87 331.2 0 11.767
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iA63TTYMMDDHHmmTtpRRYYMMDDHHmmFFNNEEEEEEEESSSSSSSSVVVVVVVVTTTTTTTT...
TtpRRYYMMDDHHmmFFNNEEEEEEEESSSSSSSSVVVVVVVVTTTTTTTT
&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=All Tanks)
3. p - Product Code
4. RR - Number of records to follow
5. YYMMDDHHmm - Record Date and Time stamp
6. FF - Status Flag (Hex)
  - 00=Data Used
  - 01=Not mapped
  - 02=Time Set Back
  - 03=Gap Too Long
  - 04=Delivery
  - 05=Temp Low
  - 06=Temp High
  - 07=Temp Increase
  - 08=Volume High
  - 09=Volume Low
  - 0A=Volume Change
  - 0B=Not Calibrated
  - 0C=Cal Time Filter
  - 0D=No Sales Data
  - 0E=Temp Decrease
  - 0F=Reset Filter
  - 10=Therm Flag
  - 11=DIM Reset
  - 12=BDIM Transaction
7. NN - Number of eight character data fields to follow (Hex)
8. EEEEEEEE - Ending Volume (ASCII Hex IEEE float)
9. SSSSSSSS - Sales (ASCII Hex IEEE float)
10. VVVVVVVV - Hourly Variance (ASCII Hex IEEE float)
11. TTTTTTTT - Ending Temperature (ASCII Hex IEEE float)
12. && - Data Termination Flag
13. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** A81

Version 6

**Function Type:** Fuel Management Diagnostic Report

**Command Format:**

**Display:** <SOH>IA81TT

**Computer:** <SOH>ia81TT

### Notes:

1. TT - Tank number for any tank containing desired product

### Typical Response Message, Display Format:

<SOH>  
IA81TT  
JAN 24, 1996 2:55 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

### FUEL MANAGEMENT DIAGNOSTIC REPORT

REGULAR UNLEADED ( TANK 1 )

DAYS FUEL REMAINING: 2.7

INVENTORY : 2969 GAL

95% ULLAGE: 2516 GAL

LAST SALES: 910

PREDICTED SALES: 1122

### AVERAGE SALES (GALLONS)

| SUN  | MON | TUE  | WED  | THR  | FRI  | SAT |
|------|-----|------|------|------|------|-----|
| 1211 | 462 | 1362 | 1005 | 1123 | 1184 | 970 |
| 910  | 783 | 1083 | 1176 | 1080 | 1108 | 946 |
| 1122 | 427 | 1261 | 929  | 1039 | 1096 | 897 |

<ETX>



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code A81 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>iA81TTYMMDDHHmmnnTtp...NNNNNNNNNN...
nnTtp...NNNNNNNNNN&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. nn - Number of tanks of this product type - number of tank product code (Ttp) sets to follow
3. Ttp - Tank numbers and product codes of this product type
4. NN - Number of eight character Data Fields to follow (Hex)
5. FFFFFFFF - ASCII Hex IEEE floats:
  1. Days supply of fuel remaining
  2. Inventory
  3. 95% Ullage
  4. Average sales for Sunday
  5. Average sales for Monday
  6. Average sales for Tuesday
  7. Average sales for Wednesday
  8. Average sales for Thursday
  9. Average sales for Friday
  10. Average sales for Saturday
  11. Last sales for Sunday
  12. Last sales for Monday
  13. Last sales for Tuesday
  14. Last sales for Wednesday
  15. Last sales for Thursday
  16. Last sales for Friday
  17. Last sales for Saturday
  18. Predicted sales for Sunday
  19. Predicted sales for Monday
  20. Predicted sales for Tuesday
  21. Predicted sales for Wednesday
  22. Predicted sales for Thursday
  23. Predicted sales for Friday
  24. Predicted sales for Saturday
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: A91**

Version 9

**Function Type:** Power Outage Diagnostic Report

**Command Format:**

**Display:** <SOH>IA91TT

**Computer:** <SOH>iA91TT

### Typical Response Message, Display Format:

```
<SOH>
IA91TT
JAN 24, 1996 2:56 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

POWER OUTAGE REPORT

T 1:REGULAR UNLEADED
INCREASE DATE / TIME FUEL VOLUME WATER VOLUME TEMP DEG F

POWER REMOVED: JAN 16, 1996 7:46:23 AM 3367 0 43.1
POWER RESTORED: JAN 16, 1996 8:00:15 AM 3367 0 43.1
GROSS VOLUME CHANGE:
<ETX> 0
```

### Typical Response Message, Computer Format:

```
<SOH>iA91TTYMMDDHHmmTTnnYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
 YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
 TTnnYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
 YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank Number (Decimal, 00=all).
3. nn - Number of History Records to follow (Decimal)
4. YYMMDDHHmm - Power Restored Date/Time
5. YYMMDDHHmm - Power Removed Date/Time
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - ASCII Hex IEEE floats:
  1. Power Removed Fuel Volume
  2. Power Removed Water Volume
  3. Power Removed Temperature
  4. Power Restored Fuel Volume
  5. Power Restored Water Volume
  6. Power Restored Temperature
  7. Gross Change
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.4.3 SENSOR DIAGNOSTIC REPORTS

**Function Code:** B01

Version 1

**Function Type:** Liquid Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB01SS

**Computer:** <SOH>iB01SS

**Typical Response Message, Display Format:**

```
<SOH>
IB01SS
JAN 24, 1996 2:56 PM

LIQUID DIAGNOSTIC REPORT

 SAMPLE HIGH LOW
SENSOR COUNTER REF REF VALUE
 1 5 1072 193 145727
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iB01SSYYMMDDHHmmSSNNFFFFFFFFF...
 SSNNFFFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE floats:
  1. Sample counter
  2. High Reference Channel
  3. Low Reference Channel
  4. Liquid Channel Last Reading
  5. Liquid Channel Average Reading
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B06**

Version 1

**Function Type:** Vapor Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB06SS

**Computer:** <SOH>iB06SS

### Typical Response Message, Display Format:

```
<SOH>
IB06SS
JAN 24, 1996 2:56 PM

VAPOR DIAGNOSTIC REPORT

 SAMPLE HIGH LOW
SENSOR COUNTER REF REF VALUE1 VALUE2
 1 5 1080 208 322 175355
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iB06SSYYMMDDHHmmSSNNFFFFFFFF...
 SSNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE floats:
  1. Sample counter
  2. High Reference Channel
  3. Low Reference Channel
  4. Vapor Channel Last Reading
  5. Vapor Channel Average Reading
  6. Water Channel Last Reading
  7. Water Channel Average Reading
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B07**

Version 3

**Function Type:** Vapor Sensor Concentration (PPM) Report

**Command Format:**

**Display:** <SOH>IB07SS

**Computer:** <SOH>iB07SS

### Typical Response Message, Display Format:

```
<SOH>
IB07SS
JAN 24, 1996 2:56 PM

VAPOR DIAGNOSTIC REPORT - VAPOR CONCENTRATION

SENSOR PPM
 1 0
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iB07SSYYMMDDHHmmSSNNFFFFFFFF...
 SSNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor number (Decimal, 00=All)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE float:
  1. Vapor concentration (ppm)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B11**

Version 1

**Function Type:** Groundwater Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB11SS

**Computer:** <SOH>iB11SS

**Typical Response Message, Display Format:**

<SOH>

IB11SS

JAN 28, 1995 10:16 AM

GROUNDWATER DIAGNOSTIC REPORT

| SENSOR | SAMPLE<br>COUNTER | HIGH<br>REF | LOW<br>REF | VALUE1 | VALUE2 |
|--------|-------------------|-------------|------------|--------|--------|
|        | 1                 | 5           | 5440       | 930    | 49875  |
|        |                   |             |            |        | 90972  |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>iB11SSYYMMDDHHmmSSNNFFFFFFFF...  
SSNNFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE float:
  1. Sample counter
  2. High Reference Channel
  3. Low Reference Channel
  4. Hydrocarbon Channel Last Reading
  5. Hydrocarbon Channel Average Reading
  6. Water Channel Last Reading
  7. Water Channel Average Reading
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B21**

Version 1

**Function Type:** Ground Temperature Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB21SS

**Computer:** <SOH>iB21SS

**Typical Response Message, Display Format:**

```
<SOH>
IB21SS
JAN 24, 1996 2:56 PM

GROUNDTEMP DIAGNOSTIC REPORT

 SAMPLE HIGH LOW
SENSOR COUNTER REF REF VALUE
 1 50 1086 215 28393
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iB21SSYYMMDDHHmmSSNNFFFFFFFF...
 SSNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE floats:
  1. Sample counter
  2. High Reference Channel
  3. Low Reference Channel
  4. Temperature Channel Last Reading
  5. Temperature Channel Average Reading
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B33**

Version 24

**Function Type:** MAG Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB33SS

**Computer:** <SOH>iB33SS

### Typical Response Message, Display Format:

```
<SOH>
IB33SS
JAN 22, 2003 3:06 PM

MAG SENSOR DIAGNOSTIC REPORT

s 1: T1 SUMP

TOTAL HT 15.0 IN.
FUEL HT 5.0 IN.
WATER HT 10.0 IN.
INSTALL POS 5.0 IN.
FLUID TEMP 67.3 F
BOARD TEMP 70.3 F
<ETX>
```

### Notes:

1. Only parameters that are enabled to be displayed are shown.

### Typical Response Message, Computer Format:

```
<SOH>iB33SSYYMMDDHHmmSSNNFFFFFFFF...
SSNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - MAG SENSOR NUMBER (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE floats:
  1. Total Height
  2. Fuel Height
  3. Water Height
  4. Install Position
  5. Fuel Temperature
  6. Board Temperature(-99.9 indicates a value is not enabled for display)
5. && - Data Termination Flag
6. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B34**

**Function Type:** Smart Sensor Last Sample Diagnostic

Version 24

**Command Format:**

**Display:** <SOH>IB34SS

**Computer:** <SOH>iB34SS

**Typical Response Message, Display Format:**

<SOH>

IB34SS

JAN 22, 2003 3:25 PM

SMART SENSOR CHANNEL DATA: LAST SAMPLE

s 1: SUMP 1

MAG SENSOR

SERIAL NUMBER: 123456

|    | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    |
|----|------|------|------|------|------|------|------|------|------|------|
| 00 | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX |
| 10 | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX |
| 20 | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX |
| XX | XXXX |      |      |      |      |      |      |      |      |      |

<ETX>

### Notes:

1: Values are in ASCII Hex IEEE float format.

**Typical Response Message, Computer Format:**

<SOH>iB34SSYYMMDDHHmmSSTTTTnnVVVVVVVVV...VVVVVVVVV&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. TTTT - Smart Sensor Type:
  - 0001=Air Flow Meter.
  - 0002=Vapor Pressure.
  - 0003=Vapor Pressure.
  - 0004=Vapor Pressure.
  - 0008=Mag Sensor.
  - 0009=Vac Sensor.
  - 0010=Atmospheric Sensor.
4. nn - Number of channels to follow (Hex)
5. VVVVVVVV - Channel Value (Hex)
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B35**

Version 24

**Function Type:** Smart Sensor Type and Serial Number

**Command Format:**

**Display:** <SOH>IB35SS

**Computer:** <SOH>IB35SS

### Typical Response Message, Display Format:

<SOH>

IB35SS

JAN 22, 2003 3:25 PM

SMART SENSOR SERIAL NUMBER

| SENSOR | LABEL              | TYPE           | SERIAL NUMBER | DATE CODE |
|--------|--------------------|----------------|---------------|-----------|
| 1      | SUMP UNLEADED PLUS | 008-MAG SENSOR | 123456        | 26214     |

<ETX>

### Typical Response Message, Computer Format:

<SOH>IB35SSYYMMDDHHmmSSnnMMMMMMMMNNNNNNNNDDDDDDDDPPPPPPP...  
SSnnMMMMMMMMNNNNNNNNDDDDDDDDPPPPPPP&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. nn - Number of 8-byte values to follow.
4. MMMMMMMM - Smart Sensor Model (Hex)
5. NNNNNNNN - Smart Sensor Serial Number (Hex)
6. DDDDDDDD - Smart Sensor Date Code (Hex)
7. PPPPPPPP - Smart Sensor Protocol Version (Hex)
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B36**

**Function Type:** Smart Sensor Constant Data

Version 24

**Command Format:**

**Display:** <SOH>IB36SS

**Computer:** <SOH>IB36SS

**Typical Response Message, Display Format:**

<SOH>

IB36SS

JUN 1, 2000 8:15 AM

SMART SENSOR CONSTANTS DIAGNOSTIC

s 1: SUMP UNLEADED

MAG SENSOR

SERIAL NUMBER 123456

MODEL 101

LENGTH 24.0

GRADIENT 360.000

MIN THRESHOLD 0.0

MAX THRESHOLD 24.0

NUM FLOATS 2

TEMPERATURE YES

INSTALL POS YES

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code B36 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>IB36YYMMDDHHmmSSNNVVVVVVVVvvvvvvvv...VVVVVVVVvvvvvvvv...
NNVVVVVVVVvvvvvvvv...VVVVVVVVvvvvvvvv&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. NN - Number of eight character data fields to follow
  - NN=08 for Mag Sensors
4. VVVVVVVV - Model Number (Hex)
5. vvvvvvvv - Sensor Length (ASCII Hex IEEE float)
6. VVVVVVVV - Gradient (ASCII Hex IEEE float)
7. vvvvvvvv - Min Threshold (ASCII Hex IEEE float)
8. VVVVVVVV - Max Threshold (ASCII Hex IEEE float)
9. vvvvvvvv - Number of Floats (1 or 2) (Hex)
10. VVVVVVVV - Temperature enabled (0 or 1) (Hex)
11. vvvvvvvv - Install Position enabled (0 or 1) (Hex)
  - NN=03 for Vacuum Sensors
12. VVVVVVVV - Model Number (Hex)
13. vvvvvvvv - Calibration Data, Slope (ASCII Hex IEEE float)
14. VVVVVVVV - Calibration Data, Offset (ASCII Hex IEEE float)
  - NN=04 for Atmospheric Pressure Sensors
15. VVVVVVVV - Model Number (Hex)
16. vvvvvvvv - Software Version (Hex)
17. VVVVVVVV - Calibration Data, Slope (ASCII Hex IEEE float)
18. VVVVVVVV - Calibration Data, Offset (ASCII Hex IEEE float)
19. && - Data Termination Flag
20. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B37**

Version 24

**Function Type:** Atmospheric Pressure Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB37SS

**Computer:** <SOH>iB37SS

### Typical Response Message, Display Format:

```
<SOH>
IB37SS
JAN 22, 2004 3:25 PM

ATM P SENSOR DIAGNOSTIC REPORT

s 8:ATMP SENSOR #1

ATM P SENSOR
SERIAL NUMBER 7
ATM PRESSURE 0.062 PSI
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iB37SSYYMDDHHmmSSNNNNNNNNnnFFFFFFFF...
 SSNNNNNNNNnnFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. NNNNNNNN - Serial Number (Hex)
4. nn - Number of 8-byte values to follow (Hex)
5. FFFFFFFF - Atmospheric Pressure, PSI (ASCII Hex IEEE float)
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B38**

**Function Type:** Vacuum Sensor Diagnostic Report

Version 24

**Command Format:**

**Display:** <SOH>IB38SS

**Computer:** <SOH>iB38SS

### Typical Response Message, Display Format:

```
<SOH>
IB38SS
JAN 22, 2004 3:25 PM

VAC SENSOR DIAGNOSTIC REPORT

s 1:VACUUM SENSOR #1

VAC SENSOR
SERIAL NUMBER 24
COMPENSATED PRESSURE:
 -9.000 PSI
UNCOMPENSATED PRESSURE:
 -9.123 PSI
EVACUATION STATE:
 VACUUM OK
FLUID STATUS: NORMAL
VCV: CLOSED

4-12-04 11:28AM
LEAK RATE: 0.123 GPH
TIME TO NO VAC:
 150:20 HHHH:MM
4-12-04 10:15AM
EVAC RATIO:5.2 @ -4.3PSI

SENSOR FAULTS:
 RELIEF VALVE FAULT
<ETX>
```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code B38 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>iB38SSYYMDDHHmmSSNNNNNNNNNeFcVYYMDDHHmmLLLLLLLLLv
 YYMDDHHmmTTTTTTTTTf
 YYMDDHHmmEEEEEEEEPPPPPPPPffff
 nnFFFFFFFF...FFFFFFFF...
SSNNNNNNNNNeFcVYYMDDHHmmLLLLLLLLLv
 YYMDDHHmmTTTTTTTTTf
 YYMDDHHmmRRRRRRRRPPPPPPPPffff
 nnFFFFFFFF...FFFFFFFF&&CCCC<ETX>
```

**Notes:**

1. YYMDDHHmm - Current Date and Time
2. SS - Smart Sensor Number (Decimal, 00=all)
3. NNNNNNNN - Serial Number (Hex)
4. e - Evacuation State (Hex)
  - 0=Vacuum Ok
  - 1=Evacuation Pending
  - 2=Evacuation Active
  - 3=Evacuation Pending Manual
  - 4=Evacuation Active Manual
  - 5=No Vacuum
  - 6=Evacuation Hold
5. F - Fluid Status (Hex)
  - 0=Normal
  - 1=Fault
  - 2=Fluid
6. c - Vacuum Control Valve State (Hex)
  - 0=Closed
  - 1=Open
  - 2=Fault
7. V - Valid Leak Rate flag
  - 0=Leak Rate invalid
  - 1=Leak Rate valid

## Serial Interface Manual

### TLS-300/350/350R Monitoring Systems

#### Function Code B38 Notes: (Continued)

- 8.       YYMMDDHHmm - Date/Time of Leak Rate
- 9.       LLLLLLLL - Leak Rate, GPH (ASCII Hex IEEE float)
- 10.       v - Valid Time to No Vacuum flag  
          0=Time to No Vacuum invalid  
          1=Time to No Vacuum valid
  
- 11.       YYMMDDHHmm - Date/Time of Time to No Vacuum
- 12.       TTTTTTTT - Time to No Vacuum, minutes (Hex)
- 13.       f - Valid Evac Ratio flag  
          0=Evac Ratio invalid  
          1=Evac Ratio valid
  
- 14.       YYMMDDHHmm - Date/Time of Evac Ratio
- 15.       RRRRRRRR - Evac Ratio, (ASCII Hex IEEE float)
- 16.       PPPPPPPP - Evac Ratio Pressure, PSI (ASCII Hex IEEE float)
- 17.       ffff - Sensor Fault Bits:  
          Bit 1=Fluid Sensor Fault  
          Bit 2=Pressure Sensor Fault  
          Bit 3=Relief Valve Fault  
          Bit 4=VCV Fault  
          Bit 5 - 16=Unused
  
- 18.       nn - Number of 8-byte values to follow.
- 19.       FFFFFFFF - Compensated Pressure, PSI (ASCII Hex IEEE float)
- 20.       FFFFFFFF - Uncompensated Pressure, PSI (ASCII Hex IEEE float)
- 21.       && - Data Termination Flag
- 22.       CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B39**

Version 24

**Function Type:** Vacuum Sensor Evacuation Diagnostic Report

**Command Format:**

**Display:** <SOH>IB39SS

**Computer:** <SOH>iB39SS

### Typical Response Message, Display Format:

```
<SOH>
IB3901
MAY 4, 2004 1:58 PM

VAC SENSOR EVACUATION DIAGNOSTIC REPORT

s 1:VACUUM SENSOR #1

START DATE/TIME DURATION
HH:MM:SS
04-05-04 09:06:58 0:02:24
04-05-04 09:06:58 0:02:24
04-05-04 09:15:33 0:01:44
04-05-04 09:19:26 0:00:47
04-05-04 09:20:11 0:01:46
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iB39SSYYMMDDHHmmSSnnYYMMDDHHmmDDDDDDDD...
YYMMDDHHmmDDDDDDDD&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. nn - Number of Evacuation Events to follow (Decimal, 00=none)
4. YYMMDDHHmm - Start Date and Time of Evacuation Event
5. DDDDDDDD - Duration of Evacuation in Seconds (ASCII Hex IEEE float)
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B41**

**Function Type:** Type A Sensor (2 Wire CL) Diagnostic Report

Version 2

**Command Format:**

**Display:** <SOH>IB41SS

**Computer:** <SOH>iB41SS

**Typical Response Message, Display Format:**

```
<SOH>
IB41SS
MAR 26, 1996 1:45 PM

2 WIRE CL DIAGNOSTIC REPORT

 SAMPLE HIGH LOW
SENSOR COUNTER REF REF VALUE
 1 5 1815 7823 4193
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iB41SSYYMMDDHHmmSSNNFFFFFFFF...
 SSNNFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE floats:
  1. Sample Counter Value
  2. High Reference Value
  3. Low Reference Value
  4. Last Reading
  5. Current Average Value
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B46**

**Function Type:** Type B Sensor (3 Wire CL) Diagnostic Report

Version 2

**Command Format:**

**Display:** <SOH>IB46SS

**Computer:** <SOH>iB46SS

**Typical Response Message, Display Format:**

```
<SOH>
IB46SS
JAN 28, 1995 10:16 AM

3 WIRE CL DIAGNOSTIC REPORT

 SAMPLE HIGH LOW
SENSOR COUNTER REF REF VALUE1 VALUE2
 1 5 8900 32000 5200 100000
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iB46SSYYMDDHHmmSSNNFFFFFFFFF...
 SSNNFFFFFFFFF&&CCCC<ETX>
```

### Notes:

1. YYMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFF - ASCII Hex IEEE floats:
  1. Sample Counter Value
  2. High Reference Value 1
  3. Low Reference Value 1
  4. Last Reading 1
  5. Current Average Value 1
  6. High Reference Value 2
  7. Low Reference Value 2
  8. Last Reading 2
  9. Current Average Value 2
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B4B**

Version 4

**Function Type:** Universal Sensor Diagnostic Report

**Command Format:**

**Display:** <SOH>IB4BSS

**Computer:** <SOH>iB4BSS

**Typical Response Message, Display Format:**

<SOH>

IB4BSS

FEB 18, 1990 10:53 AM

UNIVERSAL DIAGNOSTIC REPORT

| SENSOR | SAMPLE COUNTER | HIGH REF | LOW REF | VALUE1 | VALUE2 |
|--------|----------------|----------|---------|--------|--------|
| 1      | 5              | 8900     | 32000   | 5200   | 100000 |

<ETX>

**Typical Response Message, Computer Format:**

<SOH>iB4BSSYYMMDDHHmmSSNNFFFFFFFF...  
SSNNFFFFFFFF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor Number (Decimal, 00=all)
3. NN - Number of eight character Data Fields to follow (Hex)
4. FFFFFFFFFF - ASCII Hex IEEE float:
  1. Sample Counter Value
  2. High Reference Value 1
  3. Low Reference Value 1
  4. Last Reading 1
  5. Current Average Value 1
  6. High Reference Value 2
  7. Low Reference Value 2
  8. Last Reading 2
  9. Current Average Value 2
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.4.4 LINE LEAK DIAGNOSTIC REPORTS

**Function Code:** B50

Version 1

**Function Type:** Volumetric Line Leak Status

**Command Format:**

**Display:** <SOH>IB50PP

**Computer:** <SOH>iB50PP

**Typical Response Message, Display Format:**

```
<SOH>
IB50PP
MAR 26, 1996 1:46 PM

P 1:REGULAR UNLEADED
PMP IN=OFF PMP OUT=OFF
PRS SW= ON EQU VLV=OFF
FIN SW=OFF TST VLV=OFF
STR SW= ON DISABLE= ON
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iB50PPYYMMDDHHmmPPIIppFFssOOeeTTdd...
 PPIIppFFssOOeeTTdd&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. II - Pump In signal state (00=off, 01=on)
4. pp - Pressure switch state (00=off, 01=on)
5. FF - Final switch state (00=off, 01=on)
6. ss - Start switch state (00=off, 01=on)
7. OO - Pump Out signal state (00=off, 01=on)
8. ee - Equalizing valve state (00=off, 01=on)
9. TT - Test valve state (00=off, 01=on)
10. dd - Disable output state (00=off, 01=on)
11. && - Data Termination Flag
12. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B51**

Version 1

**Function Type:** Volumetric Line Leak Diagnostic Gross Test History

**Command Format:**

**Display:** <SOH>IB51PP

**Computer:** <SOH>iB51PP

### Typical Response Message, Display Format:

```
<SOH>
IB51PP
MAR 26, 1996 1:46 PM

P 1:REGULAR UNLEADED
DATE/TIME TYP GRND TANK DELY LGTH RSET TEST RSLT
MAR 26, 1996 1:43 PM 6 46.9 45.9 1 300.0 0.0 7.8 PASSED
MAR 26, 1996 1:43 PM 5 46.9 45.9 1 10.0 0.5 10.0 PASSED
MAR 26, 1996 1:42 PM 4 46.9 45.9 0 13.5 0.0 5.3 PASSED
MAR 26, 1996 1:42 PM 3 46.9 45.9 0 13.5 0.0 13.5 PASSED
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iB51PPYYMMDDHHmmPPNNYYMMDDHHmmTTg..gt..tDDDDLLLLRRRRTTTTTrr...
PPNNYYMMDDHHmmTTg..gt..tDDDDLLLLRRRRTTTTTrr&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. NN - Number of test data entries to follow (Decimal)
4. YYMMDDHHmm - Date and Time of test
5. TT - Test type code (Hex)
6. g..g - Ground Temp dispenser off (8 character ASCII Hex IEEE float)
7. t..t - Tank Temp dispenser off (8 character ASCII Hex IEEE float)
8. DDDD - Minutes since dispenser off (Hex)
9. LLLL - Allowed tenths of a second for Final Switch to actuate (Hex)
10. RRRR - Tenths of a second for Start Switch to close (Hex)
11. TTTT - Actual tenths of a second for Final Switch to actuate (Hex)
12. && - Data Termination Flag
13. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B52**

Version 1

**Function Type:** Volumetric Line Leak 0.10 & 0.20 GPH Diagnostic History

**Command Format:**

**Display:** <SOH>IB52PP

**Computer:** <SOH>iB52PP

### Typical Response Message, Display Format:

```
<SOH>
IB52PP
MAR 26, 1996 1:47 PM

P 1:REGULAR UNLEADED
DATE/TIME TYP GRND TANK DELY LGTH RSET TEST RSLT
MAR 26, 1996 1:48 AM 14 45.3 45.4 81 300.0 0.0 7.5 PASSED
MAR 26, 1996 1:45 AM 13 45.3 45.4 78 146.0 0.1 146.0 PASSED
MAR 26, 1996 1:41 AM 12 45.3 45.4 74 794.0 0.0 251.3 PASSED
MAR 26, 1996 1:27 AM 11 45.3 45.4 60 794.0 0.0 794.1 PASSED
MAR 25, 1996 8:14 PM 10 44.8 45.3 29 300.0 0.0 7.3 PASSED
MAR 25, 1996 8:12 PM 9 44.8 45.3 27 60.0 4.9 60.0 PASSED
MAR 25, 1996 8:10 PM 8 44.8 45.3 25 326.0 1.1 97.7 PASSED
MAR 25, 1996 8:05 PM 7 44.8 45.3 20 326.0 0.0 326.0 PASSED
<ETX>
```

### Notes:

1. Numbers in "TYP" column above and "TT" below refer to 0.20 GPH tests (7-10) or 0.10 GPH tests (11-14)

### Typical Response Message, Computer Format:

```
<SOH>iB52PPYYMMDDHHmmPPNNYYMMDDHHmmTTg..gt..tDDDDLLLLRRRRTTTTrr...
PPNNYYMMDDHHmmTTg..gt..tDDDDLLLLRRRRTTTTrr&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Pipeline Number (Decimal, 00=all)
3. NN - Number of test data entries to follow (Decimal)
4. YYMMDDHHmm - Date and Time of test
5. TT - Test type code (Hex)
6. g..g - Ground Temp dispenser off (8 character ASCII Hex IEEE float)
7. t..t - Tank Temp dispenser off (8 character ASCII Hex IEEE float)
8. DDDD - Minutes since dispenser off (Hex)
9. LLLL - Allowed tenths of a second for Final Switch to actuate (Hex)
10. RRRR - Tenths of a second for Start Switch to close (Hex)
11. TTTT - Actual tenths of a second for Final Switch to actuate (Hex)
12. rr - Test result code (Hex)
13. && - Data Termination Flag
14. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** B61  
**Function Type:** Vapor Valve Diagnostic

Version 29

**Command Format:**  
**Display:** <SOH>IB61ss  
**Computer:** <SOH>iB61ss

### Typical Response Message, Display Format:

```
<SOH>
IB61ss
JAN 22, 2007 3:11 PM

VAPOR VALVE DIAGNOSTIC REPORT

s 1:VAPOR VALVE 1

VAPOR VALVE
SERIAL NUMBER 47466902
VALVE POSITION: CLOSED
BATTERY: FULL (only if wireless)
OPEN CAP: CHARGED
CLOSE CAP: CHARGED
AMBNT TEMP: 70.12 F
OUTLET TMP: 72.34 F
SENSOR FAULTS:
 VALVE COMMAND FAULT (only active reason(s) for alarm/warning are listed)
 CAP NOT CHARGING FAULT
 CAP NOT HOLDING FAULT
 REF RESISTOR FAULT
 VAPOR RESISTANCE FAULT
 TEMPERATURE RANGE FAULT
 DATA NOISE FAULT
 VALVE NOISE FAULT
 NONE
<ETX>
```



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code B61 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>iB61ssYYMMDDHHmmssNNNNNNNNNPBOCFnnTTTTTTTTttttttttt&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. ss - Smart Sensor Number
3. NNNNNNNN - Serial Number (Decimal)
4. P - Valve Position
  - 0=Closed
  - 1=Open
5. B - Battery Status (n/a unless wireless)
  - 0=Unknown
  - 1=Full
  - 2=Medium
  - 3=Low
  - 4=Replace
6. O - Open Capacitor Status
  - 0=Discharged
  - 1=Charged
7. C - Close Capacitor Status
  - 0=Discharged
  - 1=Charged
8. F - Sensor Fault Bits
  - Bit 1 = Valve Command Fault B could not OPEN/CLOSE to calibrate
  - Bit 2 = (unused)
  - Bit 3 = Cap Not Charging Fault B too long to charge capacitors
  - Bit 4 = Cap Not Holding Fault B too frequent re-charges needed
  - Bit 5 = Temperature Range Fault B temp reading(s) out of range
  - Bit 6 = Reference Resistor Range Fault B reference resistor reading(s) out of range
  - Bit 7 = Vapor Sensor Resistance Range Fault B vapor sensor resistance reading out of range
  - Bit 8 = Data Noise Fault B Readings within range but too noisy
  - Bit 9 = Valve Noise Fault B Coil reading too noisy to calibrate and control valve
9. nn - Number of 8 byte values to follow (Hex)
10. TTTTTTTT - Ambient Temperature, Degrees F (ASCII Hex IEEE float)
11. tttttttt - Outlet Temperature, Degrees F (ASCII Hex IEEE float)
12. && - Data Termination Flag
13. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Function Code: B62

Function Type: Sub Alarm History Report

Version 29

Command Format:

Display: <SOH>IB6200

Computer: <SOH>iB6200

Typical Response Message, Display Format:

<SOH>  
IB6200  
JAN 22, 2007 3:11 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

SMART SENSOR SUB ALARM HISTORY

| ID | TYPE | ALARM TYPE         | SUB ALARM               | STATE | DATE    | TIME    |
|----|------|--------------------|-------------------------|-------|---------|---------|
| 5  | 14   | SENSOR FAULT ALARM | VAPOR RESISTANCE FAULT  | CLEAR | 1-04-08 | 10:57AM |
| 5  | 14   | SENSOR FAULT ALARM | VAPOR RESISTANCE FAULT  | ALARM | 1-04-08 | 10:44AM |
| 5  | 14   | SENSOR FAULT ALARM | REF RESISTOR FAULT      | CLEAR | 1-04-08 | 9:23AM  |
| 5  | 14   | SENSOR FAULT ALARM | REF RESISTOR FAULT      | ALARM | 1-04-08 | 9:13AM  |
| 5  | 14   | SENSOR FAULT ALARM | TEMPERATURE RANGE FAULT | CLEAR | 1-04-08 | 8:45AM  |
| 5  | 14   | SENSOR FAULT ALARM | TEMPERATURE RANGE FAULT | ALARM | 1-04-08 | 8:44AM  |
| 5  | 14   | SENSOR FAULT ALARM | VALVE COMMAND FAULT     | CLEAR | 1-04-08 | 7:23AM  |
| 5  | 14   | SENSOR FAULT ALARM | VALVE COMMAND FAULT     | ALARM | 1-04-08 | 7:14AM  |
| 5  | 14   | SENSOR FAULT ALARM | CAP NOT HOLDING FAULT   | CLEAR | 1-04-08 | 6:34AM  |
| 5  | 14   | SENSOR FAULT ALARM | CAP NOT HOLDING FAULT   | ALARM | 1-04-08 | 6:27AM  |
| 5  | 14   | SENSOR FAULT ALARM | CAP NOT CHARGING FAULT  | CLEAR | 1-04-08 | 5:12AM  |
| 5  | 14   | SENSOR FAULT ALARM | CAP NOT CHARGING FAULT  | ALARM | 1-04-08 | 5:00AM  |

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### Function Code B62 Notes: (Continued)

#### Typical Response Message, Computer Format:

```
<SOH>iB6200YYMMDDHHmmnnssTTNNSSAAYMMDDHHmm...
ssTTNNSSAAYMMDDHHmm&&CCCC<ETX>
```

#### Notes:

1. YYMMDDHHmm - Current Date and Time
2. nn - Number of Sub Alarm records to follow (Hex)
3. ss - Smart Sensor Number (Hex, 00=all)
4. TT - Smart Sensor Type (Hex)  
0E = Vapor Valve
5. NN - Alarm Type Number (Hex):  
- If TT is 0E and NN is:  
03 = Sensor Fault Alarm
6. SS - Sub Alarm Type Number (Hex):  
- If TT is 0E and NN is 03 and SS is:  
00 = Cap Not Charging Fault  
01 = Cap Not Holding Fault  
02 = Valve Command Fault  
03 = Temperature Range Fault  
04 = Ref Resistor Fault  
05 = Vapor Resistance Fault  
06 = Data Noise Fault  
07 = Valve Noise Fault
7. AA - Alarm State (Hex)  
00 = Alarm cleared  
01 = Alarm occurred
8. YYMMDDHHmm - Date/Time Alarm state occurred
9. && - Data Termination Flag
10. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B71**  
**Function Type:** Pump Sensor Diagnostic

Version 2

**Command Format:**  
**Display:** <SOH>IB71SS  
**Computer:** <SOH>iB71SS

### Typical Response Message, Display Format:

```
<SOH>
IB7102
JAN 17, 1995 8:35 AM
PUMP SENSOR DIAGNOSTIC
S 2: SUPER UNLEADED
CARD 1 INPUT 2
TANK #: 3
PUMP OFF
MINS PUMP OFF=14
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iB71SSYYMMDDHHmmSSNNttttssssMMMMMMMM...
SSNNttttssssMMMMMMMM&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Pump Sensor Number (Decimal, 00=all)
3. NN - Number of 4 character Data Blocks to Follow (Hex)
4. tttt - Tank Number (Hex)
5. ssss - Pump Status  
0001=ON  
0000=OFF
6. MMMMMMMM - Minutes Pump has been Off (Hex)
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B72**

**Function Type:** Pump Relay Monitor Diagnostic

Version 27

**Command Format:**

**Display:** <SOH>IB72rr

**Computer:** <SOH>iB72rr

**Typical Response Message, Display Format:**

```
<SOH>
IB72rr
JUN 22, 2006 3:12 PM

PUMP RELAY MONITOR DIAGNOSTIC

DEVICE LABEL PUMP PUMP RELAY STUCK RUN
 (OUT) (IN) RELAY TIME
1 PUMP RELAY UNLEADED OFF Q 1: OFF 0 SEC 00:00
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iB72rrYYMMDDHHmmrrabNNccccccccddddd...
 rrabNNccccccccddddd&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. rr - Pump Relay Monitor Number (Decimal, 00=all)
3. a - Pump Status (ASCII Hex)  
0=Off  
1=On
4. b - Relay Status (ASCII Hex)  
0=Off (or N/A B no Pump Relay assigned)  
1=On
5. NN - Number of 8-character data fields to follow (ASCII Hex)
6. ccccccc - Stuck Relay, Seconds (ASCII Hex IEEE float)  
0 if N/A B no Pump Relay assigned
7. dddddddd B Run Time, Hours (ASCII Hex IEEE float)
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** B7B

Version 23

**Function Type:** Pressure Line Leak Profile Line Test

**Command Format:**

**Display:** <SOH>IB7BQQ

**Computer:** <SOH>iB7BQQ

**Typical Response Message, Display Format:**

<SOH>

IB7BQQ

JUL 15, 2001 1:27 PM

PRESSURE LINE LEAK PROFILE LINE TEST

Q 1:REGULAR UNLEADED

LAST PROFILE LINE TEST: NOV 15, 2001 10:15 AM

BULK MODULUS: 12000 PSI

TEST LEAK RATE: 1.50 GPH

REF PRESSURE: 30.00 PSI

TYP:USER DEFINED

1ST LINE LEN :100 FEET

2ND LINE LEN :200 FEET

1ST LINE DIAM: 1.50 IN.

2ND LINE DIAM: 2.50 IN.

<ETX>

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code B7B Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>iB7BQQYYMMDDHHmmQQaYYMMDDHHmmttNNFFFFFFFF...FFFFFFFF...
 QQaYYMMDDHHmmttNNFFFFFFFF...FFFFFFFF&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. a - Valid profile line test flag
  - 0=profile line test invalid
  - 1=profile line test valid
4. YYMMDDHHmm - Date and Time of Last Profile Line Test
5. tt - Pipe Type:
  - 01=2.0"/3.0" Fiberglass
  - 02=2.0" Steel
  - 03=White Enviroflex PP1501
  - 04=1.5" Environ Geoflex II (Added in V11)
  - 05=Omniflex CP1501 (Added in V15)
  - 06=Yellow Enviroflex PP1500
  - 07=1.5"/2.5" Enviroflex PP1502/2502 (Added in V17)
  - 08=OPW Pisces SP-15 (Added in V18)
  - 09=OPW Pisces CP-15 (Added in V18)
  - 10=WFG Coflex 2000 Ribbed (Added in V19)
  - 11=Enviroflex PP1503/2503 (Added in V19)
  - 12=Omniflex CP1503 (Added in V19)
  - 13=1.5"/2.0" Environ Geoflex D (Added in V19)
  - 14=APT P175SC (Added in V121)
  - 15=OPW Pisces CP15DW (Added in V19)
  - 16=OPW Pisces CP20 (Added in V19)
  - 17=OPW PISCES SP20 (Added in V26)
  - 18=User Defined (Added in V22)
  - 19=PETROTECHNIK UPP EXTRA 63MM (Added in V26)
6. NN - Number of eight character Data Fields to follow (Hex)
7. FFFFFFFF - ASCII Hex IEEE float:
  1. Bulk Modulus
  2. Test Leak Rate (GPH)
  3. Test Reference Pressure (PSI)
  4. 1<sup>st</sup> Line Length (FEET)
  5. 1<sup>st</sup> Line Diameter (INCHES)
  6. 2<sup>nd</sup> Line Length (FEET)
  7. 2<sup>nd</sup> Line Diameter (INCHES)
8. && - Data Termination Flag
9. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** B7C

Version 19

**Function Type:** Pressure Line Leak Pressure Offset Test

**Command Format:**

**Display:** <SOH>IB7CQQ

**Computer:** <SOH>iB7CQQ

**Typical Response Message, Display Format:**

<SOH>

IB7CQQ

JAN 1, 2000 6:27 PM

PRESSURE LINE LEAK PRESSURE OFFSET TEST

Q 1:REGULAR UNLEADED

LAST PRESSURE OFFSET TEST: +2.5 PSI DEC 1, 1999 5:20 PM

<ETX>

**Typical Response Message, Computer Format:**

<SOH>iB7CQQYYMMDDHHmmQQaFFFFFFFFYYMMDDHHmm...

QQaFFFFFFFFYYMMDDHHmm&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. a - Valid pressure flag  
0=pressure invalid  
1=pressure valid
4. FFFFFFFF - Last Pressure Offset Test Pressure in PSI (ASCII Hex IEEE float)
5. YYMMDDHHmm - Date and Time of last Pressure Offset Test
6. && - Data Termination Flag
7. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** B7D

Version 19

**Function Type:** WPPLD Line Leak Pressure Offset Test

**Command Format:**

**Display:** <SOH>IB7DWW

**Computer:** <SOH>iB7DWW

**Typical Response Message, Display Format:**

<SOH>

IB7DWW

JAN 1, 2000 6:27 PM

WPLLD LINE LEAK PRESSURE OFFSET TEST

W 1:REGULAR UNLEADED

LAST PRESSURE OFFSET TEST: +2.5 PSI DEC 1, 1999 5:20 PM

<ETX>

**Typical Response Message, Computer Format:**

<SOH>iB7DWWYYMMDDHHmmWWaFFFFFFFFYYMMDDHHmm...

WWaFFFFFFFFYYMMDDHHmm&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. a - Valid pressure flag  
0=pressure invalid  
1=pressure valid
4. FFFFFFFF - Last Pressure Offset Test Pressure in PSI (ASCII Hex IEEE float)
5. YYMMDDHHmm - Date and Time of last Pressure Offset Test
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: B7E**

Version 19

**Function Type:** Pressure Line Leak Pressure Offset Monitor Report

**Command Format:**

**Display:** <SOH>IB7EQQ

**Computer:** <SOH>iB7EQQ

### Typical Response Message, Display Format:

```
<SOH>
IB7EQQ
JAN 1, 2000 2:56 PM

PRESSURE LINE LEAK PRESSURE OFFSET MONITORS REPORT

Q 1:REGULAR UNLEADED
P0: PASS
 LAST UPDATE: 21 DAYS
Pd: FAIL
 LAST UPDATE: 44 DAYS
 Pd= 40.1 PSI
 Pd Ref=32.3 PSI
Pv: PASS
 Pv =28.1 PSI
 Pon=44.1 PSI
 Pd =40.1 PSI
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>IB7EQQYYMMDDHHmmQQAABBBBCCDDDDDEEEEEEEEEEEEEEEEEEE
GGHH...
QQAABBBBCCDDDDDEEEEEEEEEEEEEEEEEEE
GGHH&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. AA - P0 pass/fail status  
00=fail  
01=pass
4. BBBB - P0 last update in days
5. CC - Pd pass/fail status  
00=fail  
01=pass
6. DDDD - Pd last update in days
7. EEEEEEEE - Pd in PSI (ASCII Hex IEEE float)
8. FFFFFFFF - Pd Ref in PSI (ASCII Hex IEEE float)
9. GG - Pd pass/fail status  
00=fail  
01=pass
10. HHHHHHHH - Pv in PSI (ASCII Hex IEEE float)
11. IIIIIIII - Pon in PSI (ASCII Hex IEEE float)
12. JJJJJJJJ - Pd in PSI (ASCII Hex IEEE float)
13. && - Data Termination Flag
14. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Function Code: B7F

Version 19

**Function Type:** WPLLD Line Leak Pressure Offset Monitor Report

### Command Format:

**Display:** <SOH>IB7FWW

Computer: <SOH>iB7FWW

**Typical Response Message, Display Format:**

<SOH>

IB7FWW

JAN 1, 2000 2:56 PM

WPLLD LINE LEAK PRESSURE OFFSET MONITORS REPORT

W 1:REGULAR UNLEADED

P0: PASS

LAST UPDATE: 21 DAYS

Pd: FAIL

LAST UPDATE: 44 DAYS

Pd= 40.1

Pd Ref=32.3 PSI

Pv: PASS

PV = 28.1 PSI

Pon=44.1 PSI

Pd = 40.1 PSI

<ETX>

**Typical Response Message, Computer Format:**

<SOH>IB7FWWYYMMDDHHmmWWAABBBBCCDDDDDEEEEEEEEEFFFFFFFFFF

GGHHHHHHHHIIIIIIIIJJJJJJJJ...

WWAABBBBCCDDDEEEEEEEEFEEEEEEF

GGHHHHHHHHIIIIIIIIJJJJJJJ&amp;&amp;CCCC&lt;ETX&gt;

**Notes:**

- ```

1.      YYMMDDHHmm - Current Date and Time
2.      WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3.      AA - P0 pass/fail status
           00=fail
           01=pass
4.      BBBB - P0 last update in days
5.      CC - Pd pass/fail status
           00=fail
           01=pass
6.      DDDD - Pd last update in days
7.      EEEEEEEE - Pd in PSI (ASCII Hex IEEE float)
8.      FFFFFFFF - Pd Ref in PSI (ASCII Hex IEEE float)
9.      GG - Pd pass/fail status
           00=fail
           01=pass
10.     HHHHHHHH - Pv in PSI (ASCII Hex IEEE float)
11.     IIIIIIII - Pon in PSI (ASCII Hex IEEE float)
12.     JJJJJJJJ - Pd in PSI (ASCII Hex IEEE float)
13.     && - Data Termination Flag
14.     CCCC - Message Checksum

```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B81

Version 7

Function Type: Pressure Line Leak Diagnostic Report

Command Format:

Display: <SOH>IB81QQ

Computer: <SOH>iB81QQ

Typical Response Message, Display Format:

<SOH>

IB81QQ

JAN 24, 1996 2:56 PM

PRESSURE LINE LEAK DIAGNOSTIC REPORT

LINE

Q 1:REGULAR UNLEADED

14.397 PSI

DISPENSING

ENABLED

TEST STATUS

TESTING 0.10 GAL/HR

PUMP

OFF

HANDLE

OFF

A/D COUNTS

LOW REF= 5926 CNTS

HIGH REF= 551 CNTS

SENSOR= 1556 CNTS

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code B81 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iB81QQYYMMDDHHmmQQSSSSSttNNNNNNNNNN...  
                                QQSSSSSttNNNNNNNNNN&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. SSSS - Status Bits:
 - Bit 1 - (LSB) Dispensing enabled flag
(0=Disabled, 1=Enabled)
 - Bit 2 - Pump power
(0=Pump Off, 1=Pump On)
 - Bit 3 - Dispenser Handle
(0=Handle Off, 1=Handle On)
 - Bit 4-16 - Unused
4. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.10 gal/hr
 - 04=test aborted
 - 05=running pump (manual test starting)
 - 06=line lockout
 - 07=disable alarm
 - 08=test pending
 - 09=test delay
 - 0A=pressure check
 - 0B=testing at 0.20 gal/hr
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE floats:
 - 1. Pressure sensor reading
 - 2. A/D low reference counts
 - 3. A/D high reference counts
 - 4. A/D sensor counts
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B82

Version 10

Function Type: WPLLD Line Leak Diagnostic Report

Command Format:

Display: <SOH>IB82WW

Computer: <SOH>iB82WW

Typical Response Message, Display Format:

```
<SOH>
IB82WW
JAN 24, 1996  2:56 PM

WPLLD LINE LEAK DIAGNOSTIC REPORT

LINE                DISPENSING  TEST STATUS                PUMP    HANDLE
W 1:REGULAR UNLEADED  ENABLED    DISPENSING                 ON      ON

34.782 PSI

P 0:-99.000 PSI  P 7:-99.000 PSI
P 1:-99.000 PSI  P 8:-99.000 PSI
P 2:-99.000 PSI  P 9:-99.000 PSI
P 3:-99.000 PSI  P10:-99.000 PSI
P 4:-99.000 PSI  P11:-99.000 PSI
P 5:-99.000 PSI  P12:-99.000 PSI
P 6:-99.000 PSI  P13:-99.000 PSI
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iB82WWYYMMDDHHmmWWSSSttPPPPPPPP...
                                WWSSSttPPPPPPPP&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. SSSS - Status Bits:
 - Bit 1 - (LSB) Dispensing enabled flag
(0=Disabled, 1=Enabled)
 - Bit 2 - Pump power
(0=Pump Off, 1=Pump On)
 - Bit 3 - Dispenser Handle
(0=Handle Off, 1=Handle On)
 - Bit 4-16 - Unused
4. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.20 gal/hr
 - 04=test aborted
 - 05=line lockout
 - 06=disable alarm
 - 07=test pending
 - 08=test delay
 - 09=testing at 0.10 gal/hr
5. PPPPPPPP - Current Pressure in PSI (ASCII Hex IEEE float)
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B83

Function Type: WPLLD Line Leak Communication Diagnostic Report

Version 10

Command Format:

Display: <SOH>IB83WW

Computer: <SOH>iB83WW

Typical Response Message, Display Format:

```
<SOH>
IB83WW
JAN 24, 1996  2:56 PM

WPLLD LINE LEAK COMMUNICATION REPORT

W 1:REGULAR UNLEADED
CRC:0          PARITY:0
#: 349666-666-666
95.11.09.14.46
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iB83WWYYMDDHHmmWWSSSttAAAAAAAABBBBBBBB...
WWSSSttAAAAAAAABBBBBBBB&&CCCC<ETX>
```

Notes:

1. YYMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (decimal)
3. SSSS - Status Bits:
 - Bit 1 - (LSB) Dispensing enabled flag
(0=Disabled, 1=Enabled)
 - Bit 2 - Pump power
(0=Pump Off, 1=Pump On)
 - Bit 3 - Dispenser Handle
(0=Handle Off, 1=Handle On)
 - Bit 4-16 - Unused
4. tt - Test status
 - 00=test complete
 - 01=dispensing
 - 02=testing at 3.00 gal/hr
 - 03=testing at 0.20 gal/hr
 - 04=test aborted
 - 06=line lockout
 - 06=disable alarm
 - 07=test pending
 - 08=test delay
 - 09=testing at 0.10 gal/hr
5. AAAAAAAA - Checksum error count (ASCII Hex IEEE float)
- 6.BBBBBBBB - Parity error count (ASCII Hex IEEE float)
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B87

Version 19

Function Type: Pressure Line Leak 3.00 GPH Test Diagnostic

Command Format:

Display: <SOH>IB87QQ

Computer: <SOH>iB87QQ

Typical Response Message, Display Format:

```
<SOH>
IB87QQ
OCT 15, 1996 4:29 PM

PRESSURE LINE LEAK DIAGNOSTIC REPORT

Q 1:PLLD NUMBER 1

  3.0 TEST PASSES
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN  1, 1970 12:00 AM      0.0 PSI          0.0 PSI          0.0 PSI

  3.0 TEST FAILS
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN  1, 1970 12:00 AM      0.0 PSI          0.0 PSI          0.0 PSI

  3.0 HI PRESSURE EVENTS
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
NO TEST DATA AVAILABLE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB87QQYYMMDDHHmmQQRRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
QQRRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. RR - Test result type
 - 00=Pass
 - 01=Fail
 - 02=Hi-pressure events
4. LL - Total Events to follow (Max=5 each)
5. YYMMDDHHmm - Date/Time Test Passed
6. aaaaaaaa - Pump on pressure read (ASCII Hex IEEE float)
7. bbbbbbbb - First pressure read (ASCII Hex IEEE float)
8. cccccccc - Second pressure read (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B88

Version 19

Function Type: Pressure Line Leak Mid-range Test Diagnostic

Command Format:

Display: <SOH>IB88QQ

Computer: <SOH>iB88QQ

Typical Response Message, Display Format:

```
<SOH>
IB88QQ
JAN 1, 1996 8:24 AM

PRESSURE LINE LEAK DIAGNOSTIC REPORT

Q 1:PLLD NUMBER 1

MID TEST PASSES
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN 1, 1970 12:00 AM 0.0 PSI          0.0 PSI          0.0 PSI

MID TEST FAILS
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN 1, 1970 12:00 AM 0.0 PSI          0.0 PSI          0.0 PSI
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB88QQYYMMDDHHmmQRRLLYYMMDDHHmmaaaaaaabbabbbbbbcccccccc...
RRLLYMMDDHHmmaaaaaaabbabbbbbbcccccccc...
QRRLLYYMMDDHHmmaaaaaaabbabbbbbbcccccccc...
RRLLYMMDDHHmmaaaaaaabbabbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. RR - Test result type
00=Pass
01=Fail
4. LL - Total Events to follow (Max=5 each)
5. YYMMDDHHmm - Date/Time Test Passed
6. aaaaaaaa - Pump on pressure read (ASCII Hex IEEE float)
7. bbbbbb - First pressure read (ASCII Hex IEEE float)
8. cccccccc - Second pressure read (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B89

Version 19

Function Type: Pressure Line Leak 0.20 GPH Test Diagnostic

Command Format:

Display: <SOH>IB89QQ

Computer: <SOH>iB89QQ

Notes:

1. For User Defined Pipe Types PUMP ON will be PMID (Version 23)

Typical Response Message, Display Format:

```
<SOH>
IB89QQ
JAN  1, 1996  8:26 AM

PRESSURE LINE LEAK DIAGNOSTIC REPORT

Q 1:PLLD NUMBER 1
0.20 TEST RESULTS
DATE/TIME          PUMP ON          RATIO          DURATION          RESULTS
JUL 10, 1995  9:33 AM      0.0 PSI          0.00              0          PASSED
JUN  9, 1995  8:52 AM      0.0 PSI          0.00              0          PASSED
MAY  9, 1995  8:10 AM      0.0 PSI          0.00              0          PASSED
APR  8, 1995  7:28 AM      0.0 PSI          0.00              0          PASSED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB89QQYYMMDDHHmmQQLLYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc...
                                   QQLLYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. LL - Total Tests to follow (Max=10)
4. YYMMDDHHmm - Date/Time Test
5. RR - Test Result
00=Pass
01=Fail
6. aaaaaaaaa - Pump on pressure read, PSI (ASCII Hex IEEE float)
7. bbbbbbbb - Fail ratio (ASCII Hex IEEE float)
8. cccccccc - Duration (in minutes) (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B8A

Version 19

Function Type: Pressure Line Leak 0.10 GPH Test Diagnostic

Command Format:

Display: <SOH>IB8AQQ

Computer: <SOH>iB8AQQ

Notes:

1. For User Defined Pipe Types PUMP ON will be PMID (Version 23)

Typical Response Message, Display Format:

```
<SOH>
IB8AQQ
JAN 1, 1996 8:30 AM

PRESSURE LINE LEAK DIAGNOSTIC REPORT

Q 1:PLLD NUMBER 1
0.10 TEST RESULTS
DATE/TIME          PUMP ON          RATIO          DURATION          RESULTS
JUL 10, 1995 10:20 AM    0.0 PSI          0.00              0              PASSED
JUN 9, 1995 9:39 AM     0.0 PSI          0.00              0              PASSED
MAY 9, 1995 8:57 AM     0.0 PSI          0.00              0              PASSED
APR 8, 1995 8:15 AM     0.0 PSI          0.00              0              PASSED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB8AQQYYMMDDHHmmQQLLYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc...
QQLLYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. QQ - Pressure Line Leak sensor number (Decimal, 00=All)
3. LL - Total Tests to follow (Max=10)
4. YYMMDDHHmm - Date/Time Test
5. RR - Test Result
00=Pass
01=Fail
6. aaaaaaaaa - Pump on pressure read, PSI (ASCII Hex IEEE float)
7. bbbbbbbb - Fail ratio (ASCII Hex IEEE float)
8. cccccccc - Duration (in min) (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B8B

Version 19

Function Type: WPLLD Line Leak 3.00 GPH Test Diagnostic

Command Format:

Display: <SOH>IB8BWW

Computer: <SOH>iB8BWW

Typical Response Message, Display Format:

```
<SOH>
IB8BWW
OCT 15, 1996 4:29 PM

WPLLD LINE LEAK DIAGNOSTIC REPORT

W 1:WPLLD NUMBER 1

  3.0 TEST PASSES
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN  1, 1970 12:00 AM      0.0 PSI          0.0 PSI          0.0 PSI

  3.0 TEST FAILS
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN  1, 1970 12:00 AM      0.0 PSI          0.0 PSI          0.0 PSI

  3.0 HI PRESSURE EVENTS
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
NO TEST DATA AVAILABLE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB8BWYYMMDDHHmmWWRRLLYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
WWRRLLYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLLYMMDDHHmmaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. RR - Test result type
 - 00=Pass
 - 01=Fail
 - 02=Hi-pressure events
4. LL - Total Events to follow (Max=5 each)
5. YYMMDDHHmm - Date/Time Test Passed
6. aaaaaaaa - Pump on pressure read (ASCII Hex IEEE float)
7. bbbbbbbb - First pressure read (ASCII Hex IEEE float)
8. cccccccc - Second pressure read (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B8C

Version 19

Function Type: WPLLD Line Leak Mid-range Test Diagnostic

Command Format:

Display: <SOH>IB8CWW

Computer: <SOH>iB8CWW

Typical Response Message, Display Format:

```
<SOH>
IB8CWW
JAN  1, 1996  8:24 AM

WPLLD LINE LEAK DIAGNOSTIC REPORT

W 1:WPLLD NUMBER 1

MID TEST PASSES
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN  1, 1970 12:00 AM      0.0 PSI          0.0 PSI          0.0 PSI

MID TEST FAILS
DATE/TIME          PUMP ON          FIRST READ          SECOND READ
JAN  1, 1970 12:00 AM      0.0 PSI          0.0 PSI          0.0 PSI
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB8CWWYYMMDDHHmmWRRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
WRRLLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc...
RRLYYMMDDHHmmaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. RR - Test result type
 - 00=Pass
 - 01=Fail
4. LL - Total Events to follow (Max=5 each)
5. YYMMDDHHmm - Date/Time Test Passed
6. aaaaaaaa - Pump on pressure read (ASCII Hex IEEE float)
7. bbbbbbbb - First pressure read (ASCII Hex IEEE float)
8. cccccccc - Second pressure read (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B8D

Version 19

Function Type: WPLLD Line Leak 0.20 GPH Test Diagnostic

Command Format:

Display: <SOH>IB8DWW

Computer: <SOH>iB8DWW

Typical Response Message, Display Format:

```
<SOH>
IB8DWW
JAN  1, 1996  8:26 AM

WPLLD LINE LEAK DIAGNOSTIC REPORT

W 1:WPLLD NUMBER 1
0.20 TEST RESULTS
DATE/TIME           PUMP ON           RATIO           DURATION           RESULTS
JUL 10, 1995  9:33 AM       0.0 PSI         0.00              0              PASSED
JUN  9, 1995  8:52 AM       0.0 PSI         0.00              0              PASSED
MAY  9, 1995  8:10 AM       0.0 PSI         0.00              0              PASSED
APR  8, 1995  7:28 AM       0.0 PSI         0.00              0              PASSED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB8DWWYYMMDDHHmmWWLLYYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc...
                                   WWLLYYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. LL - Total Tests to follow (Max=10)
4. YYMMDDHHmm - Date/Time Test
5. RR - Test Result
00=Pass
01=Fail
6. aaaaaaaaa - Pump on pressure read (ASCII Hex IEEE float)
7. bbbbbbbbbb - Fail ratio (ASCII Hex IEEE float)
8. cccccccc - Duration (in min) (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B8E

Version 19

Function Type: WPLLD Line Leak 0.10 GPH Test Diagnostic

Command Format:

Display: <SOH>IB8EWW

Computer: <SOH>iB8EWW

Typical Response Message, Display Format:

```
<SOH>
IB8EWW
JAN  1, 1996  8:30 AM

WPLLD LINE LEAK DIAGNOSTIC REPORT

W 1:WPLLD NUMBER 1
0.10 TEST RESULTS
DATE/TIME                PUMP ON          RATIO          DURATION        RESULTS
JUL 10, 1995 10:20 AM    0.0 PSI        0.00           0              PASSED
JUN  9, 1995  9:39 AM    0.0 PSI        0.00           0              PASSED
MAY  9, 1995  8:57 AM    0.0 PSI        0.00           0              PASSED
APR  8, 1995  8:15 AM    0.0 PSI        0.00           0              PASSED
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>IB8EWWYYMMDDHHmmWWLLYYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc...
                                     WWLLYYMMDDHHmmRRaaaaaaaaabbbbbbbcccccccc&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. WW - WPLLD Line Leak sensor number (Decimal, 00=All)
3. LL - Total Tests to follow (Max=10)
4. YYMMDDHHmm - Date/Time Test
5. RR - Test Result
 - 00=Pass
 - 01=Fail
6. aaaaaaaaa - Pump on pressure read (ASCII Hex IEEE float)
7. bbbbbbbbbb - Fail ratio (ASCII Hex IEEE float)
8. cccccccc - Duration (in min) (ASCII Hex IEEE float)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.4.5 RECONCILIATION DIAGNOSTIC REPORTS

Function Code: B91

Version 108

Function Type: AccuChart Diagnostics Report

Command Format:

Display: <SOH>IB91TT

Computer: <SOH>iB91TT

Typical Response Message, Display Format:

```
<SOH>
IB91TT
JAN 24, 1996  2:56 PM

ACCU_CHART DIAGNOSTICS

TK STATUS      DIAMETER  LENGTH  OFFSET  TILT    SHAPE F    CAPACITY
1 ENABLED      91.0     144.4   0.00    1.00     1.00      5774
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iB91TTYMMDDHHmmTTSSNNFFFFFFFF...
                                TTSSNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number (Decimal, 00=All)
3. SS - Status:
 - 00=AccuChart disabled
 - 01=AccuChart enabled
4. NN - Number of eight character Data Fields to follow (Hex)
5. FFFFFFFF - ASCII Hex IEEE floats:
 - 1. Tank diameter
 - 2. Tank length
 - 3. Probe offset
 - 4. Tank tilt
 - 5. Tank end shape factor
 - 6. Tank capacity
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B93
Function Type: AccuChart Status Report

Version 108

Command Format:
Display: <SOH>IB93TT
Computer: <SOH>iB93TT

Typical Response Message, Display Format:

```
<SOH>
IB93TT
JAN 24, 1996  2:56 PM
```

ACCU_CHART STATUS

| TK STATUS | MODE | USER STATUS | DURATION | ALARM | FITNESS | DATA |
|-----------|-----------|-------------|----------|-------|---------|------|
| 1 ENABLED | CALIBRATE | DISABLED | 9.2 | OFF | 0.00 | 566 |

<ETX>

Typical Response Message, Computer Format:

```
<SOH>iB9301YYMMDDHHmmTTSSMMUUAANNFFFFFFFF...
TTSSMMUUAANNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number (Decimal, 00=All)
3. SS - Status:
 00=AccuChart disabled
 01=AccuChart enabled
4. MM - Mode:
 00=Calibrate
 01=Monitor
5. UU - User enable:
 00=user chart
 01=AccuChart
6. AA - Alarm status:
 00=No Alarm
 01=Alarm
 02=Alarm latched
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Mode duration in days
 2. Calibration fitness factor
 3. Data quantity factor
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: B94

Version 108

Function Type: AccuChart Calibration History Report

Command Format:

Display: <SOH>IB94TT

Computer: <SOH>iB93TT

Typical Response Message, Display Format:

```
<SOH>
IB94TT
JAN 24, 1996  2:57 PM

ACCU_CHART CALIBRATION HISTORY

T 1:REGULAR UNLEADED

DATE/TIME      DIAM  LENGTH  OFFSET  TILT  SHAPE F  CAPACITY  FITNESS
96/01/01 08:03  91.0   144.4   0.00   1.00   1.00     5774     0.00
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iB94TTYMMDDHHmmTTrYYMMDDHHmmNNFFFFFFFF...
TTrYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. TT - Tank number (Decimal, 00=All)
3. rr - Number of calibration records to follow
4. YYMMDDHHmm - Calibration Date and Time
5. NN - Number of eight character Data Fields to follow (Hex)
6. FFFFFFFF - ASCII Hex IEEE floats:
 1. Tank diameter
 2. Tank length
 3. Probe offset
 4. Tank tilt
 5. Tank end shape factor
 6. Tank capacity
 7. Calibration fitness
7. && - Data Termination Flag
8. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: BA0
Function Type: MDIM Totalizer Report

Version 110

Command Format:
Display: <SOH>IBA000
Computer: <SOH>iBA000

Typical Response Message, Display Format:

```
<SOH>
IBA000
FEB  4, 1995  6:25 AM

MDIM  TOTALIZER
  1    0.000
  2    0.000
  3    0.000
  4    0.000
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iBA000YYMMDDHHmmdddddFFFFFFFFF...
                        ddddFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. dddd - Dim identifier
3. FFFFFFFF - Totalizer value (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: BA1

Function Type: DIM Communciation Status and History

Version 32

Command Format:

Display: <SOH>IBA100

Computer: <SOH>iBA100

Typical Response Message, Display Format:

```
<SOH>
IBA100
JUNE 22, 2010  4:52 PM

DIM COMMUNICATION STATUS AND FAULT HISTORY    PORT 1

STATUS: FAULT

FAULT HISTORY:
POST TIME          CLEAR TIME          DURATION (HOURS)
06/22/10 03:33     FAULT                      1.25
06/18/10 04:23     06/18/10 14:56          14.55
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iBA100YYMMDDHHmmppNNPPPPPPPPCCCCCCCC...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. pp - Communciation Port number
3. NN - Communciation Port number
4. PPPPPPPP - Totalizer value (ASCII Hex IEEE float)
5. CCCCCCCC - Totalizer value (ASCII Hex IEEE float)
0 indicates the condition is currently active.
6. && - Data Termination Flag
7. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: BB1
Function Type: VMC Status Report

Version 28

Command Format:
Display: <SOH>IBB1xx
Computer: <SOH>iBB1xx

Notes:

1. xx - VMC Number (Decimal, 01-18, 00=all)

Typical Response Message, Display Format:

```
<SOH>
IBB101
JAN 22, 2007  3:11 PM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

VMC REPORT

| VMC | S/N | SIDE | STATUS | RECOVER RATE | FUEL CNT | ERR CNT | REM | TIME |
|-----|--------|------|--------|--------------|----------|---------|-----|------|
| 1 | 111111 | A | IDLE | 85.2 | 12382 | 372 | 0 | |
| 1 | 111111 | B | IDLE | 93.8 | 13875 | 436 | 0 | |

```
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iBB1xxYYMMDDHHmmxxIIIIIIIsSSrrrrrrffffeeetttt...
xxIIIIIIIsSSrrrrrrffffeeettttt&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. xx - VMC Number (Decimal, 01-18, 00=all)
3. IIIIII - Serial Number (Decimal)
4. s - Side (1=A, 2=B)(ASCII Hex)
5. SS - Status (ASCII Hex)
 - 00=Roots meter not connected
 - 01=Idle
 - 02=Running
 - 03=Last transaction failed
 - 04=FP shutdown warning
 - 05=FP shutdown alarm
 - FE=Status Unknown
 - FF=VMC Comm Timeout
6. rrrr - Recover Rate (ASCII decimal, x10)
7. ffff - Fueling Counter (ASCII Hex)
8. eeee - Error Counter (ASCII Hex)
9. tttt - Remaining Time, minutes (ASCII Hex)
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.5 RECONCILIATION REPORTS

Function Code: C01 Version 106
Function Type: Basic Inventory Reconciliation Daily "Row" Report

Command Format:
Display: <SOH>IC01PPMMDD
Computer: <SOH>iC01PPMMDD

Notes:

1. MMDD - Month and Day for Daily Report

Typical Response Message, Display Format:

```
<SOH>
IC01PP
MAR 26, 1996  1:43 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996  1:43 PM

DAILY RECONCILIATION REPORT

T 1:REGULAR UNLEADED

DATE      TIME      OPENING      METERED  MANUAL  CALC'D  PHYSICAL  WATER
MAR 25    2:00 AM    VOLUME DLVRIES  SALES    ADJUST  INVNTY  INVNTY    HEIGHT  VARIANCE
MAR 26    2:00 AM      6081         0      1888         0      4193      4199      0.00         6

SIGNATURE _____
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iC01PPYYMMDDHHmmPPnnTTYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...
PPnnTTYMMDDHHmmYYMMDDHHmmNNNNNNNNNN&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=All Products)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank numbers mapped to product
5. YYMMDDHHmm - Opening Date and Time
6. YYMMDDHHmm - Closing Date and Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C02

Version 106

Function Type: Basic Inventory Reconciliation Daily "Column" Report

Command Format:

Display: <SOH>IC0200MMDD

Computer: <SOH>iC0200MMDD

Notes:

1. MMDD - Month and Day for Daily Report

Typical Response Message, Display Format:

<SOH>
IC0200
MAR 26, 1996 1:43 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996 1:43 PM

DAILY RECONCILIATION REPORT

PRODUCT UNLEADED

OPENING DATE MAR 25, 1996
OPENING TIME 2:00 AM

| | |
|-----------------|------|
| OPENING VOLUME | 6081 |
| DELIVERIES | 0 |
| METERED SALES | 1888 |
| MANUAL ADJUST | 0 |
| CALC'D INVNTY | 4193 |
| PHYSICAL INVNTY | 4199 |
| WATER HEIGHT | 0.00 |
| VARIANCE | 6 |

CLOSING DATE MAR 26, 1996
CLOSING TIME 2:00 AM

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C02: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC02PPYYMMDDHHmmGGPPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...  
PPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. GG - Number of product Groupings to follow (Hex)
3. PP - Product Number (Decimal, 00=All Products)
4. nn - Number of tanks that are mapped to the product (Decimal)
5. TT - Tank numbers mapped to product
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C03

Version 106

Function Type: Basic Inventory Reconciliation Shift "Row" Report

Command Format:

Display: <SOH>IC03PPtt

Computer: <SOH>iC03PPtt

Notes:

1. tt - Shift Type (01=Current, 02=Previous)

Typical Response Message, Display Format:

```
<SOH>
IC03PP
MAR 26, 1996  1:44 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996  1:44 PM

CURRENT SHIFT RECONCILIATION REPORT

T 1:REGULAR UNLEADED

DATE      TIME      OPENING      METERED      MANUAL      CALC'D      PHYSICAL      WATER
MAR 26    6:00 AM    VOLUME DLVRIES  SALES      ADJUST  INVNTY  INVNTY  HEIGHT  VARIANCE
MAR 26    1:42 PM         4114         0      1083         0      3031    3026    0.00        -5

SIGNATURE _____
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iC03PPYYMMDDHHmmPPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFFF...
PPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=All Products)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank numbers mapped to product
5. YYMMDDHHmm - Opening Date and Time
6. YYMMDDHHmm - Closing Date and Time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE float:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C04

Version 106

Function Type: Basic Inventory Reconciliation Shift "Column" Report

Command Format:

Display: <SOH>IC0400tt

Computer: <SOH>iC0400tt

Notes:

1. tt - Shift Type (01=Current, 02=Previous)

Typical Response Message, Display Format:

<SOH>
IC0400
MAR 26, 1996 1:44 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996 1:44 PM

PREVIOUS SHIFT RECONCILIATION REPORT

PRODUCT UNLEADED

OPENING DATE MAR 26, 1996
OPENING TIME 6:00 AM

| | |
|-----------------|------|
| OPENING VOLUME | 4114 |
| DELIVERIES | 0 |
| METERED SALES | 1083 |
| MANUAL ADJUST | 0 |
| CALC'D INVNTY | 3031 |
| PHYSICAL INVNTY | 3026 |
| WATER HEIGHT | 0.00 |
| VARIANCE | -5 |

CLOSING DATE MAR 26, 1996
CLOSING TIME 1:42 PM

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C04: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC04PPYYMMDDHHmmGGPPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...  
PPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. GG - Number of product Groupings to follow (Hex)
3. PP - Product Number (Decimal, 00=All Products)
4. nn - Number of tanks that are mapped to the product (Decimal)
5. TT - Tank numbers mapped to product
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C05

Version 106

Function Type: Basic Inventory Reconciliation Periodic "Row" Report

Command Format:

Display: <SOH>IC05PP

Computer: <SOH>iC05PP

Typical Response Message, Display Format:

<SOH>
IC05PP
MAR 26, 1996 1:42 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996 1:42 PM

CURRENT PERIODIC RECONCILIATION REPORT

T 1:REGULAR UNLEADED

| DATE | TIME | OPENING | | METERED | MANUAL | CALC'D | PHYSICAL | WATER | |
|--------|---------|---------|---------|---------|--------|--------|----------|--------|----------|
| | | VOLUME | DLVRIES | SALES | ADJUST | INVNTY | INVNTY | HEIGHT | VARIANCE |
| MAR 1 | 2:00 AM | 5429 | 0 | 3341 | 0 | 2088 | 2092 | 0.00 | 4 |
| MAR 2 | 2:00 AM | 2092 | 5409 | 1876 | 0 | 5625 | 5625 | 0.00 | 0 |
| MAR 3 | 2:00 AM | 5625 | 3336 | 3065 | 0 | 5896 | 5862 | 0.00 | -34 |
| MAR 4 | 2:00 AM | 5874 | 2009 | 2207 | 0 | 5676 | 5672 | 0.00 | -4 |
| MAR 5 | 2:00 AM | 5672 | 0 | 1568 | 0 | 4104 | 4108 | 0.00 | 4 |
| MAR 6 | 2:00 AM | 4108 | 6503 | 2170 | 0 | 8441 | 8443 | 0.00 | 2 |
| MAR 7 | 2:00 AM | 8444 | 0 | 1574 | 0 | 6870 | 6872 | 0.00 | 2 |
| MAR 8 | 2:00 AM | 6872 | 0 | 2295 | 0 | 4577 | 4581 | 0.00 | 4 |
| MAR 9 | 2:00 AM | 4581 | 5405 | 2881 | 0 | 7105 | 7099 | 0.00 | -6 |
| MAR 10 | 2:00 AM | 7099 | 0 | 3312 | 0 | 3787 | 3793 | 0.00 | 6 |
| MAR 11 | 2:00 AM | 3793 | 3898 | 2436 | 0 | 5255 | 5253 | 0.00 | -2 |
| MAR 12 | 2:00 AM | 5253 | 0 | 1745 | 0 | 3508 | 3497 | 0.00 | -11 |
| MAR 13 | 2:21 AM | 3497 | 4811 | 1599 | 0 | 6709 | 6718 | 0.00 | 9 |
| MAR 14 | 2:00 AM | 6718 | 0 | 2111 | 0 | 4607 | 4612 | 0.00 | 5 |
| MAR 16 | 2:00 AM | 4612 | 6213 | 3896 | 0 | 6929 | 6931 | 0.00 | 2 |
| MAR 17 | 2:00 AM | 6896 | 0 | 2807 | 0 | 4089 | 4096 | 0.00 | 7 |
| MAR 18 | 2:00 AM | 4096 | 3302 | 3440 | 0 | 3958 | 3969 | 0.00 | 11 |
| MAR 19 | 2:00 AM | 3969 | 4802 | 1930 | 0 | 6841 | 6839 | 0.00 | -2 |
| MAR 20 | 2:00 AM | 6839 | 0 | 2079 | 0 | 4760 | 4775 | 0.00 | 15 |
| MAR 21 | 2:00 AM | 4775 | 5407 | 2242 | 0 | 7940 | 7947 | 0.00 | 7 |
| MAR 22 | 2:00 AM | 7947 | 0 | 2552 | 0 | 5395 | 5398 | 0.00 | 3 |
| MAR 23 | 2:00 AM | 5398 | 5410 | 3309 | 0 | 7499 | 7510 | 0.00 | 11 |
| MAR 24 | 2:00 AM | 7510 | 0 | 3055 | 0 | 4455 | 4465 | 0.00 | 10 |
| MAR 25 | 2:00 AM | 4465 | 4812 | 3200 | 0 | 6077 | 6081 | 0.00 | 4 |
| MAR 26 | 2:00 AM | 6081 | 0 | 1888 | 0 | 4193 | 4199 | 0.00 | 6 |

| | | | | | | | | | |
|--------|--|------|-------|-------|---|------|------|------|----|
| TOTALS | | 5407 | 61317 | 62578 | 0 | 4146 | 4199 | 0.00 | 53 |
|--------|--|------|-------|-------|---|------|------|------|----|

THRESHOLD: 755

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C05: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC05PPYYMMDDHHmmPPnnTT...ddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...  
PPnnTT...ddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=All Products)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank numbers mapped to product
5. dd - Number of reconciliation days to follow (Hex)
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C06

Version 106

Function Type: Basic Inventory Reconciliation Periodic "Column" Report

Command Format:

Display: <SOH>IC0600

Computer: <SOH>iC0600

Typical Response Message, Display Format:

```
<SOH>
IC0600
MAR 26, 1996  1:42 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996  1:42 PM

CURRENT PERIODIC RECONCILIATION REPORT

PRODUCT                UNLEADED

OPENING DATE      MAR  1, 1996
OPENING TIME      2:00 AM

OPENING VOLUME          5407
DELIVERIES             61317
METERED SALES          62578
MANUAL ADJUST           0
CALC'D INVNTY          4146
PHYSICAL INVNTY         4199
WATER HEIGHT          0.00
VARIANCE              53
THRESHOLD             755

CLOSING DATE      MAR 20, 1996
CLOSING TIME      2:00 AM

SIGNATURE _____
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C06: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC06PPYYMMDDHHmmGGPPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...  
PPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. GG - Number of product Groupings to follow (Hex)
3. PP - Product Number (Decimal, 00=All Products)
4. nn - Number of tanks that are mapped to the product (Decimal)
5. TT - Tank numbers mapped to product
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C07

Version 114

Function Type: Basic Inventory Reconciliation Periodic "Row" Report
(Current/Previous)

Command Format:

Display: <SOH>IC07PPtt

Computer: <SOH>iC07PPtt

Notes:

1. PP - Product Number (00=all products)
2. tt - Report type
00=Current Period
01=Previous Period

Typical Response Message, Display Format:

<SOH>
IC07PP
MAR 26, 1996 1:42 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

APR 11, 1996 1:42 PM

PREVIOUS PERIODIC RECONCILIATION REPORT

T 1:REGULAR UNLEADED

| DATE | TIME | OPENING | | METERED | MANUAL | CALC'D | PHYSICAL | WATER | |
|--------|---------|---------|---------|---------|--------|--------|----------|--------|----------|
| | | VOLUME | DLVRIES | SALES | ADJUST | INVNTY | INVNTY | HEIGHT | VARIANCE |
| MAR 1 | 2:00 AM | 5429 | 0 | 3341 | 0 | 2088 | 2092 | 0.00 | 4 |
| MAR 2 | 2:00 AM | 2092 | 5409 | 1876 | 0 | 5625 | 5625 | 0.00 | 0 |
| MAR 3 | 2:00 AM | 5625 | 3336 | 3065 | 0 | 5896 | 5862 | 0.00 | -34 |
| MAR 4 | 2:00 AM | 5874 | 2009 | 2207 | 0 | 5676 | 5672 | 0.00 | -4 |
| MAR 5 | 2:00 AM | 5672 | 0 | 1568 | 0 | 4104 | 4108 | 0.00 | 4 |
| MAR 6 | 2:00 AM | 4108 | 6503 | 2170 | 0 | 8441 | 8443 | 0.00 | 2 |
| MAR 7 | 2:00 AM | 8444 | 0 | 1574 | 0 | 6870 | 6872 | 0.00 | 2 |
| MAR 8 | 2:00 AM | 6872 | 0 | 2295 | 0 | 4577 | 4581 | 0.00 | 4 |
| MAR 9 | 2:00 AM | 4581 | 5405 | 2881 | 0 | 7105 | 7099 | 0.00 | -6 |
| MAR 10 | 2:00 AM | 7099 | 0 | 3312 | 0 | 3787 | 3793 | 0.00 | 6 |
| MAR 11 | 2:00 AM | 3793 | 3898 | 2436 | 0 | 5255 | 5253 | 0.00 | -2 |
| MAR 12 | 2:00 AM | 5253 | 0 | 1745 | 0 | 3508 | 3497 | 0.00 | -11 |
| MAR 13 | 2:21 AM | 3497 | 4811 | 1599 | 0 | 6709 | 6718 | 0.00 | 9 |
| MAR 14 | 2:00 AM | 6718 | 0 | 2111 | 0 | 4607 | 4612 | 0.00 | 5 |
| MAR 16 | 2:00 AM | 4612 | 6213 | 3896 | 0 | 6929 | 6931 | 0.00 | 2 |
| MAR 17 | 2:00 AM | 6896 | 0 | 2807 | 0 | 4089 | 4096 | 0.00 | 7 |
| MAR 18 | 2:00 AM | 4096 | 3302 | 3440 | 0 | 3958 | 3969 | 0.00 | 11 |
| MAR 19 | 2:00 AM | 3969 | 4802 | 1930 | 0 | 6841 | 6839 | 0.00 | -2 |
| MAR 20 | 2:00 AM | 6839 | 0 | 2079 | 0 | 4760 | 4775 | 0.00 | 15 |
| TOTALS | | 5407 | 45688 | 46332 | 0 | 4763 | 4775 | 0.00 | 12 |

THRESHOLD:

755

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C07: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC07PPYYMMDDHHmmPPnnTT...ddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN...  
PPnnTT...ddYYMMDDHHmmYYMMDDHHmmNNNNNNNNNN&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=All Products)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank numbers mapped to product
5. dd - Number of reconciliation days to follow (Hex)
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C08

Version 114

Function Type: Basic Inventory Reconciliation Periodic "Column" Report
(Current/Previous)

Command Format:

Display: <SOH>IC0800tt

Computer: <SOH>iC0800tt

Notes:

1. tt - Report type
00=Current Period
01=Previous Period

Typical Response Message, Display Format:

```
<SOH>
IC0800
MAR 26, 1996  1:42 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

MAR 26, 1996  1:42 PM

PREVIOUS PERIODIC RECONCILIATION REPORT

PRODUCT                UNLEADED

OPENING DATE           MAR  1, 1996
OPENING TIME           2:00 AM

OPENING VOLUME          5407
DELIVERIES              61317
METERED SALES           62578
MANUAL ADJUST           0
CALC'D INVNTY           4146
PHYSICAL INVNTY          4199
WATER HEIGHT            0.00
VARIANCE                53
THRESHOLD               755

CLOSING DATE           MAR 20, 1996
CLOSING TIME           2:00 AM

SIGNATURE _____
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C08: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC08PPYYMMDDHHmmGGPPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...  
PPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. GG - Number of product Groupings to follow (Hex)
3. PP - Product Number (Decimal, 00=All Products)
4. nn - Number of tanks that are mapped to the product (Decimal)
5. TT - Tank numbers mapped to product
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. Probe measured inventory at previous period close
 2. Sum total of adjusted deliveries during period
 3. Sum total of all metered sales during period
 4. Manually entered adjustments for period
 5. Calculated Inventory Volume at period close
 6. Probe measured inventory at period close
 7. Water Height at period close
 8. Variance over period
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C09

Version 19

Function Type: Individual Basic Reconciliation Daily History Diagnostic

Command Format:

Display: <SOH>IC09TTD

Computer: <SOH>iC09TTD

Notes:

1. TT - Tank Number (Decimal; 00=all)
2. D - If 1, will use ticketed delivery else if not entered, default will use gauged delivery

Typical Response Message, Display Format:

```
<SOH>
IC09TT1
JAN 1, 2000 3:30 PM
INDIVIDUAL BASIC RECONCILIATION HISTORY DIAGNOSTIC

T 1:* MAG PROBE #1 *
STRT TIME  END TIME  STRT HT  END HT  STRT VL  END VL  SALES  DELIV OFFSET  VAR
9912311104 0001010130 45.737  48.000  4700.0  5000.0  0.0    300.0  0.0    0.0
0001010130 0001010931 48.000  47.895  5000.0  4986.1  0.0    0.0   0.0   -13.9
```

Typical Response Message, Computer Format:

```
<SOH>iC0900YYMMDDHHmmTTrYYMMDDHHmmYYMMDDHHmmYYMMDDHHmmNNFFFFFFF...
TTrYYMMDDHHmmYYMMDDHHmmYYMMDDHHmmNNFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Time of Day.
2. TT - Tank Number (Decimal, 00=all)
3. rr - Number of records to follow (Hex)
4. YYMMDDHHmm - Requested start time
5. YYMMDDHHmm - Actual start time
6. YYMMDDHHmm - End time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. Start height
 2. End height
 3. Start Volume
 4. End Volume
 5. Metered sales (dispensed volume)
 6. Ticket Delivery
 7. Gauged Delivery
 8. Offset volume
 9. Variance (calculated with ticketed volume)
 10. Variance (calculated with gauged volume)
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.6 VARIANCE ANALYSIS REPORTS

Function Code: C10
Function Type: Periodic Book Variance

Version 116

Command Format:
Display: <SOH>IC10PPtt
Computer: <SOH>iC10PPtt

Notes:

1. PP - Product Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
01=current
02=previous

Typical Response Message, Display Format:

<SOH>
IC10PP
MAR 20, 1998 3:29 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT PERIOD BOOK VARIANCE

T 1:REGULAR UNLEADED

| DATE | TIME | OPENING VOLUME | METERED SALES | TICKET DLVY | MAN ADJ | CLS INVNTY | BOOK INVNTY | GAUGED INVNTY | DAILY VARIANCE |
|--------|----------|-------------------|------------------|----------------|------------|---------------|----------------|------------------|-------------------|
| MAR 5 | 9:18 PM | 6279 | 151 | 0 | 0 | 6128 | 6128 | 0= | 0.00% |
| MAR 6 | 12:00 AM | 6128 | 3069 | 0 | 0 | 3059 | 3063 | -4= | 0.13% |
| MAR 7 | 12:00 AM | 3063 | 2775 | 5901 | 0 | 6189 | 6196 | -7= | 0.25% |
| MAR 8 | 12:00 AM | 6196 | 2674 | 0 | 0 | 3522 | 3526 | -4= | 0.15% |
| MAR 9 | 12:00 AM | 3526 | 2427 | 5901 | 0 | 7000 | 7007 | -7= | 0.29% |
| MAR 10 | 12:00 AM | 7007 | 2763 | 4099 | 0 | 8343 | 8344 | -1= | 0.04% |
| MAR 11 | 12:00 AM | 8344 | 3091 | 0 | 0 | 5253 | 5256 | -3= | 0.10% |
| MAR 12 | 12:00 AM | 5256 | 3085 | 3800 | 0 | 5971 | 5972 | -1= | 0.03% |
| MAR 13 | 12:00 AM | 5972 | 2818 | 0 | 0 | 3154 | 3160 | -6= | 0.21% |
| MAR 14 | 12:00 AM | 3160 | 3041 | 5900 | 0 | 6019 | 6023 | -4= | 0.13% |
| MAR 15 | 12:00 AM | 6023 | 2986 | 0 | 0 | 3037 | 3030 | 7= | 0.23% |
| MAR 16 | 12:00 AM | 3030 | 2539 | 5902 | 0 | 6393 | 6404 | -11= | 0.43% |
| MAR 17 | 12:01 AM | 6404 | 3061 | 0 | 0 | 3343 | 3346 | -3= | 0.10% |
| MAR 18 | 12:00 AM | 3346 | 3069 | 5901 | 0 | 6178 | 6179 | -1= | 0.03% |
| MAR 19 | 12:00 AM | 6179 | 2565 | 0 | 0 | 3614 | 3617 | -3= | 0.12% |
| MAR 20 | 12:00 AM | | | | | | | | |
| TOTALS | | 6279 | 40114 | 37404 | 0 | 3569 | 3617 | -48= | 0.12% |

THRESHOLD:

531

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C10: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC10PPYYMMDDHHmmPPnnTT...rrYYMMDDHHmmYYMMDDHHmmNNFFFFFFF...  
PPnnTT...rrYYMMDDHHmmYYMMDDHHmmNNFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=all)
3. nn - Number of tanks mapped to product (Decimal)
4. TT - Tank Number(s) (Decimal)
5. rr - Number of records to follow (decimal) if 0, no more data for this tank will follow
6. YYMMDDHHmm - Opening Date and Time
7. YYMMDDHHmm - Closing Date and Time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. open volume
 2. metered sales
 3. ticketed delivery
 4. manual adjust
 5. close book inventory
 6. gauged inventory
 7. water height
 8. daily variance
 9. percent
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C11
Function Type: Weekly Book Variance

Version 116

Command Format:
Display: <SOH>IC11PPtt
Computer: <SOH>iC11PPtt

Notes:

1. PP - Product Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
01=current
02=previous

Typical Response Message, Display Format:

<SOH>
IC11PP
MAR 20, 1998 3:30 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT WEEK BOOK VARIANCE

T 1:REGULAR UNLEADED

| DATE | TIME | OPENING VOLUME | METERED SALES | TICKET DLVY | MAN ADJ | CLS INVNTY | BOOK INVNTY | GAUGED INVNTY | DAILY VARIANCE |
|--------|----------|-------------------|------------------|----------------|------------|---------------|----------------|------------------|-------------------|
| MAR 16 | 12:00 AM | | | | | | | | |
| MAR 17 | 12:01 AM | 3030 | 2539 | 5902 | 0 | | 6393 | 6404 | -11= 0.43% |
| MAR 18 | 12:00 AM | 6404 | 3061 | 0 | 0 | | 3343 | 3346 | -3= 0.10% |
| MAR 19 | 12:00 AM | 3346 | 3069 | 5901 | 0 | | 6178 | 6179 | -1= 0.03% |
| TOTALS | | 3030 | 8669 | 11803 | 0 | | 6164 | 6179 | -15= 0.17% |

THRESHOLD:

216

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C11 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC11PPYYMMDDHHmmPPnnTT...rrYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...  
PPnnTT...rrYYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal), 00=all)
3. nn - Number of tanks mapped to product (Decimal)
4. TT - Tank Number(s) mapped to product (Decimal)
5. rr - Number of records to follow
6. YYMMDDHHmm - Open date and time
7. YYMMDDHHmm - Close date and time
8. NN - Number of eight character Data Fields to follow (Hex)
9. FFFFFFFF - ASCII Hex IEEE floats:
 1. open volume
 2. metered sales
 3. ticketed delivery
 4. manual adjust
 5. close book inventory
 6. gauged inventory
 7. water height
 8. daily variance
 9. percent
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C12
Function Type: Daily Book Variance

Version 116

Command Format:
Display: <SOH>IC12PPMMDD
Computer: <SOH>iC12PPMMDD

Notes:

1. PP - Product Number (Decimal, 00=all)
2. MMDD - Month and day for report (if not entered, will default to current day)

Typical Response Message, Display Format:

<SOH>
IC12PP
MAR 20, 1998 3:30 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

DAILY BOOK VARIANCE

T 1:REGULAR UNLEADED

| DATE | TIME | OPENING VOLUME | METERED SALES | TICKET DLVY | MAN ADJ | CLS INVENTORY | BOOK INVENTORY | GAUGED INVENTORY | DAILY VARIANCE |
|--------|----------|----------------|---------------|-------------|---------|---------------|----------------|------------------|----------------|
| MAR 18 | 12:00 AM | | | | | | | | |
| MAR 19 | 12:00 AM | 3346 | 3069 | 5901 | 0 | 6178 | 6179 | | -1= 0.03% |

THRESHOLD:

148

SIGNATURE _____
<ETX>

Typical Response Message, Computer Format:

<SOH>iC10PPYYMMDDHHmmPPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF...
PPnnTT...YYMMDDHHmmYYMMDDHHmmNNFFFFFFFF&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=all)
3. nn - Number of tanks mapped to product (Decimal)
4. TT - Tank Number(s) (Decimal)
5. YYMMDDHHmm - Open date and time
6. YYMMDDHHmm - Close date and time
7. NN - Number of eight character Data Fields to follow (Hex)
8. FFFFFFFF - ASCII Hex IEEE floats:
 1. open volume
 2. metered sales
 3. ticketed delivery
 4. manual adjust
 5. close book inventory
 6. gauged inventory
 7. water height
 8. daily variance
 9. percent
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C20

Version 116

Function Type: Periodic Variance Analysis Report

Command Format:

Display: <SOH>IC20PPtt

Computer: <SOH>iC20PPtt

Notes:

1. PP - Product Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
01=current
02=previous

Typical Response Message, Display Format:

<SOH>
IC20PP
MAR 20, 1998 3:30 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT PERIOD VARIANCE ANALYSIS

T 1:REGULAR UNLEADED

| DATE | TIME | BOOK | DLVY | SALES | BK_VAR | MTR | TEMP | VAP | WATER | UNEX |
|--------|----------|------|------|-------|--------|-----|------|-----|-------|------|
| MAR 19 | 2:00 AM | VAR | VAR | VAR | % | VAR | VAR | VAR | CHG | VAR |
| MAR 20 | 12:00 AM | -48 | -13 | -35 | 0.12 | -1 | -16 | 0 | 0 | -18 |

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C20 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC20PPYYMMDDHHmmPPnnTTddYYMMDDHHmmYYMMDDHHmmLLLLLLLLlllllllll
                                     NNFFFFFFFF...
PPnnTTddYYMMDDHHmmYYMMDDHHmmLLLLLLLLlllllllll
                                     NNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank Number (Decimal, 00=all)
5. dd - Number of reconciliation records to follow
6. YYMMDDHHmm - Opening Date and Time for period
7. YYMMDDHHmm - Closing Date and Time for period
8. LLLLLLLL - failure to calibrate in 56 days (bit encoded long integer with tank 1=lsb)
9. llllllll - tank chart alarm (bit encoded long integer with tank 1=lsb)
10. NN - Number of eight character Data Fields to follow (Hex)
11. FFFFFFFF - ASCII Hex IEEE floats:
 1. book variance
 2. delivery variance
 3. sales variance
 4. book variance percent
 5. temperature variance
 6. water change
 7. unexplained variance
 8. Meter variance (V29)
 9. Vapor variance (V29)
12. && - Data Termination Flag
13. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C21

Version 116

Function Type: Weekly Variance Analysis Report

Command Format:

Display: <SOH>IC21PPtt

Computer: <SOH>iC21PPtt

Notes:

1. PP - Product Number (Decimal, 00=all)
2. tt - Report Type (if not entered will default to current)
01=current
02=previous

Typical Response Message, Display Format:

<SOH>
IC21PP
MAR 20, 1998 3:30 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT WEEK VARIANCE ANALYSIS

T 1:REGULAR UNLEADED

| DATE | TIME | BOOK | DLVY | SALES | BK_VAR | MTR | TEMP | VAP | WATER | UNEX |
|--------|----------|------|------|-------|--------|-----|------|-----|-------|------|
| MAR 18 | 2:00 AM | VAR | VAR | VAR | % | VAR | VAR | VAR | CHG | VAR |
| MAR 19 | 12:00 AM | -15 | -13 | -2 | 0.17 | -2 | -2 | 0 | 0 | 0 |

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C21 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC21PPYYMMDDHHmmPPnnTTddYYMMDDHHmmYYMMDDHHmmLLLLLLLLlllllllll
                                     NNFFFFFFFF...
PPnnTTddYYMMDDHHmmYYMMDDHHmmLLLLLLLLlllllllll
                                     NNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=all products)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank Number (Decimal, 00=all)
5. dd - Number of reconciliation records to follow
6. YYMMDDHHmm - Open date and time
7. YYMMDDHHmm - Close date and time
8. LLLLLLLL - failure to calibrate in 56 days (bit encoded long integer with tank 1=lsb)
9. llllllll - tank chart alarm (bit encoded long integer with tank 1=lsb)
10. NN - Number of eight character Data Fields to follow (Hex)
11. FFFFFFFF - ASCII Hex IEEE floats:
 1. book variance
 2. delivery variance
 3. sales variance
 4. book variance percent
 5. temperature variance
 6. water change
 7. unexplained variance
 8. Meter variance (V29)
 9. Vapor variance (V29)
12. && - Data Termination Flag
13. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C22

Version 116

Function Type: Daily Variance Analysis Report

Command Format:

Display: <SOH>IC22PPMMDD

Computer: <SOH>iC22PPMMDD

Notes:

1. PP - Product Number (Decimal, 00=all)
2. MMDD - Month and day for report (if not entered, will default to current day)

Typical Response Message, Display Format:

<SOH>
IC22PP
MAR 20, 1998 3:31 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

DAILY VARIANCE ANALYSIS

T 1:REGULAR UNLEADED

| DATE | TIME | BOOK | DLVY | SALES | BK_VAR | MTR | TEMP | VAP | WATER | UNEX |
|--------|----------|------|------|-------|--------|-----|------|-----|-------|------|
| MAR 18 | 2:00 AM | VAR | VAR | VAR | % | VAR | VAR | VAR | CHG | VAR |
| MAR 19 | 12:00 AM | -15 | -13 | -2 | 0.17 | -1 | -2 | 0 | 0 | 0 |

SIGNATURE _____
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C22 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC22PPYYMMDDHHmmPPnnTTYMMDDHHmmYYMMDDHHmmLLLLLLLLlllllllll
                                     NNFFFFFFFF...
PPnnTTYMMDDHHmmYYMMDDHHmmLLLLLLLLlllllllll
                                     NNFFFFFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Number (Decimal, 00=all products)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank Number (Decimal, 00=all)
5. YYMMDDHHmm - Open date and time
6. YYMMDDHHmm - Close date and time
7. LLLLLLLL - failure to calibrate in 56 days (bit encoded long integer with tank 1=lsb)
8. llllllll - tank chart alarm (bit encoded long integer with tank 1=lsb)
9. NN - Number of eight character Data Fields to follow (Hex)
10. FFFFFFFF - ASCII Hex IEEE floats:
 1. book variance
 2. delivery variance
 3. sales variance
 4. book variance percent
 5. temperature variance
 6. water change
 7. unexplained variance
 8. Meter variance (V29)
 9. Vapor variance (V29)
11. && - Data Termination Flag
12. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: C25

Version 19

Function Type: Periodic Variance Analysis Daily Report

Command Format:

Display: <SOH>IC25PPtt

Computer: <SOH>iC25PPtt

Notes:

1. PP - Product Number (Decimal, 00=all Products)
2. tt - Report Type
01=current
02=previous

Typical Response Message, Display Format:

<SOH>
IC25PP
JAN 1, 1996 8:05 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CURRENT PERIOD VARIANCE ANALYSIS

T 1:UNLEADED GASOLINE

| DATE | TIME | BOOK VAR | DLVY VAR | SALES VAR | BK_VAR % | MTR VAR | TEMP VAR | VAP VAR | WATER CHG | UNEX VAR |
|--------|---------|-------------|-------------|--------------|-------------|------------|-------------|------------|--------------|-------------|
| DEC 10 | 2:00 AM | 7 | 9 | -2 | 0.54 | -1 | 6 | -2 | 4 | -8 |
| DEC 11 | 2:00 AM | -1 | 0 | -1 | 0.07 | 0 | 0 | 0 | 4 | -1 |
| DEC 12 | 2:00 AM | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 4 | 0 |
| DEC 13 | 2:00 AM | -2 | 0 | -2 | 0.15 | 0 | 0 | 0 | 4 | -2 |
| DEC 14 | 2:00 AM | -3 | 0 | -3 | 0.30 | -1 | 0 | -1 | 4 | -3 |
| DEC 15 | 2:00 AM | -15 | -10 | -5 | 1.04 | 0 | 0 | 0 | 4 | -5 |
| DEC 16 | 2:00 AM | -2 | 0 | -2 | 0.14 | 0 | 0 | -2 | 4 | -2 |
| DEC 17 | 2:00 AM | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 4 | 0 |
| DEC 18 | 2:00 AM | -2 | -5 | 3 | 0.13 | 0 | -9 | 0 | 4 | 12 |
| DEC 19 | 2:00 AM | 2 | 0 | 2 | 0.13 | 0 | 0 | 0 | 4 | 2 |
| DEC 20 | 2:00 AM | 1 | 0 | 1 | 0.08 | -2 | 0 | 0 | 4 | 1 |
| DEC 21 | 2:00 AM | -1 | 0 | -1 | 0.14 | 0 | 0 | -1 | 4 | -1 |
| DEC 22 | 2:00 AM | 5 | 0 | 5 | 0.36 | 0 | 0 | -1 | 4 | 5 |
| DEC 23 | 2:00 AM | 1 | 0 | 1 | 0.09 | 0 | 0 | -1 | 4 | 1 |
| DEC 24 | 2:00 AM | -3 | 0 | -3 | 0.24 | 0 | 0 | 0 | 4 | -3 |
| DEC 25 | 2:00 AM | 7 | 10 | -3 | 0.51 | 0 | -11 | 0 | 4 | 8 |
| DEC 26 | 2:00 AM | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 4 | 0 |
| DEC 27 | 2:00 AM | 5 | 0 | 5 | 0.40 | -1 | 0 | 0 | 4 | 5 |
| DEC 28 | 2:00 AM | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| DEC 29 | 2:00 AM | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| DEC 30 | 2:00 AM | -2 | 0 | -2 | 0.17 | 0 | 0 | -2 | 0 | -2 |
| DEC 31 | 2:00 AM | 13 | 10 | 3 | 0.98 | 0 | -20 | -2 | 0 | 23 |
| JAN 1 | 2:00 AM | -503 | -503 | 0 | 33.83 | -4 | 31 | -2 | 0 | -31 |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code C25 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iC25PPYYMMDDHHmm...
PPnnTTYddYYMMDDHHmmYYMMDDHHmmLLLLLLLLllllllllNNNNNNNNNN...
PpnnTTYddYYMMDDHHmmYYMMDDHHmmLLLLLLLLllllllllNNNNNNNNNN...&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. PP - Product Code (Decimal)
3. nn - Number of tanks that are mapped to the product (Decimal)
4. TT - Tank Number (Decimal, 0=all)
5. dd - Number of reconciliation records to follow
6. YYMMDDHHmm - Opening Date and Time for period
7. YYMMDDHHmm - Closing Date and Time for period
8. LLLLLLLL - failure to calibrate in 56 days (bit encoded long integer with tank 1=lsb)
9. llllllll - tank chart alarm (bit encoded long integer with tank 1=lsb)
10. NN - Number of eight character Data Fields to follow (Hex)
11. FFFFFFFF - ASCII Hex IEEE floats:
 1. Book variance
 2. Delivery variance
 3. Sales variance
 4. Book variance percent
 5. Temperature variance
 6. Water change
 7. Unexplained variance
 8. Meter variance (Version 29)
 9. Vapor variance (Version 29)
12. && - Data Termination Flag
13. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

7.7 IN-STATION DIAGNOSTICS (ISD)

7.7.1 ISD REPORTS

Function Code: V00 Version 25
Function Type: ISD CARB Certified Operating Requirements and Monitoring
Thresholds

Command Format:
Display: <SOH>IV0000
Computer: <SOH>iV0000

Notes:

1. ISD feature required

Typical Response Message, Display Format:

```
<SOH>
IV0000
JUN  1, 2002  8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CARB EVR CERTIFIED OPERATING REQUIREMENTS

VAPOR COLLECTION ASSIST SYSTEM A/L RANGE                                Min      Max
                                                                           0.90      1.10

ISD MONITORING TEST PASS/FAIL THRESHOLDS

VAPOR COLLECTION BALANCE SYS FLOW PERFORMANCE      Period  Below  Above
7dys        0.60      ----
VAPOR CONTAINMENT GROSS FAIL, 95TH PERCENTILE      7dys        ----  1.30"wcg
VAPOR CONTAINMENT DEGRADATION, 75TH PERCENTILE    30dys        ----  0.30"wcg
VAPOR CONTAINMENT LEAK DETECTION FAIL @2"WCG      7dys        ----  13.5cfh
STAGE I VAPOR TRANSFER FAIL, 75TH PERCENTILE     20min        ----  2.50"wcg

CARB STANDARD REPORT FORMAT - CP201 APPENDIX "EVR-ISD MONTHLY STATUS REPORT"
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iV0000YYMMDDHHmmoooffNNmmmmmmmm...ppggNNtttttttt...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. oo - Number of CARB EVR Certified Operating Requirement fields (Decimal)
3. ff - Type of CARB EVR Certified Operating Requirement field
01=Vapor Collection Assist System A/L Range (min/max)
[Assist only]
4. NN - number of ASCII Hex IEEE float data fields to follow (Decimal)
5. mmmmmmmmm - CARB EVR Certified Operating Requirement field data (ASCII Hex IEEE float)
6. pp - Number of ISD Monitoring Test Pass/Fail Threshold fields (Decimal)

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V00 Notes: (Continued)

7. gg - Type of ISD Monitoring Test Pass/Fail Threshold field
 01=Vapor Collection Assist System A/L Gross Fail
 (Days/Low/High) [Assist only]

 02=Vapor Collection Assist System A/L Degradation Fail
 (Days/Low/High) [Assist only]

 03=Vapor Collection Balance System Flow Performance
 (Days/High) [Balance Only]

 04=Vapor Containment Gross Fail, ?? Percentile
 (Days/High)

 05=Vapor Containment Degradation, ?? Percentile
 (Days/High)

 06=Vapor Containment Leak Detection Fail @2\"WCG
 (Days/High)

 07=Stage I Vapor Transfer Fail, ?? Percentile
 (Minutes/High)

 08=Vapor Processor Pressure Fail, Performed Daily [Vapor
 Processor Required]

 09=Vapor Processor Self Test Fail (Days) [VP Required, VP
 Control Level: No Control]

 10=Vapor Processor HC Emission Concentration Fail
 (Days/High) [VP Control Level: Full Control]

 11=Vapor Processor Duty Cycle Fail, Performed Daily [VP
 Control Level: Full Control]
8. NN - number of ASCII Hex IEEE float data fields to follow
 (Decimal)
9. tttttttt - ISD Monitoring Test Pass/Fail Thresholds field data (ASCII
 Hex IEEE float)
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V01
Function Type: ISD Alarm Status Report

Version 25

Command Format:
Display: <SOH>IV0100
Computer: <SOH>iV0100

Notes:

1. ISD feature required
2. Last 10 of each alarm group

Typical Response Message, Display Format:

<SOH>
IV0100
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD ALARM STATUS REPORT

EVR TYPE: BALANCE
ISD TYPE: 01.00
VAPOR PROCESSOR TYPE: NO VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

WARNING ALARMS

| DATE/TIME | DESCRIPTION | READING | VALUE |
|-------------------|-------------------------------|---------|-------|
| 03-07-17 17:45:11 | MISSING VAPOR PROCESSOR INPUT | ED1 | |
| | DISABLED DIM ALARM | | |

FAILURE ALARMS

| DATE/TIME | DESCRIPTION | READING | VALUE |
|-------------------|-------------------------------|---------|-------|
| 03-07-17 17:45:03 | MISSING VAPOR PROCESSOR INPUT | | |
| | LLD SELF TEST FAIL | | |
| 03-07-17 17:44:58 | MISSING VAPOR PROCESSOR INPUT | | |
| | LLD SELF TEST FAIL | | |

SHUTDOWN & MISCELLANEOUS EVENTS

| DATE/TIME | DESCRIPTION | ACTION/NAME |
|-------------------|------------------|-----------------------------------|
| 03-07-17 14:04:07 | ISD STARTUP | |
| 03-07-17 14:04:05 | READINESS ISD:PF | EVR:NNN CHECK ISD SENSORS |
| 03-07-17 14:04:05 | READINESS ISD:FN | EVR:NNN CHECK SETUP CONFIGURATION |
| 03-07-17 14:04:05 | READINESS ISD:PP | EVR:FFP EVR READINESS PENDING |
| 03-07-17 14:04:05 | ISD STARTUP | |
| 03-07-17 13:58:53 | ISD SHUTDOWN | |

CARB STANDARD REPORT FORMAT - CP201 APPENDIX "EVR-ISD ALARM STATUS REPORT"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V01 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0100YYMMDDHHmmqqqSSSSSSSSaabbccddeettff...f...
rrrSSSSSSSSaabbccddeettff...f...
sssSSSSSSSSaabbccddeettff...f...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. qqq - number of ISD Warning Alarms to follow (Decimal)
3. SSSSSSSS - Timestamp of the Warning Alarm (Seconds since 1/1/1970, Hex)
4. aa - primary warn event category
5. bb - primary warn event type
6. cc - device ID (Hex)
7. dd - secondary warn event category (Hex)
8. ee - secondary warn event type (Hex)
9. tt - Data type to follow
 - 00=No Data
 - 01=integer
 - 02=floating point number
10. ff - Data type (optional, depends on tt)
11. ffffffff - Data type (optional, depends on tt, Hex)
12. rrr - Number of ISD Failure Alarms to follow (Decimal)
13. SSSSSSSS - Timestamp of the Failure Alarm (Seconds since 1/1/1970, Hex)
14. aa - primary failure event category (Hex)
15. bb - primary failure event type (Hex)
16. cc - device ID (Hex)
17. dd - secondary failure event category (Hex)
18. ee - secondary failure event type (Hex)
19. tt - Data type to follow
 - 00=No Data
 - 01=integer
 - 02=floating point number
20. ff - Data type (optional, depends on tt)
21. ffffffff - Data type (optional, depends on tt, Hex)
22. sss - Number of ISD Shutdown & Misc. Events to follow (Decimal)
23. SSSSSSSS - Timestamp of the Shutdown/Misc. Event (Seconds since 1/1/1970, Hex)
24. aa - primary misc event category
 - 01=System Event
 - 02=Pumps Re-enabled
 - 03=Test Manually Cleared
 - 04=Disabled Dispensers
 - 05=Disabled FP
 - 06=EVR/ISD Readiness Check
 - 99=Internal Error

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V01 Notes: (Continued)

- 25. bb - primary misc event type
 - If aa=01:
 - 01=ISD Startup at:
 - 02=ISD Shutdown at:
 - 03=Time Change Detected at:
 - If aa=03:
 - 01=ISD SelfTest
 - 02=Vapor Processor
 - 03=Containment Gross & Degrd
 - 04=Containment Vapor Leakage
 - 05=Collection Test HHhh grade
 - 06=Sensor Out
 - If aa=04:
 - 01=Vapor Containment Leakage,
 - 02=Containment Gross,
 - 03=Containment Pressure Degradation,
 - 04=Vapor Processor Problem
 - If aa=05:
 - 01=A/L Ratio Gross Blockage,
 - 02=A/L Ratio Degradation,
 - 03=Flow Performance Blk
 - If aa=06:
 - 01=Check Setup Configuration
 - 02=ISD Sensors Readiness Pending
 - 03=Check ISD Sensors
- 26. cc - hose number (Hex)
- 27. dd - secondary misc event category (Hex) (future uses)
- 28. ee - secondary misc event type (Hex) (future uses)
- 29. tt - Data type to follow
 - 00=No Data
 - 01=integer
 - 02=floating point number
- 30. ff - Data type (optional, depends on tt)
- 31. ffffff - Data type (optional, depends on tt, Hex)
- 32. && - Data Termination Flag
- 33. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V02
Function Type: ISD Monthly Status Report

Version 25

Command Format:
Display: <SOH>IV0200yyyyymm
Computer: <SOH>iV0200yyyyymm

Notes:

1. ISD feature required
2. yyyy - year number (e.g. 2002)
3. mm - month number, 01=January, 02=February, etc.

Typical Response Message, Display Format:

```
<SOH>
IV0200
JUN 1, 2012 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD MONTHLY STATUS REPORT

REPORT DATE: JUN 2012

EVR TYPE: BALANCE
ISD TYPE: V1.00
VAPOR PROCESSOR TYPE: NO VAPOR PROCESSOR

OVERALL STATUS          :FAIL  EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT   :PASS
ISD MONITOR UP-TIME      : 97%  STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME       : 5%

CARB EVR CERTIFIED OPERATING REQUIREMENTS

VAPOR COLLECTION ASSIST SYSTEM A/L RANGE          Min      Max
0.90      1.10

ISD MONITORING TEST PASS/FAIL THRESHOLDS

VAPOR COLLECTION BALANCE SYS FLOW PERFORMANCE    PERIOD  BELOW  ABOVE
7DYS      0.60      ----
VAPOR CONTAINMENT GROSS FAIL, 95TH PERCENTILE    7DYS      ----  1.30"WCG
VAPOR CONTAINMENT DEGRADATION, 75TH PERCENTILE   30DYS     ----  0.30"WCG
VAPOR CONTAINMENT PRESSURE INTEGRITY FAIL @2"WCG 7DYS      ----  13.5CFH
STAGE I VAPOR TRANSFER FAIL, 75TH PERCENTILE     20MIN     ----  2.50"WCG

ISD WARNING ALARMS

DATE      TIME  DESCRIPTION          READING  VALUE
2012/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP1 SUPER BLKD
2012/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP4 REG  BLKD

FAILURE ALARMS

DATE      TIME  DESCRIPTION          READING  VALUE
2012/06/07 23:55 A/L RATIO GROSS BLOCKAGE FP8 SUPER BLKD
2012/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP3 REG  BLKD
2012/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP8 SUPER BLKD

SHUTDOWN & MISC. EVENT LOG

DATE      TIME  DESCRIPTION          ACTION OR NAME
2012/03/07 23:55 A/L RATIO GROSS BLOCKAGE DISABLED FP8
2012/03/06 23:55 A/L RATIO GROSS BLOCKAGE DISABLED FP3
2012/03/06 23:55 A/L RATIO GROSS BLOCKAGE DISABLED FP8
2012/03/05 23:59 READINESS CODE ISD:PP EVR: PPPP EVR/ISD SYSTEM READY

CARB STANDARD REPORT FORMAT - CP201 APPENDIX "EVR-ISD MONTHLY STATUS REPORT"
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V02 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0200YYMMDDHHmmoooffNNmmmmmmmmppgg
NNttttttttqqgSSSSSSSSaabbccddeettff...f...
rrrSSSSSSSSaabbccddeettff...f...
sssSSSSSSSSaabbccddeettff...f...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. oo - Number of CARB EVR Certified Operating Requirement fields (Decimal)
3. ff - Type of CARB EVR Certified Operating Requirement field
01=Vapor Collection Assist System A/L Range (min/max) [Assist only]
4. NN - number of ASCII Hex IEEE float data fields to follow (Decimal)
5. mmmmmmmmm - CARB EVR Certified Operating Requirement field data (ASCII Hex IEEE float)
6. pp - Number of ISD Monitoring Test Pass/Fail Threshold fields (Decimal)
7. gg - Type of ISD Monitoring Test Pass/Fail Threshold field
01=Vapor Collection Assist System A/L Gross Fail (Days/Low/High) [Assist only]

02=Vapor Collection Assist System A/L Degradation Fail (Days/Low/High) [Assist only]

03=Vapor Collection Balance System Flow Performance (Days/High) [Balance Only]

04=Vapor Containment Gross Fail, ?? Percentile (Days/High)

05=Vapor Containment Degradation, ?? Percentile (Days/High)

06=Vapor Containment Leak Detection Fail @2\"WCG (Days/High)

07=Stage I Vapor Transfer Fail, ?? Percentile (Minutes/High)

08=Vapor Processor Pressure Fail, Performed Daily [Vapor Processor Required]

09=Vapor Processor Self Test Fail (Days) [VP Required, VP Control Level: No Control]

10=Vapor Processor HC Emission Concentration Fail (Days/High) [VP Control Level: Full Control]

11=Vapor Processor Duty Cycle Fail, Performed Daily [VP Control Level: Full Control]

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V02 Notes: (Continued)

```

8.      NN - number of ASCII Hex IEEE float data fields to follow
          (Decimal)
9.      tttttttt - ISD Monitoring Test Pass/Fail Thresholds field data (ASCII
          Hex IEEE float)
10.     qq - number of ISD Warning Alarms to follow (Hex)
11.     SSSSSSSS - Timestamp of the Warning Alarm (Seconds since 1/1/1970, Hex)

12.     aa - primary warn event category
13.     bb - primary warn event type
14.     cc - device ID (Hex)
15.     dd - secondary warn event category (Hex)
16.     ee - secondary warn event type (Hex)
17.     tt - Data type to follow
          00=No Data
          01=integer
          02=floating point number
18.     ff - Data type (optional, depends on tt)
19.     ffffffff - Data type (optional, depends on tt, Hex)
20.     rrr - Number of ISD Failure Alarms to follow (Hex)
21.     SSSSSSSS - Timestamp of the Failure Alarm (Seconds since 1/1/1970, Hex)
22.     aa - primary failure event category (Hex)
23.     bb - primary failure event type (Hex)
24.     cc - device ID (Hex)
25.     dd - secondary failure event category (Hex)
26.     ee - secondary failure event type (Hex)
27.     tt - Data type to follow
          00=No Data
          01=integer
          02=floating point number
28.     ff - Data type (optional, depends on tt)
29.     ffffffff - Data type (optional, depends on tt, Hex)
30.     sss - Number of ISD Shutdown & Misc. Events to follow (Hex)
31.     SSSSSSSS - Timestamp of the Shutdown & Misc. Event (Seconds since
          1/1/1970, Hex)

```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V02 Notes: (Continued)

- 32. aa - primary misc event category
 - 01=System Event
 - 02=Pumps Re-enabled
 - 03=Test Manually Cleared
 - 04=Disabled Dispensers
 - 05=Disabled FP
 - 06=EVR/ISD Readiness Check
 - 99=Internal Error
- 33. bb - primary misc event type
 - If aa=01:
 - 01=ISD Startup at:
 - 02=ISD Shutdown at:
 - 03=Time Change Detected at:
 - If aa=03:
 - 01=ISD SelfTest
 - 02=Vapor Processor
 - 03=Containment Gross & Degrad
 - 04=Containment Vapor Leakage
 - 05=Collection Test HHhh grade
 - 06=Sensor Out
 - If aa=04:
 - 01=Vapor Containment Leakage,
 - 02=Containment Gross,
 - 03=Containment Pressure Degradation,
 - 04=Vapor Processor Problem
 - If aa=05:
 - 01=A/L Ratio Gross Blockage,
 - 02=A/L Ratio Degradation,
 - 03=Flow Performance Blk
 - If aa=06:
 - 01=Check Setup Configuration
 - 02=ISD Sensors Readiness Pending
 - 03=Check ISD Sensors
- 34. cc - hose number (Hex)
- 35. dd - secondary misc event category (Hex) (future uses)
- 36. ee - secondary misc event type (Hex) (future uses)
- 37. tt - Data type to follow
 - 00=No Data
 - 01=integer
 - 02=floating point number
- 38. ff - Data type (optional, depends on tt)
- 39. ffffff - Data type (optional, depends on tt, Hex)
- 40. && - Data Termination Flag
- 41. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V03
Function Type: ISD Daily Status Report

Version 25

Command Format:
Display: <SOH>IV0300YYYYMMDD
Computer: <SOH>iV0300YYYYMMDD

Notes:

1. ISD feature required
2. YYYYMMDD - Year/Month/Day of records

Typical Response Message, Display Format:

```
<SOH>
IV0300
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY STATUS REPORT: Report Date - MMM DD, YYYY

EVR TYPE: BALANCE
ISD TYPE: V1.00
VAPOR PROCESSOR TYPE: NO VAPOR PROCESSOR

OVERALL STATUS          :FAIL   EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT   :PASS
ISD MONITOR UP-TIME     : 97%   STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME       : 5%

CARB EVR CERTIFIED OPERATING REQUIREMENTS

VAPOR COLLECTION ASSIST SYSTEM A/L RANGE          Min      Max
0.90      1.10

ISD MONITORING TEST PASS/FAIL THRESHOLDS

VAPOR COLLECTION BALANCE SYS FLOW PERFORMANCE    PERIOD  BELOW  ABOVE
7DYS      0.60  ----
VAPOR CONTAINMENT GROSS FAIL, 95TH PERCENTILE    7DYS    ----  1.30"WCG
VAPOR CONTAINMENT DEGRADATION, 75TH PERCENTILE   30DYS    ----  0.30"WCG
VAPOR CONTAINMENT PRESSURE INTEGRITY FAIL @2"WCG 7DYS    ----  13.5CFH
STAGE I VAPOR TRANSFER FAIL, 75TH PERCENTILE     20MIN    ----  2.50"WCG

ISD WARNING ALARMS

DATE      TIME  DESCRIPTION          READING  VALUE
2002/06/07 23:55 A/L RATIO GROSS BLOCKAGE FP7 MID  BLKD
2002/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP1 SUPER BLKD
2002/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP4 REG  BLKD

FAILURE ALARMS

DATE      TIME  DESCRIPTION          READING  VALUE
2002/06/07 23:55 A/L RATIO GROSS BLOCKAGE FP8 SUPER BLKD
2002/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP3 REG  BLKD
2002/06/06 23:55 A/L RATIO GROSS BLOCKAGE FP8 SUPER BLKD

SHUTDOWN & MISC. EVENT LOG

DATE      TIME  DESCRIPTION          ACTION OR NAME
2002/03/06 23:55 A/L RATIO GROSS BLOCKAGE DISABLED FP3
2002/03/06 23:55 A/L RATIO GROSS BLOCKAGE DISABLED FP8
2002/03/05 23:59 READINESS CODE ISD:PP EVR: PPPP EVR/ISD SYSTEM READY

CARB STANDARD REPORT FORMAT - CP201 APPENDIX "EVR-ISD DAILY STATUS REPORT"
<ETX>
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V03 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0300YYMMDDHHmmoooffNNmmmmmmmmppgg
NNttttttttqqgSSSSSSSSaabbccddeettff...f...
rrrSSSSSSSSaabbccddeettff...f...
sssSSSSSSSSaabbccddeettff...f...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. oo - Number of CARB EVR Certified Operating Requirement fields (Decimal)
3. ff - Type of CARB EVR Certified Operating Requirement field
01=Vapor Collection Assist System A/L Range (min/max) [Assist only]
4. NN - number of ASCII Hex IEEE float data fields to follow (Decimal)
5. mmmmmmmmm - CARB EVR Certified Operating Requirement field data (ASCII Hex IEEE float)
6. pp - Number of ISD Monitoring Test Pass/Fail Threshold fields (Decimal)
7. gg - Type of ISD Monitoring Test Pass/Fail Threshold field
01=Vapor Collection Assist System A/L Gross Fail (Days/Low/High) [Assist only]

02=Vapor Collection Assist System A/L Degradation Fail (Days/Low/High) [Assist only]

03=Vapor Collection Balance System Flow Performance (Days/High) [Balance Only]

04=Vapor Containment Gross Fail, ?? Percentile (Days/High)

05=Vapor Containment Degradation, ?? Percentile (Days/High)

06=Vapor Containment Leak Detection Fail @2\"WCG (Days/High)

07=Stage I Vapor Transfer Fail, ?? Percentile (Minutes/High)

08=Vapor Processor Pressure Fail, Performed Daily [Vapor Processor Required]

09=Vapor Processor Self Test Fail (Days) [VP Required, VP Control Level: No Control]

10=Vapor Processor HC Emission Concentration Fail (Days/High) [VP Control Level: Full Control]

11=Vapor Processor Duty Cycle Fail, Performed Daily [VP Control Level: Full Control]

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V03 Notes: (Continued)

```

8.      NN - number of ASCII Hex IEEE float data fields to follow
          (Decimal)
9.      tttttttt - ISD Monitoring Test Pass/Fail Thresholds field data (ASCII
          Hex IEEE float)
10.     qqqq - number of ISD Warning Alarms to follow (Hex)
11.     SSSSSSSS - Timestamp of the Warning Alarm (Seconds since 1/1/1970, Hex)
12.     aa - primary warn event category
13.     bb - primary warn event type
14.     cc - device ID (Hex)
15.     dd - secondary warn event category (Hex)
16.     ee - secondary warn event type (Hex)
17.     tt - Data type to follow
          00=No Data
          01=integer
          02=floating point number
18.     ff - Data type (optional, depends on tt)
19.     ffffffff - Data type (optional, depends on tt, Hex)
20.     rrr - Number of ISD Failure Alarms to follow (Hex)
21.     SSSSSSSS - Timestamp of the Failure Alarm (Seconds since 1/1/1970, Hex)
22.     aa - primary failure event category (Hex)
23.     bb - primary failure event type (Hex)
24.     cc - device ID (Hex)
25.     dd - secondary failure event category (Hex)
26.     ee - secondary failure event type (Hex)
27.     tt - Data type to follow
          00=No Data
          01=integer
          02=floating point number
28.     ff - Data type (optional, depends on tt)
29.     ffffffff - Data type (optional, depends on tt, Hex)
30.     sss - Number of ISD Shutdown & Misc. Events to follow (Hex)
31.     SSSSSSSS - Timestamp of the Shutdown & Misc. Event (Seconds since
          1/1/1970, Hex)

```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V03 Notes: (Continued)

```
32.          aa - primary misc event category
              01=System Event
              02=Pumps Re-enabled
              03=Test Manually Cleared
              04=Disabled Dispensers
              05=Disabled FP
              06=EVR/ISD Readiness Check
              99=Internal Error
33.          bb - primary misc event type
              If aa=01:
                  01=ISD Startup at:
                  02=ISD Shutdown at:
                  03=Time Change Detected at:
              If aa=03:
                  01=ISD SelfTest
                  02=Vapor Processor
                  03=Containment Gross & Degrd
                  04=Containment Vapor Leakage
                  05=Collection Test HHhh grade
                  06=Sensor Out
              If aa=04:
                  01=Vapor Containment Leakage,
                  02=Containment Gross,
                  03=Containment Pressure Degradation,
                  04=Vapor Processor Problem
              If aa=05:
                  01=A/L Ratio Gross Blockage,
                  02=A/L Ratio Degradation,
                  03=Flow Performance Blk
              If aa=06:
                  01=Check Setup Configuration
                  02=ISD Sensors Readiness Pending
                  03=Check ISD Sensors
34.          cc - hose number (Hex)
35.          dd - secondary misc event category (Hex) (future uses)
36.          ee - secondary misc event type (Hex) (future uses)
37.          tt - Data type to follow
              00=No Data
              01=integer
              02=floating point number
38.          ff - Data type (optional, depends on tt)
39.          ffffffff - Data type (optional, depends on tt, Hex)
40.          && - Data Termination Flag
41.          CCCC - Message Checksum
```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V04

Version 25

Function Type: ISD Daily Report Details (by month)

Command Format:

Display: <SOH>IV0400yyyyymm

Computer: <SOH>iV0400yyyyymm

Notes:

1. ISD feature required
2. yyyy - year number (e.g. 2002)
3. mm - month number, 01=January, 02=February, etc.

Typical Response Message, Display Format:

<SOH>
IV0400
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY REPORT DETAILS

EVR Type: BALANCE
ISD Type: V1.00
Vapor Processor Type: VST VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

Status Codes: (W)Warn (F)Fail (D)Degradation (G)Gross Fail (ISD-W) ISD SelfTest-Warn (ISD-F) ISD SelfTest-Fail (N)No Test

| Date | ISD EVR Status | ISD %UP Time | ---Containment Tests--- | | | | | Leak | Stage I Vapor | ----Collection Tests---- | | | Daily Average | | |
|-------|----------------------|--------------------|-------------------------|-------------|------------|------------|-----|------|------------------|--------------------------|--------------|------------|---------------|--------------|------------|
| | | | Gross 95% | Dgrd 75% | Max "wc | Min "wc | CFH | | | FP1 Reg | FP1 Super | FP1 Mid | FP2 Reg | FP2 Super | FP2 Mid |
| 02/19 | F | 100% | 2.1N | -0.1N | 0.0 | -0.1 | 10N | Pass | Pass | 0.79 | 1.00 | 1.09 | 1.06 | 1.05 | 1.00 |
| 02/20 | F | 100% | 0.3N | -0.1N | -0.4 | 0.4 | 5 N | Pass | Pass | 1.05 | 0.97 | 1.08 | 1.08 | 1.03 | 0.90 |
| 02/21 | F | 100% | -0.2N | -0.2N | -0.6 | 0.6 | 0 N | Pass | Pass | 1.17 | 1.03 | 1.08 | 1.01 | 0.98 | 0.91 |
| 02/22 | F | 100% | 0.9 | -0.1N | -0.2 | 0.2 | 0 | Pass | Pass | 1.05 | 0.96 | 1.05 | 0.96 | 0.93 | 1.06 |
| 02/23 | F | 100% | -0.1 | -0.2N | -0.9 | 0.9 | 0 | Pass | Pass | 0.93 | 1.02 | 1.06 | 1.04 | 0.92 | 0.97 |
| 02/24 | F | 100% | 0.4 | -0.2N | -0.3 | 0.3 | 0 | Pass | Pass | 1.03 | 1.02 | 1.05 | 1.04 | 0.98 | 0.94 |
| 02/25 | F | 100% | -0.3 | -0.2N | -0.8 | 0.8 | 0 | Pass | Pass | 0.86 | 1.02 | 1.06 | 0.99 | 0.99 | 1.00 |
| 02/26 | F | 100% | 0.6 | -0.2N | -0.4 | 0.4 | 0 | Pass | Pass | Blkd | Blkd | 1.05 | Blkd | 1.11 | 1.06 |
| 02/27 | F | 100% | -0.3 | -0.2N | -0.7 | 0.7 | 0 | Pass | Pass | 1.00 | Blkd | 1.05 | 1.01 | 1.10 | 0.0W |
| 02/28 | F | 100% | -0.1 | -0.2N | -0.6 | 0.6 | 0 | Pass | Pass | 1.05 | Blkd | 1.01 | 1.02 | 0.98 | 1.06 |

| Date | Hose Flow Performance | | | ---Collection Tests--- | | | | | |
|-------|-----------------------|--------------|------------|------------------------|--------------|------------|------------|--------------|------------|
| | FP3 Reg | FP3 Super | FP3 Mid | FP4 Reg | FP4 Super | FP4 Mid | FP5 Reg | FP5 Super | FP5 Mid |
| 02/19 | Blkd | 0.68N | 1.00N | Blkd | 0.87 | 0.96 | Blkd | 0.87 | 0.92 |
| 02/20 | Blkd | 0.75 | 1.00N | Blkd | 0.83 | 0.97 | 0.86 | 1.09 | 0.92 |
| 02/21 | Blkd | 0.80 | 1.04 | Blkd | 0.89 | 1.00 | 0.88 | 1.12 | 1.03 |
| 02/22 | Blkd | 0.77 | 1.09 | Blkd | Blkd | 0.95 | Blkd | 1.12 | 1.04 |
| 02/23 | Blkd | 0.95 | 1.03 | Blkd | Blkd | 0.93 | Blkd | 1.15 | 0.99 |
| 02/24 | N N | 0.96 | 0.99 | Blkd | 0.72N | 0.98 | Blkd | 1.02 | 0.89 |
| 02/25 | N N | 0.90 | 1.07 | 0.76 | 0.67N | 0.99 | Blkd | 1.01 | 0.91 |
| 02/26 | 0.69N | 0.90 | 1.06 | 0.71 | Blkd | 0.93 | Blkd | 0.99 | 0.95 |
| 02/27 | Blkd | 0.97 | 1.06 | Blkd | Blkd | 0.94 | Blkd | 1.02 | 0.88 |
| 02/28 | Blkd | 0.82 | 1.02 | Blkd | Blkd | 0.89 | Blkd | 0.90 | 1.14 |

CARB Standard Report Format - CP201 Appendix "EVR-ISD Monthly Details Report"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V04 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iv0400YYMMDDHHmmiiiiMMDDaddskkkkkkksttttttttrrrrrrrrrvvvvvvvv
                                     sccccccccegnnffhhsmmmmmmmmmm...
                                     nnffhhsmmmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. iiii - Number of Record (Hex)
3. MMDD - Date stamp of the day detail record
4. a - ISD EVR 1 status character
5. dd - ISD Monitor Up Time % (Hex) (00-64)
6. s - status for containment gross
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
7. kkkkkkkk - Containment Gross value (-0.01=Blkd) (ASCII Hex IEEE float)
8. s - status for containment degradation
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
9. tttttttt - Containment Degradation value (-0.01=Blkd) (ASCII Hex IEEE float)
10. rrrrrrrr - Containment Min value (-0.01=Blkd) (ASCII Hex IEEE float)
11. vvvvvvvv - Containment Max value (-0.01=Blkd) (ASCII Hex IEEE float)
12. s - status for containment leak
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
13. cccccccc - Containment Leak value (-0.01=Blkd) (ASCII Hex IEEE float)
14. e - status for Stage I Transfer
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
15. g - status for Vapor Processor
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
16. nn - number of records consisting of 1 status character & one ASCII Hex IEEE Float to follow (Hex)
17. ff - fuel position number (Decimal)
18. hh - hose number (Decimal)
19. s - status for hose
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
20. mmmmmmmm - A/L Ratio value (-0.01=Blkd) (ASCII Hex IEEE float)
21. && - Data Termination Flag
22. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V05

Function Type: ISD Daily Report Details (by day(s))

Version 25

Command Format:

Display: <SOH>IV0500ddd

Computer: <SOH>iV0500ddd

Notes:

1. ISD feature required
2. ddd - number of days
000=current day
001=yesterday & today
002=including two days ago, etc.

Typical Response Message, Display Format:

<SOH>
IV0500
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY REPORT DETAILS

EVR Type: BALANCE
ISD Type: V1.00
Vapor Processor Type: VST VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

Status Codes: (W)Warn (F)Fail (D)Degradation (G)Gross Fail (ISD-W) ISD SelfTest-Warn (ISD-F) ISD SelfTest-Fail (N)No Test

| Date | ISD Status | ISD %UP | ---Containment Tests--- | | | | | Stage I Xfr | Vapor Procsr | ----Collection Tests---- | | | Daily Average | | |
|-------|------------|---------|-------------------------|----------|---------|---------|----------|-------------|--------------|--------------------------|-----------|---------|---------------|-----------|---------|
| | | | Gross 95% | Dgrd 75% | Max "wc | Min "wc | Leak CFH | | | FP1 Reg | FP1 Super | FP1 Mid | FP2 Reg | FP2 Super | FP2 Mid |
| 02/19 | F | 100% | 2.1N | -0.1N | 0.0 | -0.1 | 10N | Pass | Pass | 0.79 | 1.00 | 1.09 | 1.06 | 1.05 | 1.00 |
| 02/20 | F | 100% | 0.3N | -0.1N | -0.4 | 0.4 | 5 N | | | 1.05 | 0.97 | 1.08 | 1.08 | 1.03 | 0.90 |
| 02/21 | F | 100% | -0.2N | -0.2N | -0.6 | 0.6 | 0 N | Pass | Pass | 1.17 | 1.03 | 1.08 | 1.01 | 0.98 | 0.91 |
| 02/22 | F | 100% | 0.9 | -0.1N | -0.2 | 0.2 | 0 | | | 1.05 | 0.96 | 1.05 | 0.96 | 0.93 | 1.06 |
| 02/23 | F | 100% | -0.1 | -0.2N | -0.9 | 0.9 | 0 | Pass | Pass | 0.93 | 1.02 | 1.06 | 1.04 | 0.92 | 0.97 |
| 02/24 | F | 100% | 0.4 | -0.2N | -0.3 | 0.3 | 0 | | | 1.03 | 1.02 | 1.05 | 1.04 | 0.98 | 0.94 |
| 02/25 | F | 100% | -0.3 | -0.2N | -0.8 | 0.8 | 0 | Pass | Pass | 0.86 | 1.02 | 1.06 | 0.99 | 0.99 | 1.00 |
| 02/26 | F | 100% | 0.6 | -0.2N | -0.4 | 0.4 | 0 | Pass | Pass | Blkd | Blkd | 1.05 | Blkd | 1.11 | 1.06 |
| 02/27 | F | 100% | -0.3 | -0.2N | -0.7 | 0.7 | 0 | | | 1.00 | Blkd | 1.05 | 1.01 | 1.10 | 0.0W |
| 02/28 | F | 100% | -0.1 | -0.2N | -0.6 | 0.6 | 0 | Pass | Pass | 1.05 | Blkd | 1.01 | 1.02 | 0.98 | 1.06 |

| Date | -----Collection Tests----- | | | | | | | | |
|-------|----------------------------|-----------|---------|---------|-----------|---------|---------|-----------|---------|
| | FP3 Reg | FP3 Super | FP3 Mid | FP4 Reg | FP4 Super | FP4 Mid | FP5 Reg | FP5 Super | FP5 Mid |
| 02/19 | Blkd | 0.68N | 1.00N | Blkd | 0.87 | 0.96 | Blkd | 0.87 | 0.92 |
| 02/20 | Blkd | 0.75 | 1.00N | Blkd | 0.83 | 0.97 | 0.86 | 1.09 | 0.92 |
| 02/21 | Blkd | 0.80 | 1.04 | Blkd | 0.89 | 1.00 | 0.88 | 1.12 | 1.03 |
| 02/22 | Blkd | 0.77 | 1.09 | Blkd | Blkd | 0.95 | Blkd | 1.12 | 1.04 |
| 02/23 | Blkd | 0.95 | 1.03 | Blkd | Blkd | 0.93 | Blkd | 1.15 | 0.99 |
| 02/24 | N N | 0.96 | 0.99 | Blkd | 0.72N | 0.98 | Blkd | 1.02 | 0.89 |
| 02/25 | N N | 0.90 | 1.07 | 0.76 | 0.67N | 0.99 | Blkd | 1.01 | 0.91 |
| 02/26 | 0.69N | 0.90 | 1.06 | 0.71 | Blkd | 0.93 | Blkd | 0.99 | 0.95 |
| 02/27 | Blkd | 0.97 | 1.06 | Blkd | Blkd | 0.94 | Blkd | 1.02 | 0.88 |
| 02/28 | Blkd | 0.82 | 1.02 | Blkd | Blkd | 0.89 | Blkd | 0.90 | 1.14 |

CARB Standard Report Format - CP201 Appendix "EVR-ISD Monthly Details Report"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V05 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0500YYMMDDHHmmiiiiMMDDaddskkkkkkkksttttttttrrrrrrrrrvvvvvvv...
                      sccccccccegnnfhhsmmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. iiii - Number of Record (Hex)
3. MMDD - Date stamp of the day detail record
4. a - ISD EVR 1 status character
 - 0=N/A
 - 1=WARN
 - 2=FAIL
 - 3=PASS
 - 4=ISD/W
 - 5=ISD/F
5. dd - ISD Monitor Up Time % (Hex) (0-100)
6. s - status for containment gross
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
7. kkkkkkkk - Containment Gross value (ASCII Hex IEEE float) (-0.01=Blkd)
8. s - status for containment degradation
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
9. tttttttt - Containment Degradation value (ASCII Hex IEEE float) (-0.01=Blkd)
10. rrrrrrrr - Containment Min value (ASCII Hex IEEE float) (-0.01=Blkd)
11. vvvvvvvv - Containment Max value (ASCII Hex IEEE float) (-0.01=Blkd)
12. s - status for containment leak
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
13. cccccccc - Containment Leak value (ASCII Hex IEEE float) (-0.01=Blkd)
14. e - status for Stage I Transfer
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
15. g - status for Vapor Processor
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V05 Notes: (Continued)

- 16. nn - number of records consisting of 1 status character & one
 ASCII Hex IEEE Float to follow (-0.01=Blkd) (Decimal)
- 17. ff - fuel position number (Decimal)
- 18. hh - hose number (Decimal)
- 19. s - status for hose
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
- 20. mmmmmmmm - A/L Ratio value (ASCII Hex IEEE float)
- 21. && - Data Termination Flag
- 22. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V06

Version 25

Function Type: ISD Daily Report Details, 132 columns (by month)

Command Format:

Display: <SOH>IV0600yyyyymm

Computer: <SOH>iV0600yyyyymm

Notes:

1. ISD feature required
2. yyyy - year number (e.g. 2002)
3. mm - month number, 01=January, 02=February, etc.

Typical Response Message, Display Format:

<SOH>
IV0600
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY REPORT DETAILS

EVR Type: BALANCE
ISD Type: V1.00
Vapor Processor Type: VST VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

Status Codes: (W)Warn (F)Fail (D)Degradation (G)Gross Fail (ISD-W) ISD SelfTest-Warn (ISD-F) ISD SelfTest-Fail (N)No Test

| Date | ISD EVR Status | ISD %UP Time | ---Containment Tests--- | | | | | | Stage I Vapor Xfr Prcsr | ----Collection Tests---- | | | | | | Daily Average | | |
|-------|----------------------|--------------------|-------------------------|-------------|------------|------------|-------------|------------|-------------------------------|--------------------------|------------|------------|--------------|------------|------|---------------|--|--|
| | | | Gross 95% | Dgrd 75% | Max "wc | Min "wc | Leak CFH | FP1 Reg | | FP1 Super | FP1 Mid | FP2 Reg | FP2 Super | FP2 Mid | | | | |
| 02/19 | F | 100% | 2.1N | -0.1N | 0.0 | -0.1 | 10N | Pass | Pass | 0.79 | 1.00 | 1.09 | 1.06 | 1.05 | 1.00 | | | |
| 02/20 | F | 100% | 0.3N | -0.1N | -0.4 | 0.4 | 5 N | Pass | Pass | 1.05 | 0.97 | 1.08 | 1.08 | 1.03 | 0.90 | | | |
| 02/21 | F | 100% | -0.2N | -0.2N | -0.6 | 0.6 | 0 N | Pass | Pass | 1.17 | 1.03 | 1.08 | 1.01 | 0.98 | 0.91 | | | |
| 02/22 | F | 100% | 0.9 | -0.1N | -0.2 | 0.2 | 0 | Pass | Pass | 1.05 | 0.96 | 1.05 | 0.96 | 0.93 | 1.06 | | | |
| 02/23 | F | 100% | -0.1 | -0.2N | -0.9 | 0.9 | 0 | Pass | Pass | 0.93 | 1.02 | 1.06 | 1.04 | 0.92 | 0.97 | | | |
| 02/24 | F | 100% | 0.4 | -0.2N | -0.3 | 0.3 | 0 | Pass | Pass | 1.03 | 1.02 | 1.05 | 1.04 | 0.98 | 0.94 | | | |
| 02/25 | F | 100% | -0.3 | -0.2N | -0.8 | 0.8 | 0 | Pass | Pass | 0.86 | 1.02 | 1.06 | 0.99 | 0.99 | 1.00 | | | |
| 02/26 | F | 100% | 0.6 | -0.2N | -0.4 | 0.4 | 0 | Pass | Pass | Blkd | Blkd | 1.05 | Blkd | 1.11 | 1.06 | | | |
| 02/27 | F | 100% | -0.3 | -0.2N | -0.7 | 0.7 | 0 | Pass | Pass | 1.00 | Blkd | 1.05 | 1.01 | 1.10 | 0.0W | | | |
| 02/28 | F | 100% | -0.1 | -0.2N | -0.6 | 0.6 | 0 | Pass | Pass | 1.05 | Blkd | 1.01 | 1.02 | 0.98 | 1.06 | | | |

| Date | -----Collection Tests----- | | | | | | | | |
|-------|----------------------------|--------------|------------|------------|--------------|------------|------------|--------------|------------|
| | FP3 Reg | FP3 Super | FP3 Mid | FP4 Reg | FP4 Super | FP4 Mid | FP5 Reg | FP5 Super | FP5 Mid |
| 02/19 | Blkd | 0.68N | 1.00N | Blkd | 0.87 | 0.96 | Blkd | 0.87 | 0.92 |
| 02/20 | Blkd | 0.75 | 1.00N | Blkd | 0.83 | 0.97 | 0.86 | 1.09 | 0.92 |
| 02/21 | Blkd | 0.80 | 1.04 | Blkd | 0.89 | 1.00 | 0.88 | 1.12 | 1.03 |
| 02/22 | Blkd | 0.77 | 1.09 | Blkd | Blkd | 0.95 | Blkd | 1.12 | 1.04 |
| 02/23 | Blkd | 0.95 | 1.03 | Blkd | Blkd | 0.93 | Blkd | 1.15 | 0.99 |
| 02/24 | N N | 0.96 | 0.99 | Blkd | 0.72N | 0.98 | Blkd | 1.02 | 0.89 |
| 02/25 | N N | 0.90 | 1.07 | 0.76 | 0.67N | 0.99 | Blkd | 1.01 | 0.91 |
| 02/26 | 0.69N | 0.90 | 1.06 | 0.71 | Blkd | 0.93 | Blkd | 0.99 | 0.95 |
| 02/27 | Blkd | 0.97 | 1.06 | Blkd | Blkd | 0.94 | Blkd | 1.02 | 0.88 |
| 02/28 | Blkd | 0.82 | 1.02 | Blkd | Blkd | 0.89 | Blkd | 0.90 | 1.14 |

CARB Standard Report Format - CP201 Appendix "EVR-ISD Monthly Details Report"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V06 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0600YYMMDDHHmmiiiiMMDDaddskkkkkkksttttttttrrrrrrrrrvvvvvvv...
      scccccccegnnfhhsmmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. iiii - Number of Record (Hex)
3. MMDD - Date stamp of the day detail record
4. a - ISD EVR 1 status character
 - 0=N/A
 - 1=WARN
 - 2=FAIL
 - 3=PASS
 - 4=ISD/W
 - 5=ISD/F
5. dd - ISD Monitor Up Time % (Hex) (0-100)
6. s - status for containment gross
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
7. kkkkkkkk - Containment Gross value (ASCII Hex IEEE float) (-0.01=Blkd)
8. s - status for containment degradation
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
9. tttttttt - Containment Degradation value (ASCII Hex IEEE float) (-0.01=Blkd)
10. rrrrrrrr - Containment Min value (ASCII Hex IEEE float) (-0.01=Blkd)
11. vvvvvvvv - Containment Max value (ASCII Hex IEEE float) (-0.01=Blkd)
12. s - status for containment leak
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
13. cccccccc - Containment Leak value (ASCII Hex IEEE float) (-0.01=Blkd)
14. e - status for Stage I Transfer
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
15. g - status for Vapor Processor
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V06 Notes: (Continued)

- 16. nn - number of records consisting of 1 status character & one
 ASCII Hex IEEE Float to follow (-0.01=Blkd) (Decimal)
- 17. ff - fuel position number (Decimal)
- 18. hh - hose number (Decimal)
- 19. s - status for hose
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
- 20. mmmmmmmm - A/L Ratio value (ASCII Hex IEEE float)
- 21. && - Data Termination Flag
- 22. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V07

Function Type: ISD Daily Report Details (by day(s))

Version 25

Command Format:

Display: <SOH>IV0700ddd

Computer: <SOH>iV0700ddd

Notes:

1. ISD feature required
2. ddd - number of days
000=current day
001=yesterday & today
002=including two days ago, etc.

Typical Response Message, Display Format:

<SOH>
IV0700
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY REPORT DETAILS

EVR Type: BALANCE
ISD Type: V1.00
Vapor Processor Type: VST VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

Status Codes: (W)Warn (F)Fail (D)Degradation (G)Gross Fail (ISD-W) ISD SelfTest-Warn (ISD-F) ISD SelfTest-Fail (N)No Test

| | ISD | ISD | ---Containment Tests--- | | | | | Stage | ----Collection Tests---- | | | | | Daily Average | | |
|--------|-----|------|-------------------------|-------|------|------|------|-------|--------------------------|------|-------|------|------|---------------|------|--|
| Date | EVR | %UP | Gross | Dgrd | Max | Min | Leak | I | Vapor | FP1 | FP1 | FP1 | FP2 | FP2 | FP2 | |
| Status | | Time | 95% | 75% | "wc | "wc | CFH | Xfr | PrCSR | Reg | Super | Mid | Reg | Super | Mid | |
| 02/19 | F | 100% | 2.1N | -0.1N | 0.0 | -0.1 | 10N | Pass | Pass | 0.79 | 1.00 | 1.09 | 1.06 | 1.05 | 1.00 | |
| 02/20 | F | 100% | 0.3N | -0.1N | -0.4 | 0.4 | 5 N | Pass | Pass | 1.05 | 0.97 | 1.08 | 1.08 | 1.03 | 0.90 | |
| 02/21 | F | 100% | -0.2N | -0.2N | -0.6 | 0.6 | 0 N | Pass | Pass | 1.17 | 1.03 | 1.08 | 1.01 | 0.98 | 0.91 | |
| 02/22 | F | 100% | 0.9 | -0.1N | -0.2 | 0.2 | 0 | Pass | Pass | 1.05 | 0.96 | 1.05 | 0.96 | 0.93 | 1.06 | |
| 02/23 | F | 100% | -0.1 | -0.2N | -0.9 | 0.9 | 0 | Pass | Pass | 0.93 | 1.02 | 1.06 | 1.04 | 0.92 | 0.97 | |
| 02/24 | F | 100% | 0.4 | -0.2N | -0.3 | 0.3 | 0 | Pass | Pass | 1.03 | 1.02 | 1.05 | 1.04 | 0.98 | 0.94 | |
| 02/25 | F | 100% | -0.3 | -0.2N | -0.8 | 0.8 | 0 | Pass | Pass | 0.86 | 1.02 | 1.06 | 0.99 | 0.99 | 1.00 | |
| 02/26 | F | 100% | 0.6 | -0.2N | -0.4 | 0.4 | 0 | Pass | Pass | Blkd | Blkd | 1.05 | Blkd | 1.11 | 1.06 | |
| 02/27 | F | 100% | -0.3 | -0.2N | -0.7 | 0.7 | 0 | Pass | Pass | 1.00 | Blkd | 1.05 | 1.01 | 1.10 | 0.0W | |
| 02/28 | F | 100% | -0.1 | -0.2N | -0.6 | 0.6 | 0 | Pass | Pass | 1.05 | Blkd | 1.01 | 1.02 | 0.98 | 1.06 | |

| -----Collection Tests----- | | | | | | | | | | | |
|----------------------------|-------|-------|-------|------|-------|------|------|-------|------|--|--|
| Date | FP3 | FP3 | FP3 | FP4 | FP4 | FP4 | FP5 | FP5 | FP5 | | |
| | Reg | Super | Mid | Reg | Super | Mid | Reg | Super | Mid | | |
| 02/19 | Blkd | 0.68N | 1.00N | Blkd | 0.87 | 0.96 | Blkd | 0.87 | 0.92 | | |
| 02/20 | Blkd | 0.75 | 1.00N | Blkd | 0.83 | 0.97 | 0.86 | 1.09 | 0.92 | | |
| 02/21 | Blkd | 0.80 | 1.04 | Blkd | 0.89 | 1.00 | 0.88 | 1.12 | 1.03 | | |
| 02/22 | Blkd | 0.77 | 1.09 | Blkd | Blkd | 0.95 | Blkd | 1.12 | 1.04 | | |
| 02/23 | Blkd | 0.95 | 1.03 | Blkd | Blkd | 0.93 | Blkd | 1.15 | 0.99 | | |
| 02/24 | N N | 0.96 | 0.99 | Blkd | 0.72N | 0.98 | Blkd | 1.02 | 0.89 | | |
| 02/25 | N N | 0.90 | 1.07 | 0.76 | 0.67N | 0.99 | Blkd | 1.01 | 0.91 | | |
| 02/26 | 0.69N | 0.90 | 1.06 | 0.71 | Blkd | 0.93 | Blkd | 0.99 | 0.95 | | |
| 02/27 | Blkd | 0.97 | 1.06 | Blkd | Blkd | 0.94 | Blkd | 1.02 | 0.88 | | |
| 02/28 | Blkd | 0.82 | 1.02 | Blkd | Blkd | 0.89 | Blkd | 0.90 | 1.14 | | |

CARB Standard Report Format - CP201 Appendix "EVR-ISD Monthly Details Report"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V07 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iv0700YYMMDDHHmmiiiiMMDDadddskkkkkkkksttttttttrrrrrrrrvvvvvvvv...
      scccccccegnnfhhsmmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. iiii - Number of Record (Hex)
3. MMDD - Date stamp of the day detail record
4. a - ISD EVR 1 status character
 - 0=N/A
 - 1=WARN
 - 2=FAIL
 - 3=PASS
 - 4=ISD/W
 - 5=ISD/F
5. dd - ISD Monitor Up Time % (Hex) (0-100)
6. s - status for containment gross
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
7. kkkkkkkk - Containment Gross value (ASCII Hex IEEE float) (-0.01=Blkd)
8. s - status for containment degradation
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
9. tttttttt - Containment Degradation value (ASCII Hex IEEE float) (-0.01=Blkd)
10. rrrrrrrr - Containment Min value (ASCII Hex IEEE float) (-0.01=Blkd)
11. vvvvvvvv - Containment Max value (ASCII Hex IEEE float) (-0.01=Blkd)
12. s - status for containment leak
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
13. cccccccc - Containment Leak value (ASCII Hex IEEE float) (-0.01=Blkd)
14. e - status for Stage I Transfer
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
15. g - status for Vapor Processor
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V07 Notes: (Continued)

- 16. nn - number of records consisting of 1 status character & one
 ASCII Hex IEEE Float to follow (-0.01=Blkd) (Decimal)
- 17. ff - fuel position number (Decimal)
- 18. hh - hose number (Decimal)
- 19. s - status for hose
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
- 20. mmmmmmmm - A/L Ratio value (ASCII Hex IEEE float)
- 21. && - Data Termination Flag
- 22. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V08

Version 25

Function Type: ISD Daily Report Details (by month)

Command Format:

Display: <SOH>IV0800yyyyymmCCC

Computer: <SOH>iV0800yyyyymmCCC

Notes:

1. ISD feature required
2. yyyy - year number (e.g. 2002)
3. mm - month number, 01=January, 02=February, etc.
4. CCC - Number of columns, Default=255 [055-999] (Decimal)

Typical Response Message, Display Format:

<SOH>
IV0800
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY REPORT DETAILS

EVR Type: BALANCE

ISD Type: V1.00

Vapor Processor Type: VST VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

Status Codes: (W)Warn (F)Fail (D)Degradation (G)Gross Fail (ISD-W) ISD SelfTest-Warn (ISD-F) ISD SelfTest-Fail (N)No Test

| Date | ISD EVR Status | ISD %UP Time | ---Containment Tests--- | | | | | Leak CFH | Stage I Vapor Xfr Prcsr | ----Collection Tests---- | | | ---Daily Average--- | | |
|-------|----------------------|--------------------|-------------------------|-------------|------------|------------|------------|-------------|-------------------------------|--------------------------|------------|------------|---------------------|------------|------|
| | | | Gross 95% | Dgrd 75% | Max "wc | Min "wc | FP1 Reg | | | FP1 Super | FP1 Mid | FP2 Reg | FP2 Super | FP2 Mid | |
| 02/19 | F | 100% | 2.1N | -0.1N | 0.0 | -0.1 | 10N | Pass | Pass | 0.79 | 1.00 | 1.09 | 1.06 | 1.05 | 1.00 |
| 02/20 | F | 100% | 0.3N | -0.1N | -0.4 | 0.4 | 5 N | Pass | Pass | 1.05 | 0.97 | 1.08 | 1.08 | 1.03 | 0.90 |
| 02/21 | F | 100% | -0.2N | -0.2N | -0.6 | 0.6 | 0 N | Pass | Pass | 1.17 | 1.03 | 1.08 | 1.01 | 0.98 | 0.91 |
| 02/22 | F | 100% | 0.9 | -0.1N | -0.2 | 0.2 | 0 | | | 1.05 | 0.96 | 1.05 | 0.96 | 0.93 | 1.06 |
| 02/23 | F | 100% | -0.1 | -0.2N | -0.9 | 0.9 | 0 | Pass | Pass | 0.93 | 1.02 | 1.06 | 1.04 | 0.92 | 0.97 |
| 02/24 | F | 100% | 0.4 | -0.2N | -0.3 | 0.3 | 0 | | | 1.03 | 1.02 | 1.05 | 1.04 | 0.98 | 0.94 |
| 02/25 | F | 100% | -0.3 | -0.2N | -0.8 | 0.8 | 0 | Pass | Pass | 0.86 | 1.02 | 1.06 | 0.99 | 0.99 | 1.00 |
| 02/26 | F | 100% | 0.6 | -0.2N | -0.4 | 0.4 | 0 | Pass | Pass | Blkd | Blkd | 1.05 | Blkd | 1.11 | 1.06 |
| 02/27 | F | 100% | -0.3 | -0.2N | -0.7 | 0.7 | 0 | | | 1.00 | Blkd | 1.05 | 1.01 | 1.10 | 0.0W |
| 02/28 | F | 100% | -0.1 | -0.2N | -0.6 | 0.6 | 0 | Pass | Pass | 1.05 | Blkd | 1.01 | 1.02 | 0.98 | 1.06 |

| Date | ---Collection Tests--- | | | ---Collection Tests--- | | | ---Collection Tests--- | | |
|-------|------------------------|--------------|------------|------------------------|--------------|------------|------------------------|--------------|------------|
| | FP3 Reg | FP3 Super | FP3 Mid | FP4 Reg | FP4 Super | FP4 Mid | FP5 Reg | FP5 Super | FP5 Mid |
| 02/19 | Blkd | 0.68N | 1.00N | Blkd | 0.87 | 0.96 | Blkd | 0.87 | 0.92 |
| 02/20 | Blkd | 0.75 | 1.00N | Blkd | 0.83 | 0.97 | 0.86 | 1.09 | 0.92 |
| 02/21 | Blkd | 0.80 | 1.04 | Blkd | 0.89 | 1.00 | 0.88 | 1.12 | 1.03 |
| 02/22 | Blkd | 0.77 | 1.09 | Blkd | 0.95 | Blkd | Blkd | 1.12 | 1.04 |
| 02/23 | Blkd | 0.95 | 1.03 | Blkd | Blkd | 0.93 | Blkd | 1.15 | 0.99 |
| 02/24 | N N | 0.96 | 0.99 | Blkd | 0.72N | 0.98 | Blkd | 1.02 | 0.89 |
| 02/25 | N N | 0.90 | 1.07 | 0.76 | 0.67N | 0.99 | Blkd | 1.01 | 0.91 |
| 02/26 | 0.69N | 0.90 | 1.06 | 0.71 | Blkd | 0.93 | Blkd | 0.99 | 0.95 |
| 02/27 | Blkd | 0.97 | 1.06 | Blkd | 0.94 | Blkd | Blkd | 1.02 | 0.88 |
| 02/28 | Blkd | 0.82 | 1.02 | Blkd | Blkd | 0.89 | Blkd | 0.90 | 1.14 |

CARB Standard Report Format - CP201 Appendix "EVR-ISD Monthly Details Report"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V08 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0800YYMMDDHHmmiiiiMMDDadddskkkkkkkksttttttttrrrrrrrrvvvvvvvv...
      scccccccegnnfhhsmmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. iiii - Number of Record (Hex)
3. MMDD - Date stamp of the day detail record
4. a - ISD EVR 1 status character
 - 0=N/A
 - 1=WARN
 - 2=FAIL
 - 3=PASS
 - 4=ISD/W
 - 5=ISD/F
5. dd - ISD Monitor Up Time % (Hex) (0-100)
6. s - status for containment gross
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
7. kkkkkkkk - Containment Gross value (ASCII Hex IEEE float) (-0.01=Blkd)
8. s - status for containment degradation
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
9. tttttttt - Containment Degradation value (ASCII Hex IEEE float) (-0.01=Blkd)
10. rrrrrrrr - Containment Min value (ASCII Hex IEEE float) (-0.01=Blkd)
11. vvvvvvvv - Containment Max value (ASCII Hex IEEE float) (-0.01=Blkd)
12. s - status for containment leak
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
13. cccccccc - Containment Leak value (ASCII Hex IEEE float) (-0.01=Blkd)
14. e - status for Stage I Transfer
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
15. g - status for Vapor Processor
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V08 Notes: (Continued)

- 16. nn - number of records consisting of 1 status character & one
 ASCII Hex IEEE Float to follow (-0.01=Blkd) (Decimal)
- 17. ff - fuel position number (Decimal)
- 18. hh - hose number (Decimal)
- 19. s - status for hose
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
- 20. mmmmmmmm - A/L Ratio value (ASCII Hex IEEE float)
- 21. && - Data Termination Flag
- 22. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V09

Version 25

Function Type: ISD Daily Report Details, user input columns (by day(s))

Command Format:

Display: <SOH>IV0900dddCCC

Computer: <SOH>iV0900dddCCC

Notes:

1. ISD feature required
2. ddd - number of days
000=current day
001=yesterday & today
002=including two days ago, etc.
3. CCC - Number of columns, Default=255 [055-999] (Decimal)

Typical Response Message, Display Format:

<SOH>
IV0900
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD DAILY REPORT DETAILS

EVR Type: BALANCE
ISD Type: V1.00
Vapor Processor Type: VST VAPOR PROCESSOR

OVERALL STATUS :FAIL EVR VAPOR COLLECTION :NO TEST
EVR VAPOR CONTAINMENT :PASS
ISD MONITOR UP-TIME : 97% STAGE I TRANSFERS: 12 of 12 PASS
EVR/ISD PASS TIME : 5%

Status Codes: (W)Warn (F)Fail (D)Degradation (G)Gross Fail (ISD-W) ISD SelfTest-Warn (ISD-F) ISD
SelfTest-Fail (N)No Test

| Date | ISD Status | ISD %UP | ---Containment Tests--- | Stage I Vapor | ----Collection Tests---- | Daily Average |
|-------|------------|---------|---|---------------|-------------------------------|-----------------------|
| | | | Gross 95% Dgrd 75% Max Min Leak "wc" "wc" CFH | Xfr Prcsr | FP1 Reg FP1 Super Mid | FP2 Reg FP2 Super Mid |
| 02/19 | F | 100% | 2.1N -0.1N 0.0 -0.1 10N | Pass Pass | 0.79 1.00 1.09 1.06 1.05 1.00 | |
| 02/20 | F | 100% | 0.3N -0.1N -0.4 0.4 5 N | | 1.05 0.97 1.08 1.08 1.03 0.90 | |
| 02/21 | F | 100% | -0.2N -0.2N -0.6 0.6 0 N | Pass Pass | 1.17 1.03 1.08 1.01 0.98 0.91 | |
| 02/22 | F | 100% | 0.9 -0.1N -0.2 0.2 0 | | 1.05 0.96 1.05 0.96 0.93 1.06 | |
| 02/23 | F | 100% | -0.1 -0.2N -0.9 0.9 0 | Pass Pass | 0.93 1.02 1.06 1.04 0.92 0.97 | |
| 02/24 | F | 100% | 0.4 -0.2N -0.3 0.3 0 | | 1.03 1.02 1.05 1.04 0.98 0.94 | |
| 02/25 | F | 100% | -0.3 -0.2N -0.8 0.8 0 | Pass Pass | 0.86 1.02 1.06 0.99 0.99 1.00 | |
| 02/26 | F | 100% | 0.6 -0.2N -0.4 0.4 0 | Pass Pass | Blkd Blkd 1.05 Blkd 1.11 1.06 | |
| 02/27 | F | 100% | -0.3 -0.2N -0.7 0.7 0 | | 1.00 Blkd 1.05 1.01 1.10 0.0W | |
| 02/28 | F | 100% | -0.1 -0.2N -0.6 0.6 0 | Pass Pass | 1.05 Blkd 1.01 1.02 0.98 1.06 | |

| Date | FP3 Reg | FP3 Super | FP3 Mid | FP4 Reg | FP4 Super | FP4 Mid | FP5 Reg | FP5 Super | FP5 Mid |
|-------|---------|-----------|---------|---------|-----------|---------|---------|-----------|---------|
| 02/19 | Blkd | 0.68N | 1.00N | Blkd | 0.87 | 0.96 | Blkd | 0.87 | 0.92 |
| 02/20 | Blkd | 0.75 | 1.00N | Blkd | 0.83 | 0.97 | 0.86 | 1.09 | 0.92 |
| 02/21 | Blkd | 0.80 | 1.04 | Blkd | 0.89 | 1.00 | 0.88 | 1.12 | 1.03 |
| 02/22 | Blkd | 0.77 | 1.09 | Blkd | 0.95 | 0.95 | Blkd | 1.12 | 1.04 |
| 02/23 | Blkd | 0.95 | 1.03 | Blkd | Blkd | 0.93 | Blkd | 1.15 | 0.99 |
| 02/24 | N N | 0.96 | 0.99 | Blkd | 0.72N | 0.98 | Blkd | 1.02 | 0.89 |
| 02/25 | N N | 0.90 | 1.07 | 0.76 | 0.67N | 0.99 | Blkd | 1.01 | 0.91 |
| 02/26 | 0.69N | 0.90 | 1.06 | 0.71 | Blkd | 0.93 | Blkd | 0.99 | 0.95 |
| 02/27 | Blkd | 0.97 | 1.06 | Blkd | Blkd | 0.94 | Blkd | 1.02 | 0.88 |
| 02/28 | Blkd | 0.82 | 1.02 | Blkd | Blkd | 0.89 | Blkd | 0.90 | 1.14 |

CARB Standard Report Format - CP201 Appendix "EVR-ISD Monthly Details Report"
<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V09 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0900YYMMDDHHmmiiiiMMDDadddskkkkkkkksttttttttrrrrrrrrvvvvvvvv...
      sccccccccegnnfhhsmmmmmmmmm&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. iiii - Number of Record (Hex)
3. MMDD - Date stamp of the day detail record
4. a - ISD EVR 1 status character
 - 0=N/A
 - 1=WARN
 - 2=FAIL
 - 3=PASS
 - 4=ISD/W
 - 5=ISD/F
5. dd - ISD Monitor Up Time % (Hex) (0-100)
6. s - status for containment gross
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
7. kkkkkkkk - Containment Gross value (ASCII Hex IEEE float) (-0.01=Blkd)
8. s - status for containment degradation
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
9. tttttttt - Containment Degradation value (ASCII Hex IEEE float) (-0.01=Blkd)
10. rrrrrrrr - Containment Min value (ASCII Hex IEEE float) (-0.01=Blkd)
11. vvvvvvvv - Containment Max value (ASCII Hex IEEE float) (-0.01=Blkd)
12. s - status for containment leak
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
13. cccccccc - Containment Leak value (ASCII Hex IEEE float) (-0.01=Blkd)
14. e - status for Stage I Transfer
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
15. g - status for Vapor Processor
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V09 Notes: (Continued)

- 16. nn - number of records consisting of 1 status character & one
 ASCII Hex IEEE Float to follow (-0.01=Blkd) (Decimal)
- 17. ff - fuel position number (Decimal)
- 18. hh - hose number (Decimal)
- 19. s - status for hose
 - 0=NO TEST
 - 1=WARN
 - 2=FAIL
 - 3=PASS
- 20. mmmmmmmm - A/L Ratio value (ASCII Hex IEEE float)
- 21. && - Data Termination Flag
- 22. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V0A

Version 25

Function Type: ISD Daily Overall Status Report

Command Format:

Display: <SOH>IV0A00yyyyymmdd

Computer: <SOH>iV0A00yyyyymmdd

Notes:

1. ISD feature required
2. yyyy - year number (e.g. 2002)
3. mm - month number, 01=January, 02=February, etc.
4. dd - day 01-31

Typical Response Message, Display Format:

<SOH>
IV0A00
FEB 2, 2005 12:08 AM

ISD DAILY REPORT
REPORT DATE: JAN 29, 2005
EVR TYPE: VACUUM ASSIST
ISD TYPE: 01.00
VAPOR PROCESSOR TYPE: VST VAPOR PROCESSOR

OVERALL STATUS :PASS
EVR VAPOR CONTAINMENT :NOTEST
ISD MONITOR UP-TIME :100%
EVR/ISD PASS TIME :100%
<ETX>

EVR VAPOR COLLECTION :PASS
STAGE I TRANSFERS: 1 of 1 PASS
VAPOR PROCESSOR : PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V0A Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0A00YYMMDDHHmmYYYYmmddEvv.VVPACNUUssssSSSpptT&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. YYYYmmdd - Report Date (4 byte Decimal, 2 byte Decimal, 2 byte Decimal)
3. E - EVR Type
 - 0=Assist
 - 1=Balance
4. VV.VV - ISD Version number (ASCII)
5. P - Processor Type
 - 0=None
 - 1=VST
 - 2=OPW
 - 3=ARID
 - 4=User Defined
6. A - Overall Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
7. C - Collection Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
8. N - Containment Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
9. UU - Percentage Up (Hex 00-64)
10. sss - Stage 1 Passing Count (Hex)
11. SSS - Stage 1 Total Count (Hex) Total fail=(SSS-sss)
12. pp - Percent ISD Pass (Hex 0-64)
13. t - Processor Installed
 - 0=No
 - 1=Yes
14. T - Processor Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
15. && - Data Termination Flag
16. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V0B

Version 25

Function Type: ISD Monthly Overall Status Report

Command Format:

Display: <SOH>IV0B00yyyyymm

Computer: <SOH>iV0B00yyyyymm

Notes:

1. ISD feature required
2. yyyy - year number (e.g. 2002)
3. mm - month number, 01=January, 02=February, etc.

Typical Response Message, Display Format:

<SOH>
IV0B00
FEB 2, 2005 12:05 AM

ISD MONTHLY REPORT
REPORT DATE: JAN 2005
EVR TYPE: VACUUM ASSIST
ISD TYPE: 01.00
VAPOR PROCESSOR TYPE: VST VAPOR PROCESSOR

OVERALL STATUS :PASS
EVR VAPOR CONTAINMENT :NOTEST
ISD MONITOR UP-TIME :100%
EVR/ISD PASS TIME :100%
<ETX>

EVR VAPOR COLLECTION :PASS
STAGE I TRANSFERS: 13 of 13 PASS
VAPOR PROCESSOR : PASS

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V0B Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV0B00YYMMDDHHmmYYYYmmddEVV.VVPACNUUsssSSSpptT&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Time/Date stamp of report
2. YYYYmmdd - Beginning of the report period (for monthly report dd=01) (4 byte Decimal, 2 byte Decimal, 2 byte Decimal)
3. E - EVR Type
 - 0=Assist
 - 1=Balance
4. VV.VV - ISD Version number
5. P - Processor Type
 - 0=None
 - 1=VST
 - 2=OPW
 - 3=ARID
 - 4=User Defined
6. A - Overall Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
7. C - Collection Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
8. N - Containment Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
9. UU - Percentage Up (Hex 0-64)
10. sss - Stage 1 Passing Count (Hex)
11. SSS - Stage 1 Total Count (Hex) Total fail=(SSS-sss)
12. pp - Percent ISD Pass (Hex 0-64)
13. t - Processor Installed
 - 0=No
 - 1=Yes
14. T - Processor Status
 - 0=Unknown
 - 1=Warning
 - 2=Failure
 - 3=Pass
15. && - Data Termination Flag
16. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V10
Function Type: ISD Version Number

Version 25

Command Format:
Display: <SOH>IV1000
Computer: <SOH>iV1000

Typical Response Message, Display Format:

```
<SOH>
IV1000
JUN  7, 2004  4:07 PM

ISD VERSION: 01.00
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iV1000YYMMDDHHmmvv.rr&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. vv - ISD Version
3. rr - ISD Revision
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V12

Function Type: Vapor Collection Test Results

Version 30

Command Format:

Display: <SOH>IV1200nnn

Computer: <SOH>iV1200nnn

Typical Response Message, Display Format:

<SOH>

IV1200

JUN 10, 2010 4:07 PM

BALANCE FLOW MONITORING TEST RESULTS

REC# TEST TIMESTAMP ESTPRORVR

0001 10-06-09 23:59:00 25.1%

---DISPENSER-- ---FLOW MONITORING--- ---ORVR---

| FP | LABEL | STATUS | A/L | DAYS | EVNT | STATUS | EVNT | &BLCK | %THRS |
|----|--------|--------|------|------|------|--------|------|-------|-------|
| 03 | BLEND3 | NOTEST | 0.84 | 0.3 | 14 | PASS | 14 | 35.71 | 54.97 |
| 02 | BLEND3 | NOTEST | 0.59 | 0.1 | 3 | PASS | 3 | 33.33 | 0.00 |
| 05 | BLEND3 | NOTEST | 0.86 | 0.3 | 26 | PASS | 26 | 23.08 | 47.02 |
| 06 | BLEND3 | NOTEST | 0.82 | 0.3 | 7 | PASS | 7 | 42.86 | 0.00 |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V12 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iVl200YYMMDDHHmmnnnnnnsssssssoo
00000000LLLLLLLLLtttttttTTTTTTTTTS
nnpvhvcsrrrrrrrrddddddeeee...
pphvcsrrrrrrrrddddddeeee...
csaabbmmgggggggghhhhhh&&CCCC<ETX>
```

Notes:

- ```

1. YYMMDDHHmm - Current Date and Time
2. nnnn - Number of records to follow (hex)
3. ssssssss - Date and Time of test as seconds since 1/1/1970 (ascii hex
 long)
4. oo - Number of ORVR header records to follow (hex)
 Note: Items 00000000 to S are only included when oo = 1
5. 00000000 - Est proportion of ORVR % (ascii hex float)
6. LLLLLLLL - ORVR Penetration Limit % (ascii hex float)
7. tttttttt - ChiSquare value (scii hex float)
8. TTTTTHHH - ChiSquare threshold (ascii hex float)
9. S - Chi^2 Test Status (decimal)
 0=N/A
 1=WARN
 2=FAIL
 3=PASS
10. nn - Number of records to follow (hex)
11. ff - Fuel Position Number (decimal)
12. hh - Hose number (decimal)
13. vv - Flowmeter number (decimal)
14. c - EVR Type (decimal)
 1=Gross Test
 2=Gross and Degradation Test
15. s - Gross Test Status (decimal)
 0=N/A
 1=WARN
 2=FAIL
 3=PASS
16. rrrrrrrr - Gross A/L ratio (ascii hex float)
17. dddddd - Gross days of data (ascii hex float)
18. eeee - Gross number of events used for test (hex)
19. S - Degradation test status
 0=N/A
 1=WARN
 2=FAIL
 3=PASS
20. RRRRRRRR - Degradation A/L ratio (ascii hex float)
21. DDDDDDDD - Degradation days of data (ascii hex float)
22. EEEEE - Degradation number of events used for test (hex)
23. c - Stat test results 0 or 1 (decimal)
24. s - ORVR test status (decimal)
 0=N/A
 1=WARN
 2=FAIL
 3=PASS
25. bbbb - Number of zero events (hex)
26. mmmm - Number of A/L events (hex)
27. gggggggg - % A/L events blocked (ascii hex float)
28. hhhhhhhh - % Threshold (ascii hex float)
29. && - Data Termination Flag
30. CCCC - Message Checksum

```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.7.2 ISD SETUP

**Function Code:** V40  
**Function Type:** Set Vapor Processor Type

Version 25

**Command Format:**  
**Display:** <SOH>SV4000tt  
**Computer:** <SOH>sv4000tt

**Inquire:**  
<SOH>IV4000  
<SOH>iv4000

**Notes:**

1. PMC feature required
2. tt - type of Vapor Processor
  - 00 = None
  - 01 = VST ECS Processor
  - 03 = HIRT Vapor Processor (ISD SEM required)
  - 05 = Veeder-Root Polisher
  - 07 = VST Green Machine (V30)

**Typical Response Message, Display Format:**

```
<SOH>
IV4000
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR PROCESSOR TYPE
VST ECS PROCESSOR
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iv4000YYMMDDHHmmtt&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. tt - type of Vapor Processor
  - 00 = None
  - 01 = VST ECS Processor
  - 02 = OPW Vapor Processor (Obsolete V28)
  - 03 = HIRT Vapor Processor (ISD SEM required) (V30)
  - 04 = User Defined (Obsolete V28)
  - 05 = Veeder-Root Polisher
  - 06 = Husky Polisher (ISD SEM required) (Obsolete V30)
  - 07 = VST Green Machine (V30)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V41**

**Function Type:** Set Vapor Processor Control Level

Version 25

**Command Format:**

**Display:** <SOH>SV410011

**Computer:** <SOH>sv410011

**Inquire:**

<SOH>IV4100

<SOH>iV4100

**Notes:**

1. PMC feature required
2. 11 - level
  - 00=Full Control
  - 01=Partial Control
  - 02=No Control

**Typical Response Message, Display Format:**

<SOH>  
IV4100  
JUN 1, 2002 8:07 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

PROCESSOR CONTROL LEVEL: FULL  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>iV4100YYMMDDHHmmll&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. 11 - level
  - 00=Full Control
  - 01=Partial Control
  - 02=No Control
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V42**

Version 25

**Function Type:** Set Clear Sensor/AFM/Hose Maps

**Command Format:**

**Display:** <SOH>SV42SS149[AA(F1FL{M1(H1L1)}M2H2L2M3H3L3M4H4L4)  
(F2FL{M1(H1L1)}M2H2L2M3H3L3M4H4L4)]

**Inquire:**

**Computer:** <SOH>SV42SS149[AA(F1FL{M1(H1L1)}M2H2L2M3H3L3M4H4L4)  
(F2FL{M1(H1L1)}M2H2L2M3H3L3M4H4L4)] <SOH>IV42SS  
<SOH>iV42SS

### Notes:

1. ISD feature required
2. Brackets [],(),{} are not included, they explain the relationship of the data
3. SS - index to Sensor Table [01-99]  
00149 Clears all tables. This will do the following:
  - Set all AFM sensors to disable. All other types of sensors such as hydrocarbon and pressure sensors are left untouched
  - Clears all AFM table entries
  - Clears all Fuel grade table entries
  - Removes all Hose devices and associated table entries from system
4. AA - Airflow meter ID [01-99, 00=unassigned] Assigned to Grade Table and Hose Table entries
5. Fn - Fuel position ID in the Grade Table [01-99, 00=unassigned]
6. FL - Fuel position Label used when creating the Hose Table Entries for each Hn [00-99]
7. Mn - Meter n of the nth fuel grade table entry [01-06, 09=blend, 00=unassigned]
8. Hn - Hose ID used for hose grade table entry [01-99, 00=unassigned]
9. Ln - Hose Label Id used when creating the hose entry [01-10, 00=Non EVR meter]
10. Sensor Table -
  - Uses SS as index into sensor table and set sensor to ENABLED (used by ISD)
  - Only valid if SS is an AFM sensor. If it is not AFM, command will fail
11. AFM Table -
  - Use SS as sensor index
  - New AFM is defined with AA
  - Data between [] used to build AFM table
  - If one already exists, command will fail (clear all entries with SS=0 before setting up tables)
  - Fn and Hn are used to make up the hose entries in the AFM table
  - Only one hose entry is made for each unique Hn entry. So if a hose is used more than once, it will only appear once in the AFM table
  - If Fuel Grade table entry exists with another AFM id already defined, command will fail

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### Function Code V42 Notes: (Continued)

12. Hose Table -
  - Hose table entry is made for each unique Hn
  - Hoses may be used more than once. Only one Hose device is created for each unique hose. If Hose entry already exists, the command does NOT fail
  - Ln used when creating the Hn table entry is the only Ln assigned. Duplicate HnLn pairs are ignored if Hn is already found in the Hose table
  - FL, fuel position label is used when creating Hn table entry
  - FI, fuel position id is assigned only when creating Hn table entry
13. Fuel Grade Table -
  - If Fuel Grade Table entry exists for Fn, the command will fail
  - New FGT entry is created for each Fn
  - Grade entry n is made for each {MnHn} combination
  - If Hn Hose Table entry FI does not match Fuel Grade Table index, command will fail (hose previously used on another fp)
  - Data between ( ) is used to define Fuel Grade Table
  - List the active meters from low to high. M1 should not be 00 while M2-M4 have values. All unused meters appear at the end of the list for that fuel position

### Typical Response Message, Display Format:

```
<SOH>
IV42SS
JUN 27, 2003 10:49 AM

Sensor / Airflow Meter / Hose Table / Grade Table Relationship
SS AA F1 FL M1H1L1 M2H2L2 M3H3L3 M4H4L4 F2 L2 M1H1L1 M2H2L2 M3H3L3 M4H4L4
01 03 06 05 020502 030502 100502 06UU01 07 06 020602 030602 100602 06UU01
04 01 02 01 020102 030102 100102 000001 03 02 020202 030202 100202 000001
07 02 04 03 020302 030302 100302 000001 05 04 020402 030402 100402 000001
<ETX>
```

(Note: UU=unassigned)

### Typical Response Message, Computer Format:

```
<SOH>iV4200YYMMDDHHmmSSAAF1FLM1H1L1M2H2L2M3H3L3M4H4L4F2FLM1H1L1M2H2L2M3H3L3M4H4L4
...
SSAAF1FLM1H1L1M2H2L2M3H3L3M4H4L4F2FLM1H1L1M2H2L2M3H3L3M4H4L4
&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Smart Sensor
3. AA - Airflow Meter
4. Fn - Fuel Position Number
5. FL - Fuel Position Label
6. Mn - Meter Number
7. Hn - Hose Number, UU=Unassigned
8. Ln - Label Id
9. && - Data Termination Flag
10. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V43**

Version 25

**Function Type:** Set Sensor Table ISD In Use Flag

**Command Format:**

**Display:** <SOH>SV4300149SSF

**Computer:** <SOH>sv4300149SSF

**Inquire:**

<SOH>IV4300SS

<SOH>iV4300SS

### Notes:

1. ISD feature required
2. SS - Sensor index [00=all (inquire only), 01-99]
3. F - In Use Flag  
0=Not Used  
1=Used

### Typical Response Message, Display Format:

<SOH>

IV4300

JUN 1, 2002 8:07 AM

STATION HEADER 1....

STATION HEADER 2....

STATION HEADER 3....

STATION HEADER 4....

SENSOR INDEX TABLE

| SENSOR | TYPE               | S/N        | IN USE FLAG |
|--------|--------------------|------------|-------------|
| 01     | AIR FLOW METER     | 10220AF001 | YES         |
| 02     | PRESSURE SENSOR    | 74210PS001 | YES         |
| 03     | HYDROCARBON SENSOR | 74210HC001 | NO          |
| 05     | AIR FLOW METER     | 14520AF001 | YES         |

<ETX>

### Typical Response Message, Computer Format:

<SOH>iV4300YYMMDDHHmmSSF..SSF&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. SS - Sensor index (Decimal)
3. F - In Use Flag  
0=Not Used  
1=Used
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V44**

Version 25

**Function Type:** Set Vapor Processor ON/OFF Pressure Thresholds

**Command Format:**

**Display:** <SOH>SV4400149 -a.bcd -A.BCD

**Computer:** <SOH>SV4400149AAAAAAAABBBBBBBB

**Inquire:**

<SOH>IV4400

<SOH>iV4400

### Notes:

1. PMC (only) feature required
2. a.bcd - Low/off threshold, inches (or mm) H2O (ab.cd, abc.d also OK)
3. A.BCD - High/on threshold, inches (or mm) H2O (AB.CD, ABC.D also OK)
4. AAAAAAAA - Low/off threshold (ASCII Hex IEEE float)
5. BBBBBBBB - High/on threshold (ASCII Hex IEEE float)
6. English units: -8.000 <= low/off threshold < high/on threshold <= 3.000
7. Metric units: -203.20 <= low/off threshold < high/on threshold <= 76.20

### Typical Response Message, Display Format:

```
<SOH>
IV4400
JUN 1, 2001 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR PROCESSOR
LOW (OFF) THRESHOLD -0.600 inches (or mm) H2O
HIGH (ON) THRESHOLD -0.200 inches (or mm) H2O
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iV4400YYMMDDHHmmAAAAAAAABBBBBBBB&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. AAAAAAAA - Vapor Pressure low threshold, (ASCII Hex IEEE float)
3. BBBBBBBB - Vapor Pressure high threshold, (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** V45 (Obsolete at V30)  
**Function Type:** Set Vapor Processor Maximum Runtime

Version 25

**Command Format:**  
**Display:** <SOH>SV4500MMM  
**Computer:** <SOH>sv4500MMM

**Inquire:**  
<SOH>IV4500  
<SOH>iV4500

**Notes:**

1. PMC feature required
2. MMM - Runtime threshold in minutes [010-180] (Decimal)

**Typical Response Message, Display Format:**

```
<SOH>
IV4500
JUL 29, 1997 9:04 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR PROCESSOR
MAX RUNTIME MINUTES 113
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iV4500YYMMDDHHmmMMM&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. MMM - Runtime threshold in minutes [010-180] (Decimal)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V46**

**Function Type:** Set Hydrocarbon Alarm Threshold

Version 25

**Command Format:**

**Display:** <SOH>SV4600xx.xx

**Computer:** <SOH>sv4600AAAAAAA

**Inquire:**

<SOH>IV4600

<SOH>iV4600

**Notes:**

1. PMC only feature required to set new value
2. xx.xxx - ASCII alarm threshold
3. AAAAAAA - alarm threshold (ASCII Hex IEEE float)  
0.00% <= threshold <= 100.0%, Default=10%

**Typical Response Message, Display Format:**

<SOH>  
IV4600  
JUN 1, 2001 8:07 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

EFFLUENT EMISSIONS LIMIT 10.00 PERCENT  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>iV4600YYMMDDHHmmAAAAAAA&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. AAAAAAA - Alarm threshold (ASCII Hex IEEE float)
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V47**

Version 25

**Function Type:** Set time of day ISD/PMC tests are started and results posted

**Command Format:**

**Display:** <SOH>SV4700HHMMmmm

**Computer:** <SOH>sv4700HHMMmmm

**Inquire:**

<SOH>IV4700

<SOH>iV4700

**Notes:**

1. ISD or VCM or PMC features required
2. If the difference between post results time and start tests time is less than the time needed to perform all tests, then the results will be posted as soon as they become available  
Default Start-of-Tests time=11:59  
Default time delay minutes=1
3. Data being analyzed will be limited to 5 minutes before Start-of-Tests time
4. HH - Hour of day tests are started [00-23] (Decimal)
5. MM - minute of hour tests are started [00-59] (Decimal)
6. mmm - time delay between time tests are started and time test results are posted in minutes [000-720] (Decimal)

**Typical Response Message, Display Format:**

<SOH>  
IV4700  
JUN 1, 2002 8:07 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

ASSESSMENT TIME      START TIME      11:59 PM      TIME DELAY MINUTES 1  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>iV4700YYMMDDHHmmHHMMmmm&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. HH - start tests hour [00-23] (Decimal)
3. MM - start tests minute [00-59] (Decimal)
4. mmm - time delay minutes [000-720] (Decimal)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V48**  
**Function Type:** Read Airflow Meter Table

Version 25

**Command Format:**  
**Display:** <SOH>IV48SS  
**Computer:** <SOH>iV48SS

**Inquire:**

### Notes:

1. ISD feature required
2. Inquire only, use Function Code V42 to set

### Typical Response Message, Display Format:

```
<SOH>
IV4800
JUN 22, 2001 3:24 PM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

AIRFLOW METER TABLE

MTR-ID INDEX F1 H1 H2 H3 H4 F2 H1 H2 H3 H4
 01 05 01 xx 01 02 03 02 04 05 06 xx
 02 09 03 xx 07 08 09 04 10 11 12 xx
 03 11 05 xx xx xx xx 06 xx xx xx xx
 04 22 07 13 14 15 xx xx xx xx xx xx
<ETX>

(xx=unassigned)
```

### Typical Response Message, Computer Format:

```
<SOH>iV4800YYMMDDHHmmIISSF1H1H2H3H4F2H5H6H7H&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. II - Meter ID [01-99] (use 00 for all meters) (Decimal)
3. SS - index to Sensor Table [00-99] (Decimal)
4. Fn - fuel position ID [01-99] (Decimal)
5. Hn - Hose ID [01-99] (Decimal)
6. && - Data Termination Flag
7. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V49**  
**Function Type:** Set Hose Label Table

Version 25

**Command Format:**  
**Display:** <SOH>SV4900IIaaaaaaaaaaaa  
**Computer:** <SOH>sv4900IIaaaaaaaaaaaa

**Inquire:**  
<SOH>IV4900  
<SOH>iV4900

### Notes:

1. ISD feature required
2. II - Hose Label ID (02-10, 01=Unassigned)
3. a - 10 ASCII characters [20h-7Eh]

### Typical Response Message, Display Format:

<SOH>  
IV4900  
JUN 22, 2001 3:24 PM

LABEL TABLE  
ID LABEL  
01 UNASSIGNED  
02 BLEND3  
03 REGULAR  
04 MID GRADE  
05 PREMIUM  
06 GOLD  
07 BRONZE  
08 SILVER  
09 BLEND2  
10 BLEND4  
<ETX>

### Typical Response Message, Computer Format:

<SOH>iV4900YYMMDDHHmmiiaaaaaaaaaaaaa...  
iiaaaaaaaaaaaaa&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. ii - Label ID (00-10) (Decimal)
3. aaaaaaaaaa - 10 ASCII characters [20h-7Eh]
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V4A**  
**Function Type:** Read Hose Table Data

Version 25

**Command Format:**  
**Display:** <SOH>IV4Aii  
**Computer:** <SOH>iV4Aii

### Notes:

1. ISD feature required
2. Inquire only, use Function Code V42 to set

### Typical Response Message, Display Format:

```
<SOH>
IV4A00
JUN 27, 2003 10:06 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

ISD HOSE TABLE

HOSE FP FP AFM REL HOSE
ID ID LABEL ID ID LABEL
01 00 00 01 01 UNASSIGNED
02 01 01 02 02 BLEND3
03 02 02 03 03 REGULAR
04 03 03 04 04 MID GRADE
<ETX>
```

### Typical Response Message, Computer Format:

```
<SOH>iV4A00YYMMDDHHmmhhfffggaall...
 hhfffggaall&&CCCC<ETX>
```

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. hh - Hose ID [01-99] (Hex)
3. ff - Mapped Fuel position id (Hex)
4. gg - Visual Fuel Position Number [00-99] (Hex)
5. aa - Air flow meter id [00-99] (Hex)
6. ll - Hose Label Id (Hex)
7. && - Data Termination Flag
8. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V4B**  
**Function Type:** Read Grade Table

Version 25

**Command Format:**  
**Display:** <SOH>IV4B00  
**Computer:** <SOH>iV4B00

### Notes:

1. ISD feature required
2. Inquire only, use Function Code V42 to set

### Typical Response Message, Display Format:

<SOH>  
IV4B00  
JUN 22, 2001 3:24 PM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

| PRODUCT/HOSE | MAP | TABLE | FP    | AFID  | M1/H1 | M2/H2 | M3/H3 | M4/H4 |
|--------------|-----|-------|-------|-------|-------|-------|-------|-------|
| 01           | 01  | 01/01 | xx/xx | xx/xx | xx/xx |       |       |       |
| 02           | 02  | 02/02 | xx/xx | xx/xx | xx/xx |       |       |       |
| 03           | 03  | 03/03 | xx/xx | xx/xx | xx/xx |       |       |       |
| 04           | 04  | 04/04 | xx/xx | xx/xx | xx/xx |       |       |       |
| 05           | 05  | 05/05 | xx/xx | xx/xx | xx/xx |       |       |       |
| 06           | 06  | 06/06 | xx/xx | xx/xx | xx/xx |       |       |       |
| 07           | 07  | xx/xx | xx/xx | xx/xx | xx/xx |       |       |       |
| 08           | 08  | xx/xx | xx/xx | xx/xx | xx/xx |       |       |       |
| 09           | 09  | xx/xx | xx/xx | xx/xx | xx/xx |       |       |       |

<ETX>

### Typical Response Message, Computer Format:

<SOH>iV4B00YYMDDHHmmffaamlh1m2h2m3h3m4h4&&CCCC<ETX>

### Notes:

1. YYMDDHHmm - Current Date and Time
2. ff - Real fuel position (Decimal)
3. aa - Air flow meter Id (Decimal)
4. mx - Meter id (x=1-4)
5. hx - Hose id (x=1-4)
6. && - Data Termination Flag
7. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V4E**  
**Function Type:** Set ISD EVR TYPE

Version 25

**Command Format:**  
**Display:** <SOH>SV4E00EEVV  
**Computer:** <SOH>sv4E00EEVV

**Inquire:**  
<SOH>IV4E00EEVV  
<SOH>iV4E00EEVV

### Notes:

1. ISD feature required
2. EE - EVR Type  
01=Balance  
02=Vacuum Assist
3. VV - Vacuum Assist Type  
01=Vapor Vac  
02=Wayne Vac  
03=Healy Vac  
04=Vapor Vac ORVR

### Typical Response Message, Display Format:

<SOH>  
IV4E00  
JUN 1, 2002 8:07 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

EVR/ISD SETUP  
TYPE: VACUUM ASSIST  
VACUUM ASSIST TYPE: VAPOR VAC

<ETX>

### Typical Response Message, Computer Format:

<SOH>iV4E00YYMMDDHHmmEEVV&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. EE - EVR Type  
01=Balance  
02=Vacuum Assist
3. VV - Vacuum Assist Type  
01=Vapor Vac  
02=Wayne Vac  
03=Healy Vac  
04=Vapor Vac ORVR
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V4F**  
**Function Type:** Set Nozzle Type

Version 25

**Command Format:**  
**Display:** <SOH>SV4F00 a.bcd A.BCD  
**Computer:** <SOH>sv4F00AAAAAAAABBBBBBBB

**Inquire:**  
<SOH>IV4F00  
<SOH>iV4F00

### Notes:

1. ISD feature required
2. a.bcd - Low Nozzle A/L Range Value, minimum Value=0.5
3. A.BCD - High Nozzle A/L Range Value, maximum Value=1.5
4. AAAAAAAA - Low Nozzle A/L Range Value (ASCII Hex IEEE float)
5. BBBBBBBB - High Nozzle A/L Range Value (ASCII Hex IEEE float)

### Typical Response Message, Display Format:

<SOH>  
IV4F00  
JUN 1, 2002 8:07 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

NOZZLE A/L RANGE  
A/L RATIO: 1.00 - 1.20  
<ETX>

### Typical Response Message, Computer Format:

<SOH>iV4F00YYMMDDHHmmAAAAAAAABBBBBBBB&&CCCC<ETX>

### Notes:

1. YYMMDDHHmm - Current Date and Time
2. AAAAAAAA - Low Nozzle A/L Range Value (ASCII Hex IEEE float)
3. BBBBBBBB - High Nozzle A/L Range Value (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** V50

Version 25

**Function Type:** Set CVLD Minimum Pressure Time Window

**Command Format:**

**Display:** <SOH>SV5000HHMMddd

**Computer:** <SOH>sv5000HHMMddd

**Inquire:**

<SOH>IV5000

<SOH>iV5000

**Notes:**

1. ISD and PMC features required
2. If VST Vapor Processor, then not Balance and not Healy VAC are required
3. HH - window start hour of day, Default=02, [00-23] (Decimal)
4. MM - window start minute of hour, Default=00, [00-59] (Decimal)
5. ddd - window duration in minutes, Default=120, [000-720] (Decimal)

**Typical Response Message, Display Format:**

<SOH>  
IV5000  
JUN 1, 2002 8:07 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

CVLD MINIMUM PRESSURE TIME WINDOW  
START TIME: 2:00 AM  
DURATION: 120 MINUTES  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>iV5000YYMMDDHHmmHHMMddd&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. HH - window start hour of day [00-23] (Decimal)
3. MM - window start minute of hour [00-59] (Decimal)
4. ddd - window duration in minutes [000-720] (Decimal)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V51**

**Function Type:** Perform ISD Setup Verification Test

Version 25

**Command Format:**

**Display:** <SOH>IV5100

**Computer:** <SOH>iV5100

**Notes:**

1. ISD and/or PMC features required
2. Inquire only

**Typical Response Message, Display Format:**

```
<SOH>
IV5100
JAN 1, 1996 11:05 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

```
ISD/PMC TEST STATUS: PASS
<ETX>
```

**Typical Response Message, Computer Format:**

```
<SOH>iV5100YYMMDDhhmmS&&CCCC<ETX>
```

**Notes:**

1. YYMMDDhhmm - Current Date and Time
2. S - Status of ISD/PMC Setup Test  
0=Pass  
1=Fail
3. && - Data Termination Flag
4. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code: V52**

**Function Type:** Accept High ORVR Configuration

Version 25

**Command Format:**

**Display:** SV5200F

**Computer:** sV5200F

**Inquire:**

<SOH>IV5200

<SOH>iV5200

**Notes:**

1. ISD and/or PMC features required
2. F - Enable/Disable Flag  
0=Enable  
1=Disable

**Typical Response Message, Display Format:**

<SOH>  
IV5200  
JAN 1, 1996 11:05 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

ACCEPT HIGH ORVR: YES  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>iV5200YYMMDDhhmmF&&CCCC<ETX>

**Notes:**

1. YYMMDDhhmm - Current Date and Time.
2. F - Enable/Disable Flag  
0=Enable  
1=Disable
3. && - Data Termination Flag
4. CCCC - Message Checksum



# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

### 7.7.3 ISD DIAGNOSTIC REPORTS

**Function Code:** V80  
**Function Type:** Vapor Processor Report

Version 25

**Command Format:**  
**Display:** <SOH>SV8000149  
**Computer:** <SOH>SV8000149

**Inquire:**  
<SOH>IV8000  
<SOH>iV8000

#### Notes:

1. Set command clear buffer
2. PMC Feature and Full Vapor Processor Control required
3. 149 - This verification code must be sent to confirm the command

#### Typical Response Message, Display Format:

##### When VST Polisher selected:

```
<SOH>
IV8000
JUL 29, 1997 9:04 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR PROCESSOR

DATE-TIME ON ELAPSED PRESSURE INCHES H2O RUNTIME
MINUTES ON OFF FAULT
12-26-01 10:51 AM xxx.xx -x.xxx -x.xxx NO
12-27-01 11:01 PM xxx.xx -x.xxx -x.xxx YES
<ETX>
```

##### When Veeder-Root Polisher selected:

```
<SOH>
IV8000
JUL 29, 2006 9:04 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR POLISHER
VALVE EVENT PRESSURE
DATE-TIME "WC EVENT CODE
10-20-07 11:16AM -0.300 OPEN PURGE
<ETX>
```

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code V80 Notes:** (Continued)

**Typical Response Message, Computer Format:**

```
<SOH>iV8000YYMMDDHHmmnnnnTTTTTTTTiiaaaaaaaaabbbbbbbcccccccc...
 TTTTTTTTTiiaaaaaaaaabbbbbbbccccccccS&&CCCC<ETX>
```

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. nnnn - number of Vapor Processor cycles (Decimal, 0-20)
3. TTTTTTTT - On time, unsigned long ascii-hex seconds since 1/1/1970  
(Valve Event On or Off Time for V-R Polisher)
4. ii - number of floating point fields per cycle (decimal)
5. aaaaaaaa - elapsed time (ASCII Hex IEEE float)  
(Event Type Code for V-R Polisher)
  - 9D = No Event
  - F7 = Close Cold Start
  - F8 = Close Timer
  - F9 = Close Test
  - FA = Close No Load
  - FB = Close Force Purge
  - FC = Close No Purge
  - FD = Close HC Limit
  - FE = Close Full
  - FF = Close Near Full
  - 00 = Close Empty
  - 01 = Open Purge
  - 02 = Open Excess Purge
  - 03 = Open Fill
  - 04 = Open Test
  - 05 = Open Timer
6. bbbbbbbb - on pressure in inches(or mm) of H2O (ASCII Hex IEEE float)  
(pressure at event time for V-R Polisher)
7. cccccccc - off pressure in inches(or mm) of H2O (ASCII Hex IEEE float)  
(0 for V-R Polisher)
8. S - 0=no runtime fault, 1=runtime fault (decimal)
9. && - Data Termination Flag
10. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

**Function Code:** V81

**Function Type:** Percent Hydrocarbon Report

Version 25

**Command Format:**

**Display:** <SOH>SV8100149

**Computer:** <SOH>sv8100149

**Inquire:**

<SOH>IV8100

<SOH>iV8100

**Notes:**

1. PMC Feature and Full Vapor Processor Control Required
2. Set command clears buffer

**Typical Response Message, Display Format:**

<SOH>  
IV8100  
JUL 29, 1997 9:04 AM

STATION HEADER 1....  
STATION HEADER 2....  
STATION HEADER 3....  
STATION HEADER 4....

HYDROCARBON SENSOR DIAGNOSTIC  
DATE/TIME                      READING %  
12-26-01 10:51:15 AM            5.101  
12-26-01 10:51:30 AM            5.102  
12-26-01 10:51:45 PM            5.103  
12-26-01 10:52:00 AM            5.104  
<ETX>

**Typical Response Message, Computer Format:**

<SOH>iV8100YYMMDDHHmmnnnnTTTTTTTTTaaaaaaaa&&CCCC<ETX>

**Notes:**

1. YYMMDDHHmm - Current Date and Time
2. nnnn - number of HC samples [00-20] (Decimal)
3. TTTTTTTT - sample time (Seconds since 1/1/1970, Hex)
4. aaaaaaaaa - percent (ASCII Hex IEEE float)
5. && - Data Termination Flag
6. CCCC - Message Checksum

# Serial Interface Manual

## TLS-300/350/350R Monitoring Systems

Function Code: V82

Version 30

**Function Type:** Vapor Processor Status Report

**Command Format:**

**Display:** <SOH>IV8200

Computer: <SOH>iV8200

Typical Response Message, Display Format:

<SOH>  
IV8200  
JUL 13, 2009 9:04 AM

```
STATION HEADER 1
STATION HEADER 2
STATION HEADER 3
STATION HEADER 4
```

# VAPOR PROCESSOR STATUS REPORT

PMC VERSION: 01.03

VAPOR PROCESSOR TYPE: VST ECS PROCESSOR

## PMC MONITORING TEST PASS/FAIL THRESHOLDS

| THE MONITORING TEST PASS/FAIL THRESHOLDS |       | PERIOD | BELOW | ABOVE   |  |
|------------------------------------------|-------|--------|-------|---------|--|
| VAPOR PROCESSOR MASS EMISSION FAIL       | 1DAYS | ----   | 0.64  | LBS/1KG |  |
| VAPOR PROCESSOR DUTY CYCLE FAIL          | 1DAYS | ----   | 75.00 | %       |  |

EFFLUENT EMISSIONS TEST: PASS (0.00 LBS/1KG)

VP DUTY CYCLE TEST : NOTEST

```

VP DOUT_CYCLE_TEST : NOTEST
VP INPUT STATUS : NOTEST

```

```

RUN TIME HOURS : -1.0
DAILY THROUGHPUT : -1 GALS
AVG HC PERCENT : 0.00 %
<ETX>

```

Typical Response Message, Computer Format:

```
<SOH>iV8200YYMDDHHmmSSSSSSS
 nnaabbccddeennnnnnnnfggggggghhhhhhhiiiiiii
 jjjjjjjjkkkkkkkk&CCCC<ETX>
```

**Notes:**

- ```

1.      YYMMDDHHmm - Time and Date stamp of report
2.      SSSSSSSS - Timestamp of CVPM test (Hex, seconds since 1/1/1970
                   00:00:00)
3.      nn - Number of 2-byte ASCII hex values to follow
4.      aa - VP overpress test status (decimal)
5.      bb - Emission test status (decimal)
6.      cc - Maximum runtime test status (decimal)
7.      dd - Autonomous vapor processor test status (decimal)
8.      ee - Vapor processor test status (decimal)
9.      NN - Number of 8-byte ASCII hex values to follow
10.     ffffffff - Ullage pressure of the 95th percentile (ASCII hex float)
11.     gggggggg - Emission value LB/lKG (ASCII hex float)
12.     hhhhhhhh - Duty Cycle % (ASCII hex float)
13.     iiiiii - Runtime, hours (ASCII hex float)
14.     jjjjjjjj - Daily Throughput (ASCII hex float)
15.     kkkkkkkk - Average HC % (ASCII hex float)
16.     && - Data Termination Flag
17.     CCCC - Message Checksum

```

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V83

Version 25

Function Type: Read Sensor Calibration History

Command Format:

Display: <SOH>IV8300CCNNIII

Computer: <SOH>iV8300CCNNIII

Notes:

1. CC - Sensor Category
00=All
01=Smart Sensors
02=MODBus Sensors
03=Serial Sensors
2. NN - Sensor Number (Decimal, 00=all)
3. III - Requested number of records per category [001-255] (Decimal)

Typical Response Message, Display Format:

```
<SOH>
IV8300
JUN  1, 2001  8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

SMART SENSOR CALIBRATION HISTORY
DATE          NUMBER  TYPE      S/N      LABEL      SLOPE  OFFSET  P/F
12-26-01 10:59    01    AIR FLOW   123      AFM 2    5.023   5.000   P
12-15-01 12:59    01    AIR FLOW   123      AFM 2    5.023   5.000   F
12-15-01 12:59    02    PRESSURE  1231231230 PRESSURE10 1.104   0.033   P

MODBUS SENSOR CALIBRATION HISTORY
DATE          NUMBER  TYPE      S/N      LABEL      SLOPE  OFFSET  P/F
12-15-01 12:59    01    HYDROCARBON 123      HC SENSOR1 5.023   5.000   P

SERIAL SENSOR CALIBRATION HISTORY
NONE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iV8300YYMMDDHHmmCCNNIIIIYYMMDDHHmmSSSSSSSSOOOOOOOOR&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. CC - Sensor Category
3. NN - Sensor number
4. III - Record number
5. YYMMDDHHmm - Calibration Date and Time
6. SSSSSSSS - Slope Value (ASCII Hex IEEE float)
7. OOOOOOOO - Offset Value (ASCII Hex IEEE float)
8. R - Test result
0=fail
1=pass
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V85

Version 25

Function Type: ISD Service Report Test Fail Clear

Command Format:

Display: <SOH>SV8500149TTFFHH

Computer: <SOH>sV8500149TTFFHH

Inquire:

<SOH>IV8500

<SOH>iV8500

Notes:

1. ISD feature required
2. TT - Test Type
 - 01=Containment
 - 02=CVLD
 - 03=Vapor Processor
 - 04=Sensor Out
 - 05=Setup
 - 06=Collection
3. FF - fuel position label (used only for collection test, Decimal)
4. HH - hose id (used only for collection test, Decimal)
 - a) FF=00, HH=00: All FP's and hoses are cleared.
 - b) FF=FP Label, HH=00: All hoses for the FP are cleared.
 - c) FF=FP Label, HH=Hose Id: The selected hose is cleared.

Typical Response Message, Display Format:

<SOH>
IV8500
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

CONTAINMENT TESTS (GROSS AND DEGRADATION): 02/15/03
CONTINUOUS VAPOR LEAK DETECTION TEST : 02/15/03
VAPOR PROCESSOR TESTS : 02/15/03
SENSOR OUT TEST : 02/15/03
SETUP TEST : 02/15/03

COLLECTION TESTS

| FP | HOSE-DATE | HOSE-DATE | HOSE-DATE |
|----|----------------|----------------|-----------------|
| 01 | REG-02/15/03 | SUPER-02/15/03 | SUPER+-02/15/03 |
| 02 | REG-03/12/03 | PLUS-02/15/03 | SUPER-02/15/03 |
| 03 | SUPER-04/31/03 | REG-02/15/03 | |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code V85 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iV8500YYMMDDHHmmYYMMDDYYMMDDYYMMDDYYMMDDYYMMDDFFHHYYMMDD&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. YYMMDD - Containment Tests (Gross & Degradation) Date and Time
3. YYMMDD - CVLD Date and Time
4. YYMMDD - Vapor Processor Date and Time
5. YYMMDD - Sensor Out Date and Time
6. YYMMDD - Setup Date and Time
7. FF - Fuel Position (Decimal) (Collection)
8. HH - Hose number (Decimal) (Collection)
9. YYMMDD - Time/Date stamp of the test clear time for the Collection tests on the fuel position and hose
10. && - Data Termination Flag
11. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: V88

Version 30

Function Type: PMC Daily Vapor Polisher Diagnostic

Command Format:

Display: <SOH>IV8500yyyyymmddnnnn

Computer: <SOH>iV8500yyyyymmddnnnn

Typical Response Message, Display Format:

```
<SOH>
IV8800
JUN  7, 2009  3:48 PM

PMC DAILY VAPOR POLISHER DIAGNOSTIC

          LOAD  PRGE  MIN%  MAX%  SELF  PRESS
DATE/TIME  HRS   HRS   LOAD  LOAD  TEST  TEST
09-07-05 23:59:00  4.9  18.6    2    29  TEST  TEST
09-07-06 23:59:00  1.9  11.9    0    10 NOTEST PASS
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iV8800YYMMDDHHmmnnnnnniiiiisssssssssLLLLLLLLPPPPPPPP
mmmmmmmmmmMMMMMMMMMVSSOO&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. nnnn - Number of records (Decimal)
3. iiii - Record number (Decimal)
4. ssssssss - Seconds since 1/1/1970 (Decimal)
5. LLLLLLLL - Load Hours (ASCII Hex IEEE float)
6. PPPPPPPP - Purge Hours (ASCII Hex IEEE float)
7. mmmmmmmm - Min Load Percent (ASCII Hex IEEE float)
8. MMMMMMMM - Max Load Percent (ASCII Hex IEEE float)
9. V - Valid flag for next 3 fields (ASCII Hex IEEE float)
0 = Not Valid
1 = Valid
10. SS - Self Test (Decimal)
00 = NO TEST
01 = WARN
02 = FAIL
03 = PASS
11. OO - Overpressure Test
00 = NO TEST
01 = WARN
02 = FAIL
03 = PASS
12. && - Data Termination Flag
13. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA1

Version 31

Function Type: VMC A/L Daily Records Report

Command Format:

Display: <SOH>IValffYYYYMMDDHHMMyyyyymmddhhmm

Computer: <SOH>iValffYYYYMMDDHHMMyyyyymmddhhmm

Notes:

1. ff - Fuel Position Number (Decimal, 01-99, 00=Not Allowed)
2. YYYYMMDDHHMM - Start Time Stamp (Optional)
3. yyyyymmddhhmm - End Time Stamp (Optional)

Typical Response Message, Display Format:

```
<SOH>
IValxx
JUN  7, 2010  3:48 PM

    A/L Daily Report @23:59 - VMC:001502  Side:2  FP:03
           Avg      No of      Test
    Date      Time      A/L      Trans.      Status
2010.07.05 23:59:00  041.3      0028      WARN
2010.07.06 23:59:00  211.0      0045      IDLE
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iValffYYMMDDHHmmIIIIIsffYYMMDDHHmmssFFFFS...
                                YYMMDDHHmmssFFFFS&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. IIIIII - Serial Number (Decimal)
3. s - Side (1=A, 2=B) (ASCII Hex)
4. ff - Fuel Position Number (Decimal, 01-99, 00=Not Allowed)
5. YYYYMMDDHHmmss - Timestamp of data record
6. FFFF - Average A/L (ASCII decimal, x10)
7. TTTT - Number of Transactions
8. S - Status (ASCII Hex)
0=Roots meter not connected
1=Idle
2=Running
3=Last Transaction Failed
4=FP Shutdown Warning
5=FP Shutdown Alarm
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA2
Function Type: VMC A/L Exception Report

Version 31

Command Format:
Display: <SOH>IVA2ffYYYYMMDDHHMMyyyyymmddhhmm
Computer: <SOH>iVA2ffYYYYMMDDHHMMyyyyymmddhhmm

Notes:

1. ff - Fuel Position Number (Decimal, 01-99, 00=Not Allowed)
2. YYYYMMDDHHMM - Start Time Stamp (Optional)
3. yyyyymmddhhmm - End Time Stamp (Optional)

Typical Response Message, Display Format:

```
<SOH>
IVA2xx
JUN  7, 2010  3:48 PM
```

A/L Exception Report - VMC: 010472 Side: 1 FP: 01

| Date | Time | Error Counter | Fueling Counter | Recovery Rate | Duration | Status | Vapor Rate | Fuel Rate |
|------------|----------|---------------|-----------------|---------------|----------|--------|------------|-----------|
| 2010.07.05 | 23:59:00 | 00254 | 09385 | 147.8 | 00027 | WARN | 26.43 | 17.88 |

<ETX>

Typical Response Message, Computer Format:

```
<SOH>iVA2ffYYMMDDHHmmIIIIIIIsffYYMMDDHHmmsseeeefffrrrrttttSVVVVFFFF...
YYMMDDHHmmsseeeefffrrrrttttSVVVVFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. IIIIII - Serial Number (Decimal)
3. s - Side (1=A, 2=B) (ASCII Hex)
4. ff - Fuel Position Number (Decimal, 01-99, 00=Not Allowed)
5. YYYYMMDDHHmms - Timestamp of data record
6. eeee - Error Counter (ASCII Hex)
7. ffff - Fueling Counter (ASCII Hex)
8. rrrr - Recover Rate (ASCII decimal, x10)
9. tttt - Reamaining Time, minutes (ASCII Hex)
10. S - Status Code
 - 0=No meter
 - 3=Not Pass
 - 4=Warning (VMC Alarm)
 - 5=Fail (VMC Stop)
11. VVVV - Vapor Rate (ASCII Decimal, x100)
12. FFFF - Fuel Rate (ASCII Decimal, x100)
13. && - Data Termination Flag
14. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA3
Function Type: VMC A/L Transaction Report

Version 31

Command Format:
Display: <SOH>IVA3ffYYYYMMDDHHMMyyyyymmddhhmm
Computer: <SOH>iVA3ffYYYYMMDDHHMMyyyyymmddhhmm

Notes:

1. ff - Fuel Position Number (Decimal, 01-99, 00=Not Allowed)
2. YYYYMMDDHHMM - Start Time Stamp (Optional)
3. yyyyymmddhhmm - End Time Stamp (Optional)

Typical Response Message, Display Format:

```
<SOH>
IVA3xx
JUN  7, 2010  3:48 PM
```

A/L Transaction Report - VMC: 001499 Side: 2 FP: 07

| Date | Time | Error Counter | Fueling Counter | Recovery Rate | Duration | Status | Vapor Rate | Fuel Rate |
|------------|----------|---------------|-----------------|---------------|----------|---------|------------|-----------|
| 2011.02.10 | 16:06:18 | 00001 | 00015 | 999.9 | 00028 | NOTPASS | 33.61 | 00.00 |
| 2011.02.10 | 17:00:28 | 00000 | 00018 | 086.9 | 00074 | IDLE | 29.95 | 34.45 |

<ETX>

Typical Response Message, Computer Format:

```
<SOH>iVA3ffYYMMDDHHmmIIIIIIIsffYYMMDDHHmmsseeeeffffrrrrttttSVVVVFFFF...
YYMMDDHHmmsseeeeffffrrrrttttSVVVVFFFF&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. IIIIII - Serial Number (Decimal)
3. s - Side (1=A, 2=B) (ASCII Hex)
4. ff - Fuel Position Number (Decimal, 01-99, 00=Not Allowed)
5. YYYYMMDDHHmms - Timestamp of data record
6. eeee - Error Counter (ASCII Hex)
7. ffff - Fueling Counter (ASCII Hex)
8. rrrr - Recover Rate (ASCII decimal, x10)
9. tttt - Remaining Time, minutes (ASCII Hex)
10. S - Status Code
 - 0=No meter
 - 3=Not Pass
 - 4=Warning (VMC Alarm)
 - 5=Fail (VMC Stop)
11. VVVV - Vapor Rate (ASCII decimal, x10)
12. FFFF - Fuel Rate (ASCII decimal, x10)
13. && - Data Termination Flag
14. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA4

Function Type: Perform APM Setup Verification Test

Version 31

Command Format:

Display: <SOH>IVA400

Computer: <SOH>iVA400

Notes:

- 1.APM feature required

Typical Response Message, Display Format:

<SOH>

IVA400

JUN 7, 2010 3:48 PM

APM SETUP TEST STATUS: PASS

<ETX>

Typical Response Message, Computer Format:

<SOH>iVA400YYMMDDHHmmS&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. S - Status of APM Setup Test
0=Pass
1=Fail
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA5

Version 31

Function Type: VMCI Sub Alarm History Report

Command Format:

Display: <SOH>IVA500

Computer: <SOH>iVA500

Typical Response Message, Display Format:

<SOH>
IVA500
JUN 7, 2010 3:48 PM

VMCI SUB ALARM HISTORY

| ID | ALARM | ID | SUB ALARM | STATE | DATE | TIME |
|------|------------------|------|------------------|-------|---------|---------|
| X 1: | VMC COMM TIMEOUT | x 1: | VMC COMM TIMEOUT | CLEAR | 6-11-10 | 12:57PM |
| X 1: | VMC COMM TIMEOUT | x 2: | VMC COMM TIMEOUT | CLEAR | 6-11-10 | 12:34PM |
| X 1: | VMC COMM TIMEOUT | x 2: | VMC COMM TIMEOUT | ALARM | 6-11-10 | 12:27PM |
| X 1: | VMC COMM TIMEOUT | x 1: | VMC COMM TIMEOUT | ALARM | 6-11-10 | 12:17PM |

<ETX>

Typical Response Message, Computer Format:

<SOH>iVA500YYMMDDHHmmnnXXNNxxSSAAYMMDDHHmm...
XXNNxxSSAAYMMDDHHmm&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. nn - Number of Sub Alarm records to follow (Hex)
3. XX - VMCI Sensor Number (Hex)
4. NN - Alarm Type Number
03 = VMC Comm Timeout
5. xx - VMC Sensor Number (Hex)
6. SS - Sub Alarm Type Number
If NN is 03 and SS is:
03 = VMC Comm Timeout
7. AA - Alarm State
00 = Alarm Cleared
01 = Alarm Occurred
8. YYMMDDHHmm - Date and Time Alarm state occurred
9. && - Data Termination Flag
10. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA6
Function Type: APM Diagnostic Report

Version 31

Command Format:
Display: <SOH>IVA600
Computer: <SOH>iVA600

Typical Response Message, Display Format:

```
<SOH>
IVA600
JUN  7, 2010  3:48 PM

APM DIAGNOSTIC
-----
VAPOR PRESSURE
-10.0 IWC
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iVA600YYMMDDHHmmNNFFFFFFFFFYMMDD&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. NN - Number of eight character data fields to follow (Hex)
3. FFFFFFFF - Vapor Pressure, IWC (ASCII Hex IEEE float)
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA7

Function Type: APM Service Report Test Fail Clear

Version 31

Command Format:

Display: <SOH>SVA700149TT

Computer: <SOH>sVA700149TT

Inquire:

<SOH>IVA700

<SOH>iVA700

Notes:

1. APM feature required

2. TT - Test Type

01 = APM Tests

02 = APM Sensor Self Test

03 = APM Setup Self Test

Typical Response Message, Display Format:

<SOH>

IVA700

JUN 7, 2010 3:48 PM

APM TESTS

: 04/30/10

APM SENSOR SELF TEST

: 04/29/10

APM SETUP SELF TEST

: 04/27/10

<ETX>

Typical Response Message, Computer Format:

<SOH>iVA700YYMMDDHHmmYYMMDDYYMMDDYYMMDD&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time

2. YYMMDD - APM Test Date and Time

3. YYMMDD - APM Sensor Self Test Date and Time

4. YYMMDD - APM Setup Self Test Date and Time

5. && - Data Termination Flag

6. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VA8

Version 31

Function Type: APM Miscellaneous Events Report

Command Format:

Display: <SOH>IVA800YYYYMMDDyyyymmddnnnn

Computer: <SOH>iVA800YYYYMMDDyyyymmddnnnn

Notes:

1. YYYYMMDD - Start Date stamp (optional)
2. yyyymmdd - End Date stamp (optional)
3. nnnn - Limit number of records (optional)

Typical Response Message, Display Format:

<SOH>
IVA800
APR 16, 2010 3:11 PM

STATION HEADER 1
STATION HEADER 2
STATION HEADER 3
STATION HEADER 4

AUTOMATIC PRESSURE MONITORING MISCELLANEOUS EVENTS REPORT

| DATE | TIME | DESCRIPTION | ACTION/NAME |
|----------|----------|-------------------------|-----------------------|
| 10-04-30 | 11:36:26 | APM TEST | TEST MANUALLY CLEARED |
| 10-04-30 | 08:00:00 | PUMPS MANUALLY ENABLED | |
| 10-04-29 | 11:59:00 | APM GROSS OVER-PRESSURE | DISABLED DISPENSERS |
| 10-04-29 | 11:59:00 | APM SENSOR | DISABLED DISPENSERS |
| 10-04-29 | 11:36:26 | APM DEGRD OVER-PRESSURE | DISABLED DISPENSERS |
| 10-04-29 | 09:13:01 | APM SENSOR SELF TEST | TEST MANUALLY CLEARED |
| 10-04-27 | 11:37:21 | APM SETUP SELF TEST | TEST MANUALLY CLEARED |
| 10-04-02 | 15:12:00 | TIME CHANGE DETECTED AT | 10-06-01 15:02:00 |
| 10-04-02 | 11:36:26 | APM STARTUP | |
| 10-04-02 | 11:36:26 | APM SHUTDOWN | |
| 10-04-01 | 11:36:26 | APM STARTUP | |

<ETX>

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code VA8 Notes: (Continued)

Typical Response Message, Computer Format:

```
<SOH>iVA800YYMMDDHHmmsssssSSSSSSSSaabbccddeettff...f...&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. ssss - Number of ISD Shutdown & Misc. Events to follow (Decimal)
3. SSSSSSSS - Timestamp of the Shutdown/Misc. Event (seconds since 1/1/1970, Hex)
4. aa - Primary Misc. Event Category
 - 01=System Event
 - 02=Pumps Re-enabled
 - 03=Test Manually Cleared
 - 04=Disabled Dispensers
5. bb - Primary Misc. Event Type
 - If aa=01:
 - 01=APM Startup at:
 - 02=APM Shutdown at:
 - 03=Time Change Detected at:
 - If aa=03:
 - 01=APM Setup Self Tests
 - 03=APM Tests
 - 06=APM Sensor Self Tests:
 - If aa=04:
 - 05=APM Gross Over-Pressure Test
 - 06=APM Degradation Over-Pressure Test
 - 07=APM Sensor Test
6. cc - Hose Number (Hex) (future use)
7. dd - Secondary Misc. Event Category (Hex) (future use)
8. ee - Secondary Misc. Event Type (Hex) (future use)
9. tt - Data Type to follow
 - 00=No Data
 - 01=Integer
 - 02=Floating Point Number
10. ff - Data Type (optional, depends on tt)
11. ffffffff - Data Type (optional, depends on tt, Hex)
12. && - Data Termination Flag
13. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VC0

Version 25

Function Type: Automatic/Manual Vapor Processor Control

Command Format:

Display: <SOH>SVC000149C

Computer: <SOH>SVC000149C

Inquire:

<SOH>IVC000

<SOH>iVC000

Notes:

1. PMC Feature and Vapor Processor relay required
2. Changing from automatic to manual while VP is on turns VP (and HC sensor) off
3. C - Control
 - 0=Set VP to Manual
 - 1=Set VP to Automatic

Typical Response Message, Display Format:

```
<SOH>
IVC000
JUN  1, 2001  8:07 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

```
VAPOR PROCESSOR AUTOMATIC CONTROL
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iVC000YYMMDDHHmmC&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. n - Control
 - 0=VP is set to Manual
 - 1=VP is set to Automatic
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VC1

Function Type: Manual Override of Vapor Processor

Version 25

Command Format:

Display: <SOH>SVC100149C

Computer: <SOH>sVC100149C

Inquire:

<SOH>IVC100

<SOH>iVC100

Notes:

1. PMC Feature and Vapor Processor relay required
2. VP control MUST be Manual (see VC0 command)
3. C - Control
 - 0=Turn VP off
 - 1=Turn VP on

Typical Response Message, Display Format:

<SOH>
IVC100
JUN 1, 2001 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

VAPOR PROCESSOR ON
<ETX>

Typical Response Message, Computer Format:

<SOH>iVC100YYMMDDHHmmC&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. C - Control
 - 0=VP is off
 - 1=VP is on
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VC5

Function Type: Acknowledge ISD Alarm to Re-Enable Site

Version 25

Command Format:

Display: <SOH>SVC500149

Computer: <SOH>sVC500149

Inquire:

<SOH>IVC500

<SOH>iVC500

Notes:

1. ISD feature required
2. Set command acknowledges alarm

Typical Response Message, Display Format:

```
<SOH>
IVC500
JUN  1, 2002  8:07 AM
```

```
STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....
```

```
ISD SHUTDOWN ALARMS OVERRIDDEN: YES
<ETX>
```

Typical Response Message, Computer Format:

```
<SOH>iVC500YYMMDDHHmmS&&CCCC<ETX>
```

Notes:

1. YYMMDDHHmm - Current Date and Time
2. S - ISD shutdown alarms overridden
0=Yes
1=No
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: VC8

Version 29

Function Type: Set Manual Override of Veeder-Root Polisher

Command Format:

Display: <SOH>SVC800149R

Computer: <SOH>sVC800149R

Inquire:

<SOH>IVC800

<SOH>iVC800

Notes:

1. VP Control Must be Manual (see VC0 Command)
2. Vapor Processor Type must be Veeder-Root Polisher
3. 149 - This verification code must be sent to confirm the command
4. R - Request Vapor Valve Position
0 = Closed
1 = Open

Typical Response Message, Display Format:

<SOH>
IVC800
JUN 1, 2002 8:07 AM

STATION HEADER 1....
STATION HEADER 2....
STATION HEADER 3....
STATION HEADER 4....

| | CURRENT | REQUESTED |
|----------------------|---------|-----------|
| VAPOR VALVE POSITION | CLOSED | OPEN |
| <ETX> | | |

Typical Response Message, Computer Format:

<SOH>iVC800YYMMDDHHmmCR&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. C - Current Vapor Valve Position
0 = Closed
1 = Open
3. R - requested Vapor Valve Position
0 = Closed
1 = Open
4. && - Data Termination Flag
5. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

Function Code: XE0

Version 25

Function Type: ISD Setup Data Time Stamp EEPROM

Command Format:

Display: <SOH>SXE000ssssssss

Computer: <SOH>sXE000ssssssss

Inquire:

<SOH>IXE000

<SOH>iXE000

Typical Response Message, Display Format:

Notes:

1. Response is the same as computer format. To be used with EEPROM only

Typical Response Message, Computer Format:

<SOH>iXE000YYMMDDHHmmssssssss&&CCCC<ETX>

Notes:

1. YYMMDDHHmm - Current Date and Time
2. ssssssss - ISD Setup Data Time Stamp (Seconds since 1/1/1970, Hex)
3. && - Data Termination Flag
4. CCCC - Message Checksum

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

8.0 IFSF DATABASE SUPPORT

When equipped with the appropriate software and interface module, these systems can respond to commands using the International Forecourt Standards Forum (IFSF) tank gauge communications protocols as defined in the following tables. Please see the IFSF documents "PART II, COMMUNICATION SPECIFICATION" and "PART III.3 TANK LEVEL GAUGE APPLICATION" for further details.

8.1 TANK LEVEL GAUGE DATABASE

| TANK LEVEL GAUGE DATABASE DB_Ad=TLG_DAT (01H) | | | |
|--|-----------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| CONFIGURATION DATA | | | |
| 1 | Nb_Tanks | M | Yes |
| 2 | Reference_Temp | O | Yes |
| 3 | TLG_Measurement_Units | O | Yes |
| 6 | Country_Code | M | Yes |
| 7 | Maint_Password | M | Yes |
| 50 | TLG_Manufacturer_Id | M | Yes |
| 51 | TLG_Model | M | Yes |
| 52 | TLG_Type | M | Yes |
| 53 | TLG_Serial_Nb | M | Yes |
| 54 | TLG_Appl_Software_Ver | M | Yes |
| 58 | IFSF_Protocol_Ver | M | Yes |
| 59 | Current_Date | O | Yes |
| 60 | Current_Time | O | Yes |
| 61 | SW_Checksum | M | Yes |
| TLG COMMAND | | | |
| 70 | Enter_Maint_Mode | M | Yes |
| 71 | Exit_Maint_Mode | M | Yes |

Serial Interface Manual
TLS-300/350/350R Monitoring Systems

8.2 TANK LEVEL GAUGE ERROR CODE DATABASE

| TANK LEVEL GAUGE ERROR CODE DATABASE DB_Ad=TLG_DAT (01H) + TLG_ER_DAT (41H) + TLG_ER_ID (01H-40H) | | | |
|--|----------------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| ERROR DATA | | | |
| 1 | TLG_Error_Type | M | Yes |
| 2 | TLG_Err_Description | O | Yes |
| 3 | TLG_Error_Total | M | Yes |
| 4 | TLG_Error_Total_Erase_Date | O | Yes |
| UNSOLICITED DATA | | | |
| 100 | TLG_Error_Type_Mes | M | Yes |

8.3 TANK PROBE DATABASE

| TANK PROBE DATABASE DB_Ad=TP_ID (21H-3FH) | | | |
|--|------------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| CONFIGURATION | | | |
| 1 | TP_Manufacturer_Id | M | Yes |
| 2 | TP_Type | M | Yes |
| 3 | TP_Serial_Nb | M | Yes |
| 4 | TP_Model | M | Yes |
| 5 | TP_Appl_Software_Ver | M | Yes |
| 6 | Prod_Nb | O | Yes |
| 7 | Prod_Description | O | Yes |
| 8 | Prod_Group_Code | O | Yes |
| 9 | Ref_Density | O | No |
| 10 | Tank_Diameter | O | Yes |
| 11 | Shell_Capacity | O | Yes |
| 12 | Max_Safe_Fill_Capacity | O | Yes |
| 13 | Low_Capacity | O | Yes |
| 14 | Min_Operating_Capacity | O | Yes |
| 15 | HiHi_Level_Setpoint | O | No |
| 16 | Hi_Level_Setpoint | O | No |

Serial Interface Manual
TLS-300/350/350R Monitoring Systems

| TANK PROBE DATABASE DB_Ad=TP_ID (21H-3FH) | | | |
|--|------------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| 17 | Lo_Level_Setpoint | O | No |
| 18 | LoLo_Level_Setpoint | O | No |
| 19 | Hi_Water_Setpoint | O | Yes |
| 20 | Water_Detection_Thresh | O | Yes |
| 21 | Tank_Tilt_Offset | O | Yes |
| 22 | Tank_Manifold_Partners | O | Yes |
| 23 | TP_Measurement_Units | O | Yes |
| CONTROL DATA | | | |
| 32 | TP_Status | M | Yes |
| 33 | TP_Alarm | M | Yes |
| TANK READING | | | |
| 64 | Product_Level | M | Yes |
| 65 | Total_Observed_Volume | O | Yes |
| 66 | Gross_Standard_Volume | O | Yes |
| 67 | Average_Temp | O | Yes |
| 68 | Water_Level | M | Yes |
| 69 | Observed_Density | O | No |
| 70 | Last_Reading_Date | O | Yes |
| 71 | Last_Reading_Time | O | Yes |
| UNSOLICITED | | | |
| 100 | TP_Status_Message | M | Yes |

Serial Interface Manual
TLS-300/350/350R Monitoring Systems

8.4 TANK CONTENTS TABLE DATABASE

| TANK CONTENTS TABLE DATABASE DB_Ad=TP_ID (21H-3FH) + CAL_DAT (21H) + ENTRY (01H-FFH) | | | |
|---|-------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| CONFIGURATION | | | |
| 1 | Strap_Level | O | No |
| 2 | Strap_Vol | O | No |

8.5 TANK TEMPERATURE TABLE DATABASE

| TANK TEMPERATURE TABLE DATABASE DB_Ad=TP_ID (21H-3FH) + TEMP_DAT (22H) + TEMP_ADDR (01H-08H) | | | |
|---|-------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| CONFIGURATION | | | |
| 1 | Temp_height | O | Yes |
| 2 | Temp_value | O | Yes |

8.6 TANK PROBE ERROR CODE DATABASE

| TANK PROBE ERROR CODE DATABASE DB_Ad=TP_ID (21H-3FH) + TP_ER_DAT (41H) + TP_ER_ID (01H-40H) | | | |
|--|---------------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| ERROR DATA | | | |
| 1 | TP_Error_Type | M | Yes |
| 2 | TP_Err_Description | O | Yes |
| 3 | TP_Error_Total | M | Yes |
| 4 | TP_Error_Total_Erase_Date | O | Yes |
| 5 | TP_Error_Status | M | Yes |
| UNSOLICITED DATA | | | |
| 100 | TP_Error_Type_Mes | M | Yes |

Serial Interface Manual
TLS-300/350/350R Monitoring Systems

8.7 DATA DOWNLOAD DATABASE

| DATA DOWNLOAD DATABASE DB_Ad=SW_DAT (81H) | | | |
|--|-------------------|-----|-----------|
| Data_Id | Data Element Name | M/O | Supported |
| CONFIGURATION DATA | | | |
| 1 | Data_Type | O | No |
| 2 | Software_Block_Id | O | No |
| 3 | Start_Addr | O | No |
| 4 | Nb_Bytes | O | No |
| 5 | Data_Download | O | No |
| 6 | Data_Checksum | O | No |
| COMMAND | | | |
| 10 | Activate_Software | O | No |
| 11 | Restart | O | No |

8.8 COMMUNICATION SERVICE DATABASE

| COMMUNICATION SERVICE DATABASE DB_Ad=00H | | |
|---|--|-----------|
| Data_Id | Variable Name | Supported |
| CONFIGURATION | | |
| 1 | Communication_Protocol_Ver (read only) | Yes |
| 2 | Local_Node_Address | Yes |
| 3 | Recipient_Addr_Table | Yes |
| 4 | Heartbeat_Interval | Yes |
| 5 | Max_Block_Length | Yes |
| COMMANDS | | |
| 10 | Heartbeat_Error | Yes |
| 11 | Add_Recipient_Addr | Yes |
| 12 | Remove_Recipient_Addr | Yes |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

9.0 FUNCTION CODE SUMMARY

CONTROL FUNCTIONS (7.1)

| Code | Ver | Function |
|------|-----|--|
| 001 | 1 | System Reset |
| 002 | 1 | Clear Power Reset Flag |
| 003 | 1 | Remote Alarm Reset |
| 010 | 14 | Cancel Autodial Computer Mode Session |
| 031 | 10 | Confirm Clear Function |
| 051 | 1 | Clear In-Tank Delivery Reports |
| 052 | 1 | Start In-Tank Leak Detect Test |
| 053 | 1 | Stop In-Tank Leak Detect Test |
| 054 | 5 | Delete CSLD Rate Table |
| 081 | 7 | Start Pressure Line Leak Test (3.00 GPH only in V18) |
| 082 | 7 | Stop Pressure Line Leak Test |
| 083 | 10 | Start WPLLD Line Leak Test (3.00 GPH only in V18) |
| 084 | 10 | Stop WPLLD Line Leak Test |
| 087 | 18 | Start Pressure Line Leak Test by Type |
| 088 | 18 | Start WPLLD Line Leak Test by Type |
| 089 | 19 | Pressure Line Leak Pressure Offset Reset |
| 090 | 19 | WPLLD Line Leak Pressure Offset Reset |
| 091 | 15 | Close Current Shift |
| 092 | 23 | Start Pressure Line Leak Profile Line Test |
| 093 | 23 | Stop Pressure Line Leak Profile Line Test |
| 094 | 23 | Recalculate Pressure Line Leak Profile Bulk Modulus |
| 095 | 24 | Start Vacuum Sensor Manual Test |
| 096 | 24 | Stop Vacuum Sensor Manual Evacuation Test |
| 097 | 24 | Start Vacuum Sensor Evacuation Hold |
| 098 | 24 | Stop Vacuum Sensor Evacuation Hold |
| 099 | 26 | Start Mag Sump Leak Test |
| 09A | 26 | Start Mag Sump Leak Test Measuring Height Phase |
| 09B | 26 | Stop Mag Sump Leak Test |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

OPERATIONAL REPORTS (7.2)

SYSTEM REPORTS (7.2.1)

| Code | Ver | Function |
|-------------|------------|---|
| 101 | 1 | System Status Report |
| 102 | 1 | System Configuration Report |
| 111 | 2 | Priority Alarm History Report |
| 112 | 2 | Non-Priority Alarm History Report |
| 113 | 14 | Active Alarm Report |
| 114 | 19 | Cleared Alarm Report |
| 115 | 27 | Maintenance Tracker Unacknowledged Alarm Report |
| 116 | 19 | Service Report History (Obsolete V27) |
| 119 | 27 | Maintenance History Report |
| 11A | 27 | Service Report History |
| 11B | 28 | Service Notice Session Report |
| 132 | 32 | Fiscal Height Security Report |

IN-TANK REPORTS (7.2.2)

| Code | Ver | Function |
|-------------|------------|---|
| 201 | 1 | In-Tank Inventory Report |
| 202 | 1 | In-Tank Delivery Report |
| 203 | 1 | In-Tank Leak Detect Report |
| 204 | 1 | In-Tank Shift Inventory Report |
| 205 | 1 | In-Tank Status Report |
| 206 | 1 | In-Tank Alarm History Report |
| 207 | 2 | In-Tank Leak Test History Report |
| 208 | 2 | In-Tank Leak Test Results Report |
| 20A | 110 | HRM Adjusted Delivery Report |
| 20B | 110 | BIR Adjusted Delivery Report |
| 20C | 15 | In-Tank Most Recent Delivery Report |
| 20D | 15 | In-Tank Stick Height Report |
| 211 | 14 | Tank Chart Report |
| 212 | 24 | In-Tank Leak Test History Report 2 |
| 213 | 26 | In-Tank Extended Standard Delivery Report |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

IN-TANK REPORTS (7.2.2) (Continued)

| Code | Ver | Function |
|-------------|------------|---|
| 214 | 26 | In-Tank Mass/Density Inventory Report |
| 215 | 26 | In-Tank Mass/Density Delivery Report |
| 216 | 26 | Tank 50 Point Heights, Volumes and Slope Report |
| 217 | 26 | Tank Profile |
| 218 | 26 | Tank Chart Audit Trail |
| 219 | 26 | Tank Chart Security Status |
| 21A | 27 | In-Tank Inventory Report With 90/95% Ullage |
| 21B | 26 | BIR Extended Adjusted Delivery Report |
| 221 | 116 | Ticketed Delivery Report |
| 222 | 23 | Bill of Lading Report |
| 225 | 116 | Periodic Delivery Variance Report |
| 226 | 116 | Weekly Delivery Variance Report |
| 227 | 116 | Daily Delivery Variance Report |
| 237 | 33 | In-Tank Product Inventory Report |
| 238 | 33 | In-Tank Siphon Manifolder Inventory Report |
| 239 | 33 | Manifolder Delivery Report with Sales Adjustment if BIR available |
| 23A | 33 | Manifolder Delivery Report with Sales Adjustment if BIR available |
| 251 | 3 | CSLD Results Report |
| 281 | 3 | Fuel Management Report |
| 282 | 19 | FLS Diagnostic: Volume History Table |
| 2E2 | 14 | In-Tank Stored Inventory Report |

SENSOR REPORTS (7.2.3)

| Code | Ver | Function |
|-------------|------------|---|
| 301 | 1 | Liquid Sensor Status Report |
| 302 | 1 | Liquid Sensor Alarm History Report |
| 306 | 1 | Vapor Sensor Status Report |
| 307 | 1 | Vapor Sensor Alarm History Report |
| 311 | 1 | Groundwater Sensor Status Report |
| 312 | 1 | Groundwater Sensor Alarm History Report |
| 315 | 24 | Smart Sensor Status Report |
| 316 | 24 | Smart Sensor Alarm History Report |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

SENSOR REPORTS (7.2.3) (Continued)

| Code | Ver | Function |
|------|-----|---|
| 317 | 26 | Mag Sump Leak Test In Progress/Last Test Report |
| 318 | 26 | Mag Sump Leak Test Last Passed Test Report |
| 319 | 26 | Mag Sump Leak Test Last 10 Test Passed Report |
| 31A | 26 | Mag Sump Leak Test Last Passed Each Year Report |
| 322 | 27 | Pump Relay Monitor Status Report |
| 323 | 27 | Pump Relay Monitor Alarm History Report |
| 333 | 24 | Smart Sensor Install Log |
| 341 | 2 | Type A (2 Wire CL) Sensor Status Report |
| 342 | 2 | Type A (2 Wire CL) Sensor Alarm History Report |
| 346 | 2 | Type B (3 Wire CL) Sensor Status Report |
| 347 | 2 | Type B (3 Wire CL) Sensor Alarm History Report |
| 34B | 4 | Universal Sensor Status Report |
| 34C | 4 | Universal Sensor Alarm History Report |

LINE LEAK REPORTS (7.2.4)

| Code | Ver | Function |
|------|-----|---|
| 351 | 1 | <i>Volumetric Line Leak Result Report</i> |
| 352 | 1 | Volumetric Line Leak Alarm History Report |
| 353 | 2 | Volumetric Line Leak Pump Status |
| 373 | 14 | Pressure Line Leak Test Results (with 0.20 test data) |
| 374 | 14 | Pressure Line Leak Test History (with 0.20 test data) |
| 381 | 7 | Pressure Line Leak Status |
| 382 | 7 | Pressure Line Leak Alarm History Report |
| 383 | 7 | Pressure Line Leak Test Results (0.10 test data only) |
| 384 | 7 | Pressure Line Leak Test History (0.10 test data only) |
| 386 | 10 | WPLLD Line Leak Status |
| 387 | 10 | WPLLD Line Leak Alarm History Report |
| 388 | 10 | WPLLD Line Leak Test Results |
| 389 | 12 | WPLLD Line Leak Test History |

MISCELLANEOUS REPORTS (7.2.5)

| Code | Ver | Function |
|------|-----|-----------------------|
| 391 | 10 | Tanker Load Report |
| 392 | 26 | Tanker Load Report II |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

I/O DEVICE REPORTS (7.2.6)

| Code | Ver | Function |
|-------------|------------|--------------------------------------|
| 401 | 1 | Input Status Report |
| 402 | 1 | Input Alarm History Report |
| 403 | 5 | Input/Generator Alarm History Report |
| 404 | 31 | Input Generator Report |
| 406 | 1 | Relay Status Report |
| 411 | 28 | VMCI Alarm History Report |
| 412 | 28 | VMC Alarm History Report |

SETUP FUNCTIONS & REPORTS (7.3)

SYSTEM SETUP (7.3.1)

| Code | Ver | Function |
|-------------|------------|--|
| 501 | 1 | Set Time of day |
| 502 | 1 | Set Shift Start Time 1, 2, 3, 4 |
| 503 | 1 | Set Print Header Line 1, 2, 3, 4 |
| 504 | 1 | Set System RS-232 Security Code |
| 505 | 1 | Set System Type & Language Flags |
| 506 | 2 | Set Periodic Test Needed Warning |
| 507 | 4 | Set Days Before Periodic Test Needed Warning |
| 508 | 4 | Set Days Before Periodic Test Needed Alarm |
| 509 | 4 | Set Annual Test Needed Warning |
| 50A | 4 | Set Days Before Annual Test Needed Warning |
| 50B | 4 | Set Days Before Annual Test Needed Alarm |
| 50C | 5 | Set Remote Printer Page Eject Flag |
| 50D | 8 | Set Print Temperature Compensation Flag |
| 50E | 8 | Set Temperature Compensation Value |
| 50F | 10 | Set System Date/Time Display Format |
| 511 | 110 | Set BIR Shift Printouts Flag |
| 512 | 110 | Set BIR Daily Printouts Flag |
| 513 | 10 | Set Tanker Load Report Flag |
| 514 | 10 | Set H-Protocol Height/Volume format |
| 515 | 110 | Set HRM - QPLD Monthly Printout |
| 516 | 14 | Set Re-direct Local Printout Flag |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

SYSTEM SETUP (7.3.1) (Continued)

| Code | Ver | Function |
|------|-----|---|
| 517 | 15 | Set System Type & Language Flags |
| 518 | 15 | Set Secondary Language Code Page Output |
| 519 | 15 | Set PLLD & WPLLD Duration Before Precision Retest |
| 51A | 15 | Set Enable/Disable Auto Daylight Saving Time |
| 51B | 15 | Set Start/End Daylight Saving Date and Time |
| 51C | 116 | Set Ticketed Delivery Flag Enable |
| 51D | 116 | Set Ticketed Delivery Temperature Compensation Flag |
| 51E | 116 | Set Ticketed Delivery Close Day of Week |
| 550 | 33 | Set Inventory Alarms Units Configuration |
| 551 | 33 | Set Inventory Alarms Custom Units |

COMMUNICATIONS SETUP (7.3.2)

| Code | Ver | Function |
|------|-----|---|
| 520 | 20 | Set Receiver Auto Dial Type and Start Time II |
| 521 | 2 | Set Receiver Configuration Flag |
| 522 | 2 | Set Receiver Location Label |
| 523 | 2 | Set Receiver Telephone Number |
| 524 | 2 | Set Receiver Dialing Destination Type |
| 525 | 2 | Set Receiver Port Number to Dial |
| 526 | 2 | Set Receiver Retry Number |
| 527 | 2 | Set Receiver Retry Delay Time |
| 528 | 2 | Set Receiver Confirmation Report Flag |
| 529 | 19 | Set Fax Auto Dial Method |
| 52A | 3 | Set Receiver Report List |
| 52B | 3 | Set Receiver Auto Dial Type and Start Time |
| 52C | 3 | Set Receiver Auto Dial On Alarms |
| 52D | 17 | Autodial Alarm Status |
| 52E | 19 | Set Delay for Autodial on Alarm Clear |
| 52F | 19 | Set Receiver Alarm Status |
| 530 | 26 | Beeper Enable/Disable |
| 531 | 8 | Set RS-232 End of Message |

WARNING, ALARM, & AUTO-PRINT SETUP (7.3.3)

| Code | Ver | Function |
|------|-----|--|
| 532 | 116 | Set Ticketed Variance Analysis Printout Flags |
| 533 | 116 | Set Ticketed Delivery Book Variance Printout Flags |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

WARNING, ALARM, & AUTO-PRINT SETUP (7.3.3) (Continued)

| Code | Ver | Function |
|-------------|------------|---|
| 534 | 116 | Set Ticketed Delivery Variance Printout Flags |
| 536 | 20 | Set RS-232 Security Code per Port |
| 537 | 20 | Set Display Format RS-232 ETX per Port |
| 538 | 20 | Set Computer Format RS-232 ETX per Port |
| 546 | 15 | Set Tank Periodic Test Needed Warning |
| 547 | 15 | Set Days Before Tank Periodic Test Needed Warning |
| 548 | 15 | Set Days Before Tank Periodic Test Needed Alarm |
| 549 | 15 | Set Tank Annual Test Needed Warning |
| 54A | 15 | Set Days Before Tank Annual Test Needed Warning |
| 54B | 15 | Set Days Before Tank Annual Test Needed Alarm |
| 54C | 19 | Set CSLD Evaporation Reid Vapor Pressure Chart |
| 54D | 29 | Set IS03166 3 Character Country Code |
| 54E | 31 | Set Vapor Monitoring Type |
| 553 | 19 | Set Line Re-Enable Method |
| 554 | 18 | Set Periodic Line Leak Test Auto-Confirm |
| 555 | 18 | Set Annual Line Leak Test Auto-Confirm |
| 556 | 15 | Set Line Periodic Test Needed Warning |
| 557 | 15 | Set Days Before Line Periodic Test Needed Warning |
| 558 | 15 | Set Days Before Line Periodic Test Needed Alarm |
| 559 | 15 | Set Line Annual Test Needed Warning |
| 55A | 15 | Set Days Before Line Annual Test Needed Warning |
| 55B | 15 | Set Days Before Line Annual Test Needed Alarm |
| 55E | 32 | Set Fiscal Height Security Enable/Disable |
| 560 | 26 | Set Mass/Density Enable/Disable |
| 564 | 27 | Set Ullage |
| 565 | 27 | Set Maintenance History |
| 566 | 28 | Set Service Notice Enable |
| 567 | 28 | Set Service Notice Delivery Override Enable |
| 568 | 28 | Set Service Notice Session Enable |
| 569 | 28 | Set Service Notice Session Duration |
| 56A | 29 | System Tank Chart Security Code Audit Trail |
| 581 | 33 | Set Alarm Filter |
| 5BC | 19 | Set Receiver Auto Dial on Alarm II |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

WARNING, ALARM, & AUTO-PRINT SETUP (7.3.3) (Continued)

| Code | Ver | Function |
|------------|-----|--|
| 5BD | 23 | Set Enable/Disable Custom Alarms |
| 5BE | 23 | Set Custom Alarm Labels |
| 5BF | 26 | Set Custom Alarm Label, device number, and indications |
| 5E2 | 14 | Set Inventory Record Time 1, 2, 3, 4 |

IN-TANK SETUP (7.3.4)

| Code | Ver | Function |
|------------|-----|--|
| 601 | 1 | Set Tank Configuration |
| 602 | 1 | Set Tank Product Label |
| 603 | 1 | Set Tank Product Code |
| 604 | 1 | Set Tank 1 Point Full Height Volume |
| 605 | 1 | Set Tank 4 Point Full, 3/4, 1/2, 1/4 Volumes |
| 606 | 1 | Set Tank 20 Point Full, 95%, 90%,...Volumes |
| 607 | 1 | Set Tank Diameter |
| 608 | 1 | Set Tank Tilt |
| 609 | 1 | Set Tank Thermal Expansion Coefficient |
| 60A | 9 | Set Tank Linear Calculated Full Volume |
| 60B | 15 | Set Tank Stick Height Function Enable |
| 60C | 15 | Set Tank Stick Height Offset |
| 60E | 22 | Set Tank Programmable Float Parameters |
| 60F | 22 | Set Tank Probe Offset |
| 610 | 1 | Set Tank Delivery Delay |
| 611 | 1 | Set Tank Leak Test Type & Start Time |
| 612 | 1 | Set Tank SIPHON Manifolded Partners |
| 613 | 3 | Set CSLD Probability of Detection |
| 614 | 5 | Set CSLD Climate Factor |
| 615 | 108 | Set BIR Meter Data Present |
| 616 | 110 | Set AccuChart Update Scheduling |
| 618 | 19 | Set Tank CSLD Evaporation Compensation |
| 619 | 19 | Set Tank Stage II Vapor Recovery |
| 61A | 20 | Set In-Tank Leak Test Early Stop |
| 61B | 121 | Set In-Tank Static Gross Test Auto-Confirm |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

IN-TANK SETUP (7.3.4) (Continued)

| Code | Ver | Function |
|-------------|------------|---|
| 61C | 121 | Set CSLD Report Only Mode |
| 61D | 23 | Set Tank LINE Manifoldded Partners |
| 61E | 26 | Set Tank Density |
| 61F | 26 | Set Delivery Density |
| 621 | 1 | Set Tank Low Level Limit |
| 622 | 1 | Set Tank High Level Limit |
| 623 | 1 | Set Tank Overfill Level Limit |
| 624 | 1 | Set Tank High Water Level Limit |
| 625 | 1 | Set Tank Sudden Loss Limit |
| 626 | 1 | Set Tank Leak Alarm Limit |
| 627 | 2 | Set Tank High Water Warning Limit |
| 628 | 2 | Set Tank Maximum Volume Limit |
| 629 | 2 | Set Tank Delivery Required Limit |
| 62A | 2 | Set Tank Annual Leak Test Minimum Volume |
| 62B | 2 | Set Tank Last Annual Test |
| 62C | 2 | Set Tank Periodic Test Type |
| 62D | 2 | Set Enable/Disable Tank Leak Test Fail Alarms |
| 62E | 3 | Set CAP0 Probe Conductive Boot Flag |
| 62F | 3 | Set Mag Probe Float Size |
| 630 | 3 | Set Tank Leak Test Notify |
| 631 | 5 | Set Tank Leak Test Averaging |
| 632 | 5 | Set Tank Test Siphon Break |
| 633 | 9 | Set Leak Test Report Type |
| 634 | 110 | Set Tank HRM Reconciliation Warning Limit |
| 635 | 110 | Set Tank HRM Reconciliation Alarm Limit |
| 636 | 14 | Set Tank Periodic Leak Test Minimum Volume |
| 639 | 115 | Set Tank AccuChart End Shape Type and Factor |
| 63A | 22 | Set Tank Low Level Threshold for Sequential Line Manifold |
| 63B | 26 | Set Tank 50 Point Heights and Volumes |
| 63C | 26 | Set Tank 50 Point Full Volume |
| 63D | 29 | Set Tank Vapor Loss Factor |
| 642 | 31 | Set Tank Water Filter Level |
| 648 | 33 | Set Probe Water Minimum |
| 64B | 33 | Set Tank Water Alarm Filter Delay |
| 651 | 33 | Set Tank Max or Label Alarm Threshold |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

IN-TANK SETUP (7.3.4)) (Continued)

| Code | Ver | Function |
|------|-----|---|
| 652 | 33 | Set Tank High Product Alarm Threshold |
| 653 | 33 | Set Tank Overfill Alarm Threshold |
| 654 | 33 | Set Tank Delivery Needed Alarm Threshold |
| 655 | 33 | Set Tank Low Product Alarm Threshold |
| 680 | 6 | Fuel Management General Setup Inquiry |
| 681 | 6 | Set Fuel Management Delivery Needed Warning |
| 682 | 6 | Set Fuel Management Automatic Report Print Time |
| 683 | 6 | Set Fuel Management Average Daily Sales |

SENSOR SETUP (7.3.5)

| Code | Ver | Function |
|------|-----|--|
| 701 | 1 | Set Liquid Sensor Configuration |
| 702 | 1 | Set Liquid Sensor Location Label |
| 703 | 1 | Set Liquid Sensor Type |
| 704 | 2 | Set Liquid Sensor Category |
| 706 | 1 | Set Vapor Sensor Configuration |
| 707 | 1 | Set Vapor Sensor Location Label |
| 708 | 1 | Set Vapor Sensor Alarm Threshold |
| 709 | 2 | Set Vapor Sensor Category |
| 711 | 1 | Set Groundwater Sensor Configuration |
| 712 | 1 | Set Groundwater Sensor Location Label |
| 713 | 2 | Set Groundwater Sensor Category |
| 721 | 24 | Set Smart Sensor Configuration |
| 722 | 24 | Set Smart Sensor Label |
| 723 | 25 | Set Smart Sensor Category |
| 727 | 24 | Set MAG Sensor Alarm Upgrade Delay |
| 728 | 24 | Set MAG Sensor Alarm Threshold |
| 729 | 24 | Set Vacuum Sensor Pump Number |
| 72A | 24 | Set Vacuum Sensor Volume |
| 72B | 24 | Set Vacuum Sensor Relief Valve Present |
| 72C | 24 | Set Vacuum Sensor Relief Valve Pressure |
| 741 | 2 | Set Type A (2 Wire CL) Sensor Configuration |
| 742 | 2 | Set Type A (2 Wire CL) Sensor Location Label |
| 743 | 2 | Set Type A (2 Wire CL) Sensor Type |
| 744 | 2 | Set Type A (2 Wire CL) Sensor Category |
| 746 | 2 | Set Type B (3 Wire CL) Sensor Configuration |
| 747 | 2 | Set Type B (3 Wire CL) Sensor Location Label |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

SENSOR SETUP (7.3.5) (Continued)

| Code | Ver | Function |
|------|-----|--|
| 748 | 5 | Set Type B (3 Wire CL) Sensor Type |
| 749 | 2 | Set Type B (3 Wire CL) Sensor Category |
| 74B | 4 | Set Universal Sensor Configuration |
| 74C | 4 | Set Universal Sensor Location Label |
| 74D | 4 | Set Universal Sensor Type |
| 74E | 4 | Set Universal Sensor Category |

VOLUMETRIC LINE LEAK SETUP (7.3.6)

| Code | Ver | Function |
|------|-----|---|
| 751 | 1 | Set Volumetric Line Leak Configuration |
| 752 | 1 | Set Volumetric Line Leak Tank Number |
| 753 | 1 | Set Volumetric Line Leak 2 Inch Pipe Length |
| 754 | 1 | Set Volumetric Line Leak 3 Inch Pipe Length |
| 755 | 1 | Set Volumetric Line Leak Pump PSI |
| 756 | 1 | Set Volumetric Line Leak Piping Material |
| 757 | 1 | Set Volumetric Line Leak Shutdown Rate |
| 758 | 1 | Set Volumetric Line Leak Pump Side Test |
| 759 | 1 | Set Volumetric Line Leak Test Type & Start Time |
| 75A | 1 | Set Line Leak Lockout Schedule (All Types) |
| 75B | 2 | Set Line Disable Alarm Assignments |
| 75C | 2 | Set Volumetric Line Leak Last Annual Test |
| 75D | 4 | Set Volumetric Line Leak Dispense Mode |
| 75E | 4 | Set Volumetric Line Leak Fuel Type |
| 75F | 5 | Set Volumetric Line Leak Wait Method |
| 760 | 6 | Set Volumetric Line Leak Location Label |
| 761 | 7 | Set Volumetric Line Leak Blend Partner |
| 7BC | 19 | Set Line Disable Alarm Assignments II |

PUMP SENSOR SETUP (7.3.7)

| Code | Ver | Function |
|------|-----|---|
| 771 | 2 | Set Pump Sensor Configuration |
| 772 | 2 | Set Pump Sensor Tank Number |
| 773 | 4 | Set Pump Sensor Dispense Mode |
| 7DA | 33 | Set Alternate Modes Auto Active Pump Switchover Enable |
| 7DB | 33 | Set Alternate Modes Auto Active Pump Switchover Volume Threshold |
| 7DC | 33 | Set Alternate-Height Modes Auto Active Pump Switchover Height Threshold |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

PRESSURE LINE LEAK SETUP (7.3.8)

| Code | Ver | Function |
|------|-----|--|
| 774 | 27 | Set Pressure Line Leak Continuous Handle Alarm Timeout |
| 775 | 23 | Set Pressure Line Leak Profile Line Test Leak Rate |
| 776 | 23 | Set Pressure Line Leak Profile Line Test Reference Pressure |
| 777 | 23 | Set Pressure Line Leak Primary Pipe Diameter |
| 778 | 23 | Set Pressure Line Leak Secondary Pipe Diameter |
| 779 | 23 | Set Pressure Line Leak Primary Pipe Bulk Modulus |
| 77A | 23 | Set Pressure Line Leak Secondary Pipe Bulk Modulus |
| 77B | 23 | Set Pressure Line Leak Thermal Expansion Coefficient |
| 77C | 19 | Set Pressure Line Leak Low Pressure Shutoff |
| 77D | 19 | Set Pressure Line Leak Altitude Pressure Offset |
| 77E | 24 | Set Pressure Line Leak Passive 0.10 GPH Test Enable Flag |
| 77F | 17 | Set Pressure Line Leak Secondary Pipe Length |
| 780 | 7 | Pressure Line Leak General Setup Inquiry |
| 781 | 7 | Set Pressure Line Leak Configuration |
| 782 | 7 | Set Pressure Line Leak Label |
| 783 | 7 | Set Pressure Line Leak 0.10 GPH Test Schedule |
| 784 | 7 | Set Pressure Line Leak Shutdown Rate |
| 785 | 7 | Set Pressure Line Leak Tank Number |
| 786 | 7 | Set Pressure Line Leak Dispense Mode |
| 787 | 7 | Set Pressure Line Leak Disable Alarm Assignments |
| 788 | 9 | Set Pressure Line Leak Piping Material |
| 789 | 9 | Set Pressure Line Leak Primary Pipe Length |
| 78A | 11 | Set Pressure Line Leak Sensor Type |
| 78B | 16 | Set Pressure Line Leak 0.10 GPH Test Schedule (Obsolete at V17, use 78E) |
| 78C | 12 | Set Pressure Line Leak 0.20 GPH Test Schedule |
| 78E | 17 | Set Pressure Line Leak 0.10 GPH Auto Test Enable |
| 78F | 17 | Set Pressure Line Leak Dispense Threshold |
| 7BD | 19 | Set Pressure Line Disable Alarm Assignments II |
| 7D7 | 33 | Set Alternate Modes Auto Active Pump Switchover Enable |
| 7D8 | 33 | Set Alternate Modes Auto Active Pump Switchover Volume Threshold |
| 7D9 | 33 | Set Alternate-Height Modes Auto Active Pump Switchover Height Threshold |

RECONCILIATION SETUP (7.3.9)

| Code | Ver | Function |
|------|-----|--|
| 790 | 118 | DIM Software Revision |
| 791 | 106 | Set Mechanical Dispenser Interface String |
| 792 | 106 | Set Electronic Dispenser Interface String |
| 793 | 106 | Set Reconciliation Auto Daily Closing Time |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

RECONCILIATION SETUP (7.3.9) (Continued)

| Code | Ver | Function |
|------------|-----|---|
| 794 | 106 | Set Auto Shift Closing Time 1, 2, 3, 4 |
| 795 | 106 | Set Periodic Reconciliation Mode |
| 796 | 106 | Set Periodic Reconciliation Report Length |
| 797 | 106 | Set Periodic Reconciliation Alarm Flag |
| 798 | 106 | Set Periodic Reconciliation Alarm Threshold |
| 799 | 106 | Set Periodic Reconciliation Alarm Offset |
| 79A | 106 | Set Remote Printer Reconciliation Report Format |
| 79B | 106 | Set Shift Manual Adjustment Value |
| 79C | 106 | Set Daily Manual Adjustment Value |
| 79D | 106 | Close Current Reconciliation Shift |
| 79E | 106 | Clear Tank Map Table |
| 79F | 108 | Set BIR Temperature Compensation Flag |

WIRELESS PLLD SETUP (7.3.10)

| Code | Ver | Function |
|------------|-----|---|
| 7A0 | 10 | WPLLD Line Leak General Setup |
| 7A1 | 10 | Set WPLLD Line Leak Configuration |
| 7A2 | 10 | Set WPLLD Line Leak Label |
| 7A3 | 10 | Set WPLLD Line Leak 0.20 GPH Test Schedule |
| 7A4 | 10 | Set WPLLD Line Leak Shutdown Rate |
| 7A5 | 10 | Set WPLLD Line Leak Tank Number |
| 7A6 | 10 | Set WPLLD Line Leak Dispense Mode |
| 7A7 | 10 | Set WPLLD Line Disable Alarm Assignments |
| 7A8 | 10 | Set WPLLD Line Leak Pipe Type |
| 7A9 | 10 | Set WPLLD Line Leak Pipe Length |
| 7AA | 11 | Set WPLLD Line Leak 0.10 GPH Test Schedule (Obsolete at V17, use 7AC) |
| 7AC | 17 | Set WPLLD Line Leak 0.10 GPH Test Schedule Enable |
| 7AD | 20 | Set WPLLD Line Leak Secondary Pipe Length |
| 7AE | 27 | WPLLD Continuous Handle Alarm Timeout |
| 7AF | 19 | Set WPLLD Line Leak Altitude Pressure Offset |
| 7BE | 19 | Set WPLLD Line Disable Alarm Assignments II |

METER MAP & DELIVERY TICKET SETUP (7.3.11)

| Code | Ver | Function |
|------------|-----|------------------------------|
| 7B1 | 110 | Set BIR Meter/Tank Mapping |
| 7B2 | 20 | Set Meter Calibration Offset |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

METER MAP & DELIVERY TICKET SETUP (7.3.11) (Continued)

| Code | Ver | Function |
|------|-----|-----------------------------|
| 7B4 | 29 | Set Individual Meter Offset |
| 7B5 | 116 | Set Ticketed Delivery |
| 7B6 | 23 | Set BOL number |

LINE/PLLD/WPLLD SETUP

| Code | Ver | Function |
|------|-----|---|
| 7BE | 19 | Set Line Disable Alarm Assignments II (refer to 7.3.5) |
| 7BE | 19 | Set Pressure Line Disable Alarm Assignments II (refer to 7.3.8) |
| 7BE | 19 | Set WPLLD Line Disable Alarm Assignments II (refer to 7.3.10) |

PUMP MONITOR RELAY SETUP (7.3.12)

| Code | Ver | Function |
|------|-----|--------------------------------------|
| 7C4 | 27 | Set Pump Relay Monitor Configuration |
| 7C5 | 27 | Set Pump Relay Monitor Label |
| 7C6 | 27 | Set Pump Relay Monitor Pump Relay |
| 7C7 | 27 | Set Pump Relay Monitor Stuck Relay |
| 7C8 | 27 | Set Pump Relay Monitor Max Run Time |
| 7C9 | 28 | Set Pump Relay Monitor Type |

PRESSURE LINE LEAK SETUP (refer to 7.3.8)

| Code | Ver | Function |
|------|-----|---|
| 7D7 | 33 | Pressure Line Leak Setup Refer to 7.3.8 |
| 7D8 | 33 | Pressure Line Leak Setup Refer to 7.3.8 |
| 7D9 | 33 | Pressure Line Leak Setup Refer to 7.3.8 |

PUMP SENSOR SETUP (refer to 7.3.7)

| Code | Ver | Function |
|------|-----|----------------------------------|
| 7DA | 33 | Pump Sensor Setup Refer to 7.3.7 |
| 7DB | 33 | Pump Sensor Setup Refer to 7.3.7 |
| 7DC | 33 | Pump Sensor Setup Refer to 7.3.7 |

I/O DEVICE SETUP (7.3.13)

| Code | Ver | Function |
|------|-----|--------------------------|
| 801 | 1 | Set Input Configuration |
| 802 | 1 | Set Input Location Label |
| 803 | 1 | Set Input Type |
| 804 | 4 | Set Input Dispense Mode |
| 806 | 1 | Set Relay Configuration |
| 807 | 1 | Set Relay Location Label |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

I/O DEVICE SETUP (7.3.13) (Continued)

| Code | Ver | Function |
|------|-----|---|
| 808 | 1 | Set Relay Alarm Assignments |
| 809 | 2 | Set Relay Orientation |
| 80A | 4 | Set Relay Type |
| 80B | 4 | Set Relay Tank Assignment |
| 80C | 25 | Set External Input Type |
| 811 | 33 | Set Alternate Modes Auto Active Pump Switchover Enable |
| 812 | 33 | Set Alternate Modes Auto Active Pump Switchover Volume Threshold |
| 813 | 33 | Set Alternate-Height Modes Auto Active Pump Switchover Height Threshold |

EEPROM SETUP (7.3.14)

| Code | Ver | Function |
|------|-----|------------------------------------|
| 851 | 107 | Restore All Setup Data from EEPROM |
| 852 | 107 | Save All Setup Data to EEPROM |
| 853 | 107 | Clear All Setup Data from EEPROM |

MISCELLANEOUS SETUP (7.3.15)

| Code | Ver | Function |
|------|-----|--|
| 881 | 9 | Set Communication Port Data |
| 882 | 9 | Initialize Communication Port Data |
| 885 | 19 | Set SiteLink Modem Type |
| 886 | 20 | Set Modem Setup String |
| 887 | 20 | Set Dial Tone Validation Interval |
| 888 | 19 | Communication Status Information |
| 889 | 121 | DTR Normal State for Serial Satellite Boards |
| 88D | 23 | Communication Diagnostic for SiteLink |
| 891 | 108 | Set AccuChart Calibration Restart |
| 8A2 | 27 | Service Code List |
| 8A3 | 27 | Maintenance Tracker Active Hardware Key List |
| 8A4 | 27 | Maintenance Tracker Block Hardware Key |
| 8BC | 19 | Set Relay Alarm Assignments II |
| 8C1 | 28 | VMC Edit/Add Serial Number |
| 8C2 | 28 | VMC Remove Serial Number |
| 8C3 | 31 | VMC Edit/Add Fueling Position Number |
| 8C4 | 31 | VMC Communications Timeout Value |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

DIAGNOSTIC REPORTS (7.4)

SYSTEM DIAGNOSTIC REPORTS (7.4.1)

| Code | Ver | Function |
|-------------|------------|---------------------------------|
| 901 | 1 | Self Test Results Report |
| 902 | 1 | System Revision Level Report |
| 903 | 106 | PC Diagnostic Report |
| 905 | 15 | System Revision Level Report II |
| 908 | 33 | Power Up Time Report |

IN-TANK DIAGNOSTIC REPORTS (7.4.2)

| Code | Ver | Function |
|-------------|------------|--|
| A01 | 1 | Probe Type and Serial Number |
| A02 | 1 | Probe Factory Dry Calibration Values |
| A03 | 1 | Probe Factory Wet Calibration Values |
| A04 | 1 | Probe Updated Dry Calibration Values |
| A05 | 1 | Probe Updated Wet Calibration Values |
| A06 | 1 | Probe Segment Sensitivity Ratios |
| A07 | 23 | Probe Reference Distance Diagnostic |
| A10 | 1 | Probe Last Sample Buffers |
| A11 | 1 | Probe Fast Average Buffers |
| A12 | 1 | Probe Standard Average Buffers |
| A13 | 1 | Probe Long Term Average Buffers |
| A14 | 19 | Mag Probe Option Table |
| A15 | 24 | In-Tank Diagnostic Printout |
| A20 | 1 | Probe Leak Test Flags - Present Test |
| A21 | 1 | Probe Leak Test Flags - Stored Test |
| A22 | 2 | Probe Leak Test Flags - Gross Test |
| A23 | 5 | Tank Leak Test Averaging Buffers |
| A51 | 3 | CSLD Diagnostics: Rate Table |
| A52 | 3 | CSLD Diagnostics: Rate Test |
| A53 | 3 | CSLD Diagnostics: Volume History Table |
| A54 | 3 | CSLD Diagnostics: Moving Average Table |
| A55 | 3 | CSLD Diagnostics: Leak Test Status |
| A56 | 121 | CSLD Monthly Report |
| A61 | 110 | HRM Diagnostic Report |
| A62 | 112 | HRM Daily History |
| A63 | 26 | Extended HRM Diagnostic Report |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

IN-TANK DIAGNOSTIC REPORTS (7.4.2) (Continued)

| Code | Ver | Function |
|-------------|------------|-----------------------------------|
| A81 | 6 | Fuel Management Diagnostic Report |
| A91 | 9 | Power Outage Diagnostic Report |

SENSOR DIAGNOSTIC REPORTS (7.4.3)

| Code | Ver | Function |
|-------------|------------|---|
| B01 | 1 | Liquid Sensor Diagnostic Report |
| B06 | 1 | Vapor Sensor Diagnostic Report |
| B07 | 3 | Vapor Sensor Concentration (PPM) Report |
| B11 | 1 | Groundwater Sensor Diagnostic Report |
| B21 | 1 | Ground Temperature Sensor Diagnostic Report |
| B33 | 24 | MAG Sensor Diagnostic Report |
| B34 | 24 | Smart Sensor Last Sample Diagnostic |
| B35 | 24 | Smart Sensor Type and Serial Number |
| B36 | 24 | Smart Sensor Constant Data |
| B37 | 24 | Atmospheric Pressure Sensor Diagnostic Report |
| B38 | 24 | Vacuum Sensor Diagnostic Report |
| B39 | 24 | Vacuum Sensor Evacuation Diagnostic Report |
| B41 | 2 | Type A Sensor (2 Wire CL) Diagnostic Report |
| B46 | 2 | Type B Sensor (3 Wire CL) Diagnostic Report |
| B4B | 4 | Universal Sensor Diagnostic Report |

LINE LEAK DIAGNOSTIC REPORTS (7.4.4)

| Code | Ver | Function |
|-------------|------------|---|
| B50 | 1 | Volumetric Line Leak Status |
| B51 | 1 | Volumetric Line Leak Diagnostic Gross Test History |
| B52 | 1 | Volumetric Line Leak 0.10 & 0.20 GPH Diagnostic History |
| B61 | 29 | Vapor Valve Diagnostic |
| B62 | 29 | Sub Alarm History Report |
| B71 | 2 | Pump Sensor Diagnostic |
| B72 | 27 | Pump Relay Monitor Diagnostic |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

LINE LEAK DIAGNOSTIC REPORTS (7.4.4) (Continued)

| Code | Ver | Function |
|------------|-----|---|
| B7B | 23 | Pressure Line Leak Profile Line Test |
| B7C | 19 | Pressure Line Leak Pressure Offset Test |
| B7D | 19 | WPLLD Line Leak Pressure Offset Test |
| B7E | 19 | Pressure Line Leak Pressure Offset Monitor Report |
| B7F | 19 | WPLLD Line Leak Pressure Offset Monitor Report |
| B81 | 7 | Pressure Line Leak Diagnostic Report |
| B82 | 10 | WPLLD Line Leak Diagnostic Report |
| B83 | 10 | WPLLD Line Leak Communication Diagnostic Report |
| B87 | 19 | Pressure Line Leak 3.00 GPH Test Diagnostic |
| B88 | 19 | Pressure Line Leak Mid-range Test Diagnostic |
| B89 | 19 | Pressure Line Leak 0.20 GPH Test Diagnostic |
| B8A | 19 | Pressure Line Leak 0.10 GPH Test Diagnostic |
| B8B | 19 | WPLLD Line Leak 3.00 GPH Test Diagnostic |
| B8C | 19 | WPLLD Line Leak Mid-range Test Diagnostic |
| B8D | 19 | WPLLD Line Leak 0.20 GPH Test Diagnostic |
| B8E | 19 | WPLLD Line Leak 0.10 GPH Test Diagnostic |

RECONCILIATION DIAGNOSTIC REPORTS (7.4.5)

| Code | Ver | Function |
|------------|-----|--|
| B91 | 108 | AccuChart Diagnostics Report |
| B93 | 108 | AccuChart Status Report |
| B94 | 108 | AccuChart Calibration History Report |
| BA0 | 110 | MDIM Totalizer Report |
| BA1 | 32 | DIM Communication Status and History |
| BB1 | 28 | VMC Status Report |
| C01 | 106 | Basic Inventory Reconciliation Daily "Row" Report |
| C02 | 106 | Basic Inventory Reconciliation Daily "Column" Report |
| C03 | 106 | Basic Inventory Reconciliation Shift "Row" Report |
| C04 | 106 | Basic Inventory Reconciliation Shift "Column" Report |
| C05 | 106 | Basic Inventory Reconciliation Periodic "Row" Report |
| C06 | 106 | Basic Inventory Reconciliation Periodic "Column" Report |
| C07 | 114 | Basic Inventory Reconciliation Periodic "Row" Report |
| C08 | 114 | Basic Inventory Reconciliation Periodic "Column" Report |
| C09 | 19 | Individual Basic Reconciliation Daily History Diagnostic |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

VARIANCE ANALYSIS REPORTS (7.6)

| Code | Ver | Function |
|------|-----|---|
| C10 | 116 | Periodic Book Variance |
| C11 | 116 | Weekly Book Variance |
| C12 | 116 | Daily Book Variance |
| C20 | 116 | Periodic Variance Analysis Report |
| C21 | 116 | Weekly Variance Analysis Report |
| C22 | 116 | Daily Variance Analysis Report |
| C25 | 19 | Periodic Variance Analysis Daily Report |

IN-STATION DIAGNOSTICS (ISD) (7.7)

ISD REPORTS (7.7.1)

| Code | Ver | Function |
|------|-----|--|
| V00 | 25 | ISD CARB Certified Operating Requirements and Monitoring |
| V01 | 25 | ISD Alarm Status Report |
| V02 | 25 | ISD Monthly Status Report |
| V03 | 25 | ISD Daily Status Report |
| V04 | 25 | ISD Daily Report Details (by month) |
| V05 | 25 | ISD Daily Report Details (by day(s)) |
| V06 | 25 | ISD Daily Report Details, 132 columns (by month) |
| V07 | 25 | ISD Daily Report Details (by day(s)) |
| V08 | 25 | ISD Daily Report Details (by month) |
| V09 | 25 | ISD Daily Report Details, user input columns (by day(s)) |
| V0A | 25 | ISD Daily Overall Status Report |
| V0B | 25 | ISD Monthly Overall Status Report |
| V10 | 25 | ISD Version Number |
| V12 | 30 | Vapor Collection Test Results |

ISD SETUP (7.7.2)

| Code | Ver | Function |
|------|-----|--|
| V40 | 25 | Set Vapor Processor Type |
| V41 | 25 | Set Vapor Processor Control Level |
| V42 | 25 | Set Clear Sensor/AFM/Hose Maps |
| V43 | 25 | Set Sensor Table ISD In Use Flag |
| V44 | 25 | Set Vapor Processor ON/OFF Pressure Thresholds |
| V45 | 25 | Set Vapor Processor Maximum Runtime (Obsolete at V30A) |
| V46 | 25 | Set Hydrocarbon Alarm Threshold |
| V47 | 25 | Set time of day ISD/PMC tests are started and results posted |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

ISD SETUP (7.7.2) (Continued)

| Code | Ver | Function |
|------|-----|---------------------------------------|
| V48 | 25 | Read Airflow Meter Table |
| V49 | 25 | Set Hose Label Table |
| V4A | 25 | Read Hose Table Data |
| V4B | 25 | Read Grade Table |
| V4E | 25 | Set ISD EVR TYPE |
| V4F | 25 | Set Nozzle Type |
| V50 | 25 | Set CVLD Minimum Pressure Time Window |
| V51 | 25 | Perform ISD Setup Verification Test |
| V52 | 25 | Accept High ORVR Configuration |
| V54 | 29 | Set VR Polisher (Obsolete) |

ISD DIAGNOSTIC REPORTS (7.7.3)

| Code | Ver | Function |
|------|-----|--|
| V80 | 25 | Vapor Processor Report |
| V81 | 25 | Percent Hydrocarbon Report |
| V82 | 30 | Vapor Processor Status Report |
| V83 | 25 | Read Sensor Calibration History |
| V85 | 25 | ISD Service Report Test Fail Clear |
| V88 | 30 | PMC Daily Vapor Polisher Diagnostic |
| VA1 | 31 | VMC A/L Daily Records Report |
| VA2 | 31 | VMC A/L Exception Report |
| VA3 | 31 | VMC A/L Transaction Report |
| VA4 | 31 | Perform APM Setup Verification Test |
| VA5 | 31 | VMCI Sub Alarm History Report |
| VA6 | 31 | APM Diagnostic Report |
| VA7 | 31 | APM Service Report Test Fail Clear |
| VA8 | 31 | APM Miscellaneous Events Report |
| VA9 | 31 | Acknowledge APM Alarm to Re-enable Site |
| VAA | 31 | Set Automatic Pressure Monitoring Type |
| VAB | 31 | APM Daily Summary Report |
| VAC | 31 | APM Fault History Report |
| VAD | 31 | Set APM Assessment Time |
| VAE | 31 | Set APM Sensor Test Warn/Fail Enable |
| VAF | 31 | Set Sensor Table APM in Use Flag |
| VC0 | 25 | Automatic/Manual Vapor Processor Control |
| VC1 | 25 | Manual Override of Vapor Processor |

Serial Interface Manual

TLS-300/350/350R Monitoring Systems

ISD DIAGNOSTIC REPORTS (7.7.3) (Continued)

| Code | Ver | Function |
|-------------|------------|---|
| VC5 | 25 | Acknowledge ISD Alarm to Re-Enable Site |
| VC8 | 29 | Set Manual Override of Veeder-Root Polisher |
| XE0 | 25 | ISD Setup Data Time Stamp EEPROM |