

**TLS-450PLUS/TLS4 Consoles
Vapor Collection Monitoring: VAPORIX**

Install, Setup And Troubleshooting



Notice

Veeder-Root makes no warranty of any kind with regard to this publication, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Veeder-Root shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this publication.

Veeder-Root reserves the right to change system options or features, or the information contained in this publication.

This publication contains proprietary information which is protected by copyright. All rights reserved. No part of this publication may be photocopied, reproduced, or translated to another language without the prior written consent of Veeder-Root.

Contact TLS Systems Technical Support for additional troubleshooting information at 800-323-1799.

DAMAGE CLAIMS / LOST EQUIPMENT

Thoroughly examine all components and units as soon as they are received. If any cartons are damaged or missing, write a complete and detailed description of the damage or shortage on the face of the freight bill. The carrier's agent must verify the inspection and sign the description. Refuse only the damaged product, not the entire shipment.

Veeder-Root must be notified of any damages and/or shortages within 30 days of receipt of the shipment, as stated in our Terms and Conditions.

VEEDER-ROOT'S PREFERRED CARRIER

1. Contact Veeder-Root Customer Service at 800-873-3313 with the specific part numbers and quantities that were missing or received damaged.
2. Fax signed Bill of Lading (BOL) to Veeder-Root Customer Service at 800-234-5350.
3. Veeder-Root will file the claim with the carrier and replace the damaged/missing product at no charge to the customer. Customer Service will work with production facility to have the replacement product shipped as soon as possible.

CUSTOMER'S PREFERRED CARRIER

1. It is the customer's responsibility to file a claim with their carrier.
2. Customer may submit a replacement purchase order. Customer is responsible for all charges and freight associated with replacement order. Customer Service will work with production facility to have the replacement product shipped as soon as possible.
3. If "lost" equipment is delivered at a later date and is not needed, Veeder-Root will allow a Return to Stock without a restocking fee.
4. Veeder-Root will NOT be responsible for any compensation when a customer chooses their own carrier.

RETURN SHIPPING

For the parts return procedure, please follow the appropriate instructions in the "General Returned Goods Policy" pages in the "Policies and Literature" section of the Veeder-Root **North American Environmental Products** price list. Veeder-Root will not accept any return product without a Return Goods Authorization (RGA) number clearly printed on the outside of the package.

Introduction	
Contractor Certification Requirements	1
Related Documents	1
Safety Precautions	2
Safety Warnings	2
TLS-450PLUS Console Installation	3
Changing RS-232/485 Board Jumpers for TLS-450PLUS	6
TLS-4 Console Installations	7
Setup	
Setup The Serial Port On The ATG	10
Set the Communications Time Out	11
Setup the Vapor Collection Monitor (VAPORIX)	11
Assign an Auto Event to a Relay	12
Reports	
Collection Daily Report	14
Collection Faults Report	15
Collection Transactions Report	16
Diagnostics	
Collection Status	18
VMC Version	20
Alarms And Warnings	
Alarm Filtering	21
Troubleshooting	
VAPORIX-Control Status Indicator	22
VAPORIX-Control Status Codes	22

Figures

Figure 1.	Example TLS-450PLUS Comm Wiring Diagram - VAPORIX Controller I	3
Figure 2.	Example TLS-450PLUS Comm Wiring Diagram - VAPORIX Controller I.I	4
Figure 3.	Example TLS-450PLUS Comm Wiring Diagram - VAPORIX Controller II	5
Figure 4.	Required J7/J8 Jumper Positions On The RS-232/RS-485 Interface Board	6
Figure 5.	Example TLS4 Comm Wiring Diagram - VAPORIX Controller I	7
Figure 6.	Example TLS4 Comm Wiring Diagram - VAPORIX Controller I.I	8
Figure 7.	Example TLS4 Comm Wiring Diagram - VAPORIX Controller II	9
Figure 8.	VAPORIX Control Diagnostic LEDs	21

Tables

Table 1.	VAPORIX-Control Flashing LED Status Codes	21
Table 2.	VAPORIX Troubleshooting Guide	21
Table 3.	VAPORIX Status Error Codes	21

Introduction

Vapor Collection Monitoring monitors Stage 2 dispenser vapor recovery systems that contain petroleum vapors during the dispensing of fuel. These systems include VAPORIX Vapor Monitor Controllers (VMCs) that are located in each dispenser and are connected to the ATG via a single RS-485 network (i.e. twisted-pair-wire).

Each VAPORIX Controller contains two sensors, "A" for one side of the dispenser, and "B" for the other side of the dispenser. These sensors monitor the vapor return from the vehicle's fuel tank (displaced by the fuel being dispensed into it) and calculate an air to liquid fuel (A/L) ratio. With this information, you can determine if a hose is blocked. The controller will shut down the dispenser's fueling position after the programmed number of consecutive failures and the remaining time (the time programmed in the firmware of the VAPORIX Controller to allow you to correct a problem) expires.

Vapor Collection Monitoring requires software version 7A or later and the optional Vapor Collection Monitoring feature.

This manual provides the instructions needed to install, setup, and operate the components of Veeder-Root Vapor Monitoring using VAPORIX hardware on the TLS-450PLUS or the TLS-4xx Series.

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:

Installer Certification (Level 1): Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; wireless equipment installation; tank and line preparation; and line leak detector installation.

Technician Certification (Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank

VR Vapor Products Certification: Contractors holding a certification with the following designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- ISD – In Station Diagnostics
- PMC – Pressure Management Control
- CCVP - Veeder-Root Vapor Polisher
- Wireless – ISD/PMC Wireless
- A current Veeder-Root Technician Certification is a prerequisite for the VR Vapor Products course.

Warranty Registrations may only be submitted by selected Distributors.

Related Documents

577014-110 TLS450PLUS / TLS-4 Operator's Manual

577014-073 TLS450PLUS Site Prep Manual

577014-075 TLS-450PLUS Troubleshooting Guide

577014-022 TLS4 Site Prep Manual

577014-058 TLS4 Troubleshooting Manual

MDE-5604 VaporTEK Service and Troubleshooting Manual (Gilbarco Veeder-Root)

Safety Precautions

The following safety symbols may be used throughout this manual to alert you to important safety hazards and precautions

 <p>EXPLOSIVE Fuels and their vapors are extremely explosive if ignited.</p>	 <p>FLAMMABLE Fuels and their vapors are extremely flammable.</p>
 <p>ELECTRICITY High voltage exists in, and is supplied to, the device. A potential shock hazard exists.</p>	 <p>TURN POWER OFF Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.</p>
 <p>WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p>	 <p>READ ALL RELATED MANUALS Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.</p>
 <p>NOTICE is used to address practices not related to physical injury.</p>	

Safety Warnings

! WARNING	
	<p>This console contains high voltages which can be lethal. It is also connected to low power devices that must be kept intrinsically safe.</p> <p>FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.</p> <ol style="list-style-type: none"> 1. Turn off and tag power at the circuit breaker. Do not connect the console AC power supply wires at the breaker until all devices are connected. 2. Attach conduit from the power panel to the console's Power Area knockouts only. 3. Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes. <p>Connecting power wires to a live circuit can cause electrical shock that may result in serious injury or death.</p> <p>Routing conduit for power wires into the intrinsically safe compartment can result in fire or explosion resulting in serious injury or death.</p>

TLS-450PLUS Console Installation

In the TLS-450PLUS installations, the VAPORIX hardware connects directly into a RS-485 interface on the console. A VMCI board is not required. The console handles direct communication with the Controller. There are three Fafnir VAPORIX Controller models, I, I.I and II, but the Controllers in the site must be the same model.

We recommend after you connect one controller that you test it to be sure the ATG logs the data, then connect and test each additional controller. It is easier to troubleshoot one controller at a time.

For comm wiring VAPORIX Controller Models I see Figure 1. For comm wiring VAPORIX Controller Model I.I see Figure 2. For comm wiring VAPORIX Controller Model II see Figure 3.

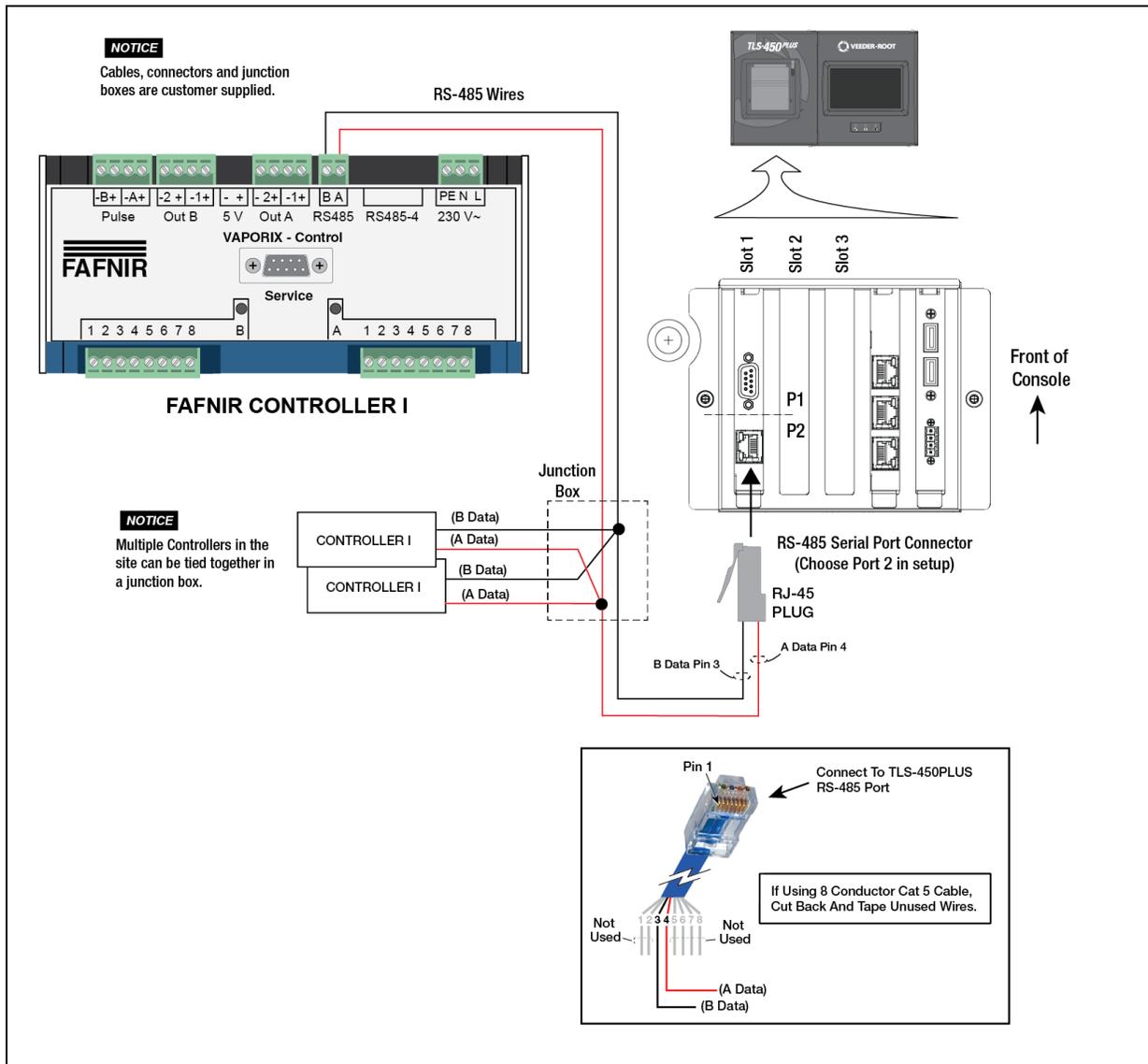


Figure 1. Example TLS-450PLUS Comm Wiring Diagram - VAPORIX Controller I

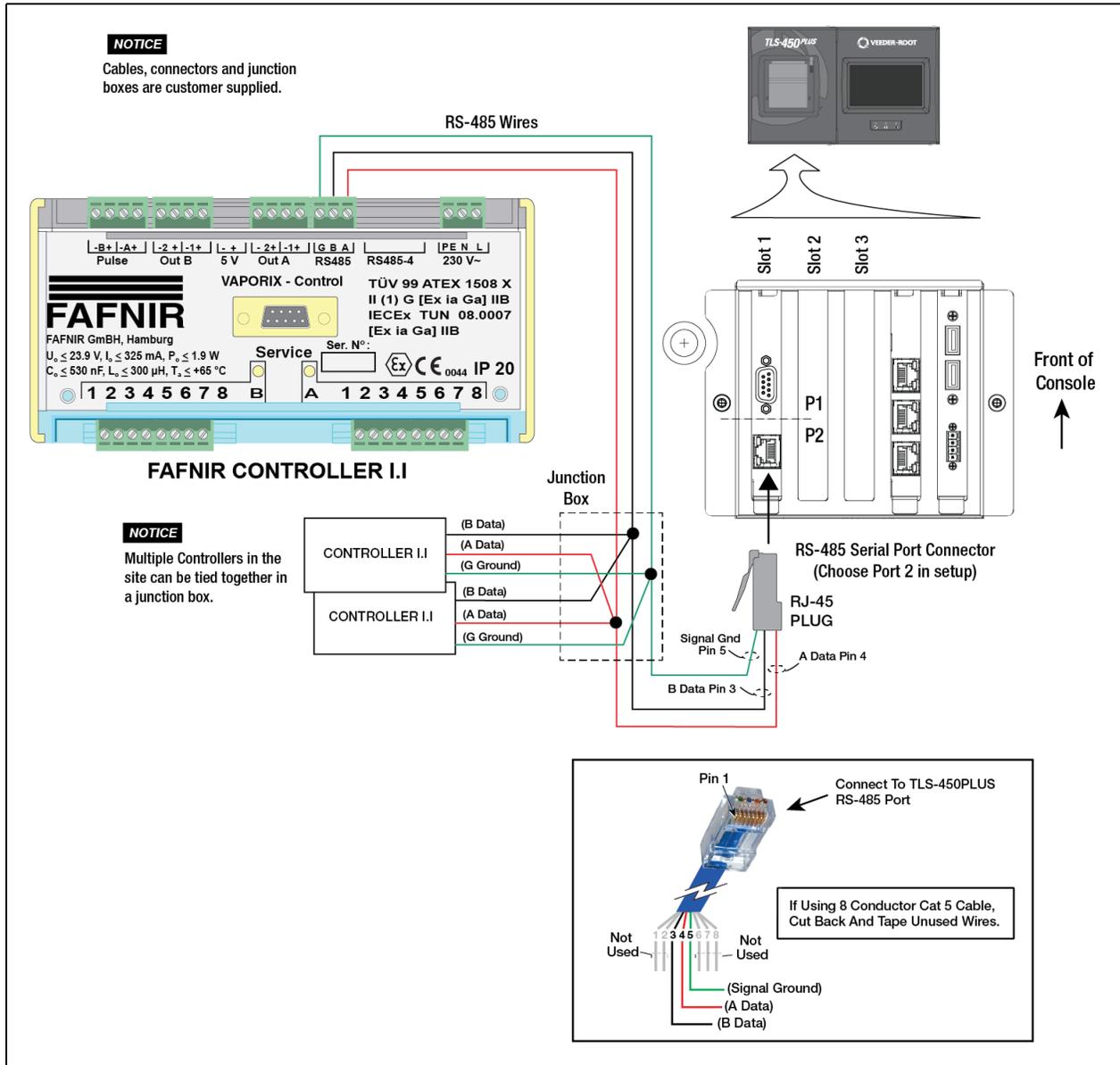


Figure 2. Example TLS-450PLUS Comm Wiring Diagram - VAPORIX Controller I.I

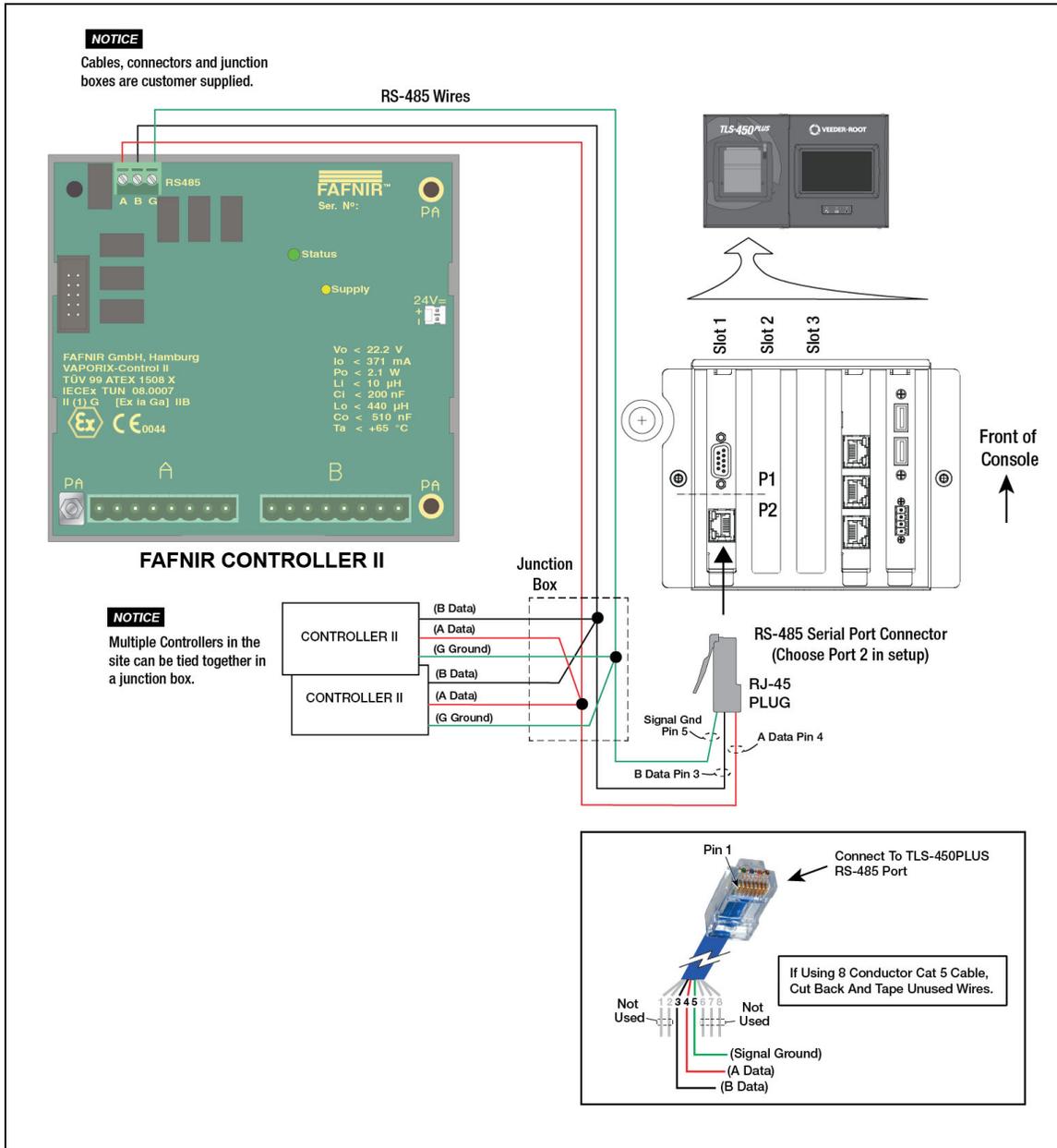


Figure 3. Example TLS-450PLUS Comm Wiring Diagram - VAPORIX Controller II

CHANGING RS-232/485 BOARD JUMPERS FOR TLS-450PLUS

The J7 and J8 jumpers on the RS-232/RS-485 board need to be changed from their default positions. The jumpers should be set as shown in Figure 4:

- J7 determines if the serial interface is RS-232 or RS-485 and should be set on pins 1 and 2. Notice the white on the right side of the J7 jumper. That is pin 1.
- J8 and J11 should be set on both pins.
- The J3 jumper boxed in red, does not affect the RS-485 interface and should be set as shown (J3 on pins 1 and 2).

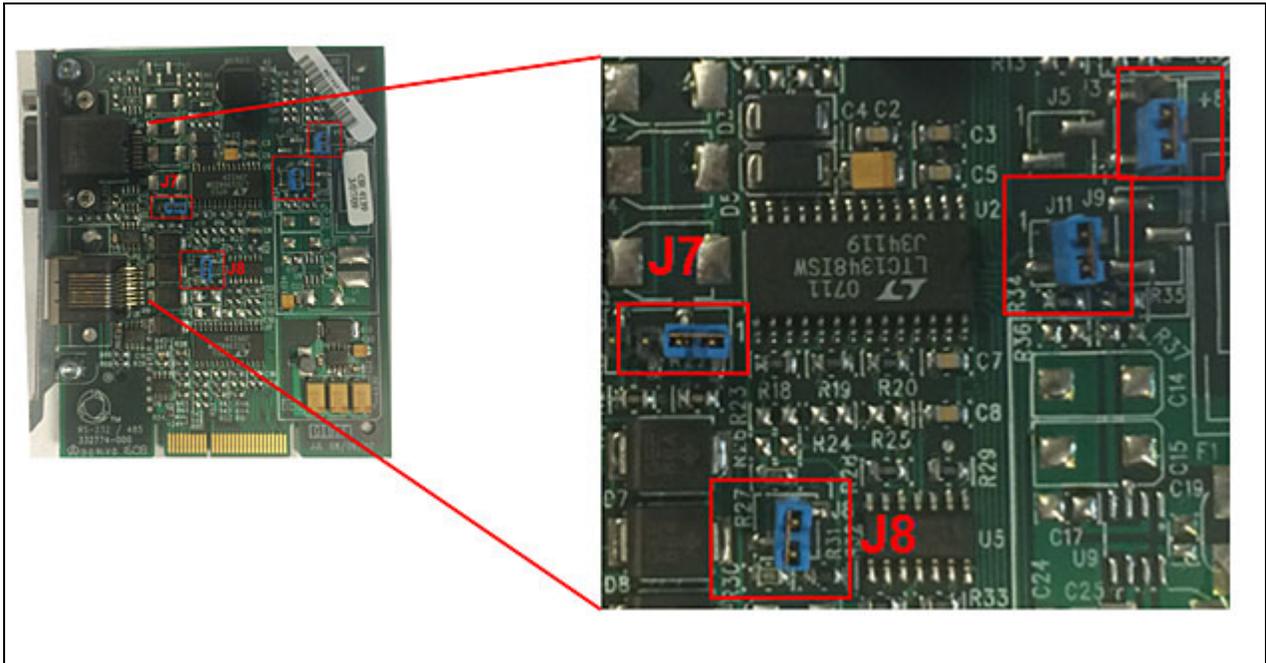


Figure 4. Required J7/J8 Jumper Positions On The RS-232/RS-485 Interface Board

TLS-4 Console Installations

In TLS-4 installations, the VAPORIX hardware connects directly into a RS-485 interface on the console. A VMCI board is not required. The console handles direct communication with the controller. There are three Fafnir Controller models, I, I.I and II but the Controllers in the site must all be the same model.

We recommend after you connect one controller that you test it to be sure the ATG logs the data, then connect and test each additional controller. It is easier to troubleshoot one controller at a time.

For comm wiring VAPORIX Controller Model I see Figure 5. For comm wiring VAPORIX Controller Model I.I see Figure 6. For comm wiring VAPORIX Controller Model II see Figure 7.

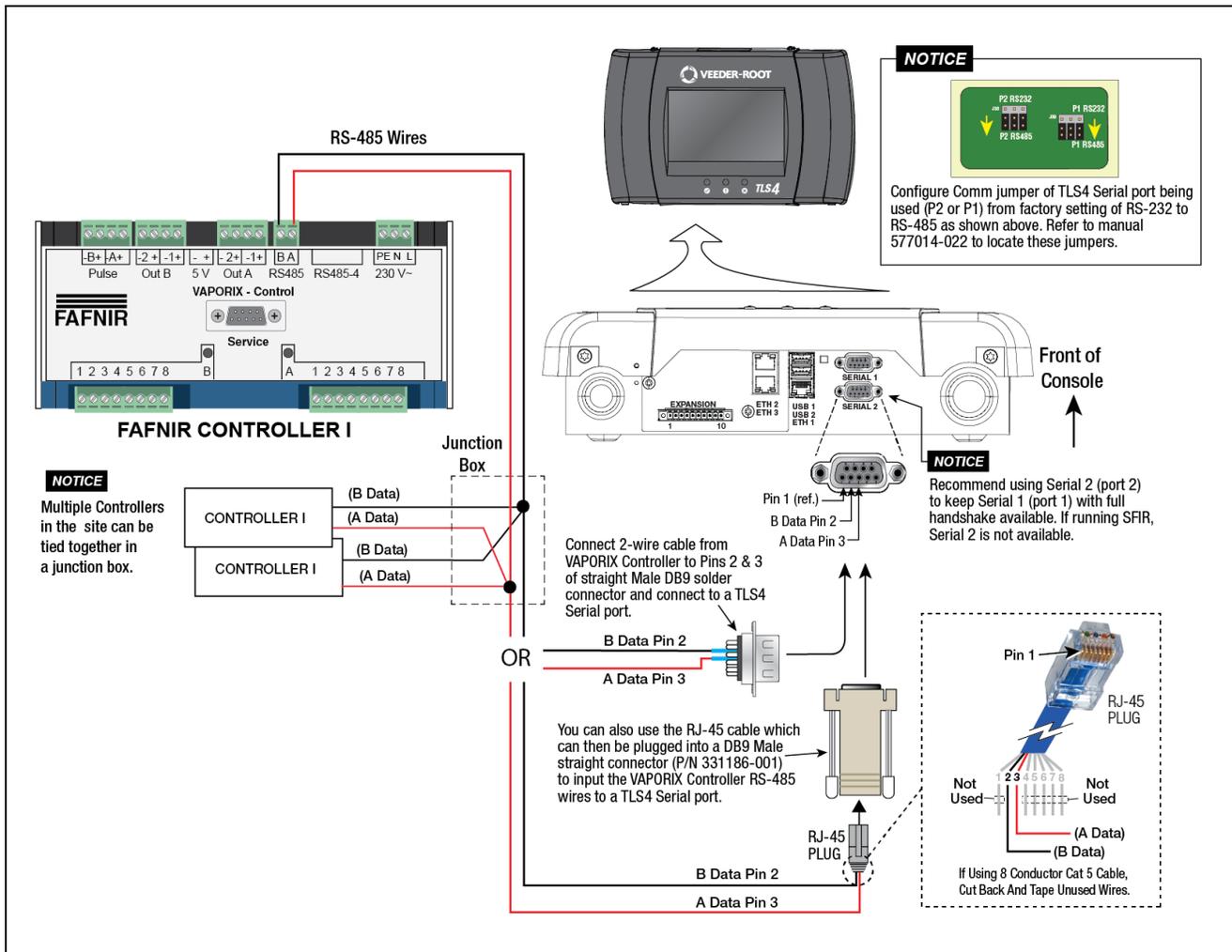


Figure 5. Example TLS4 Comm Wiring Diagram - VAPORIX Controller I

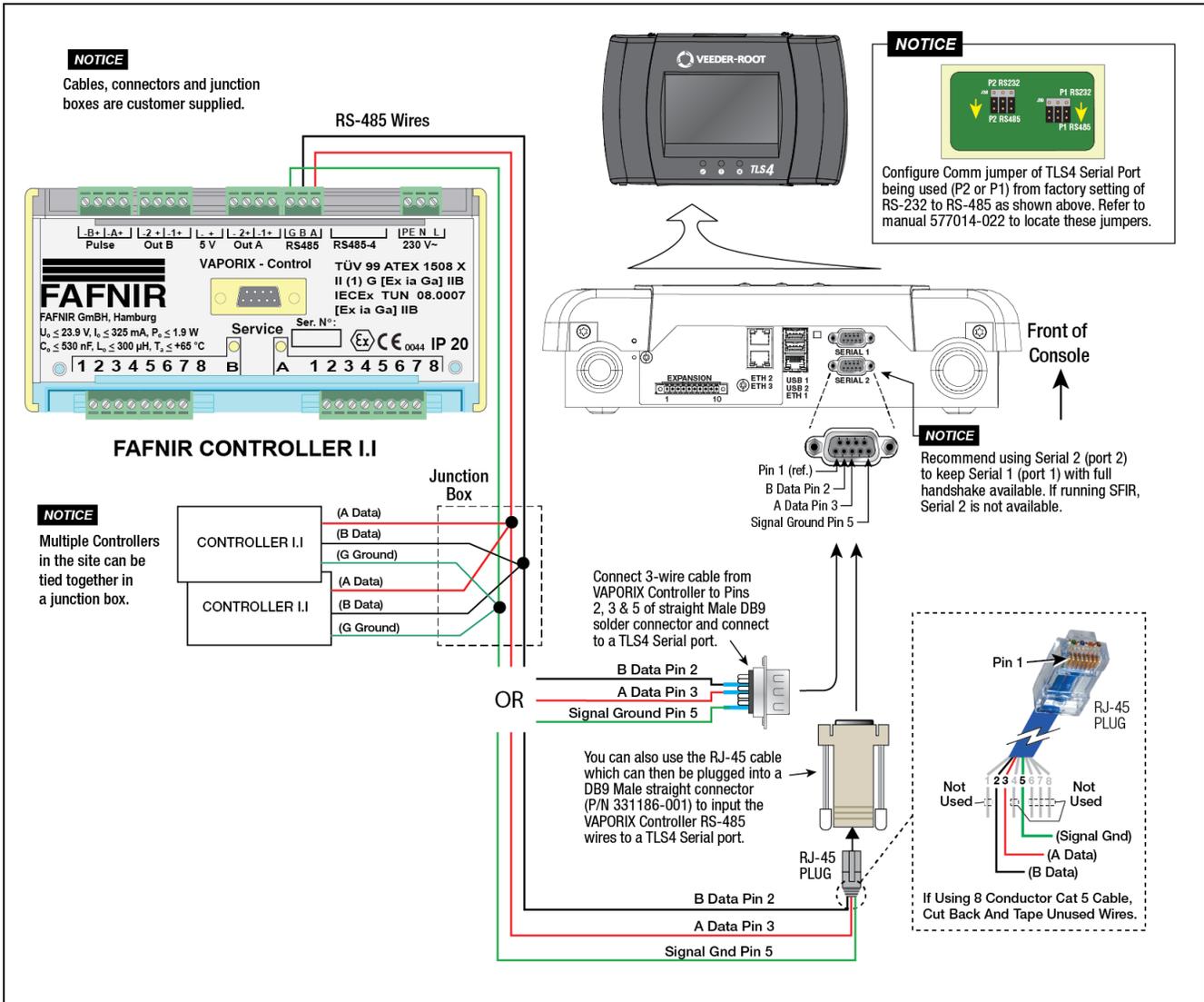


Figure 6. Example TLS4 Comm Wiring Diagram - VAPORIX Controller I.I.

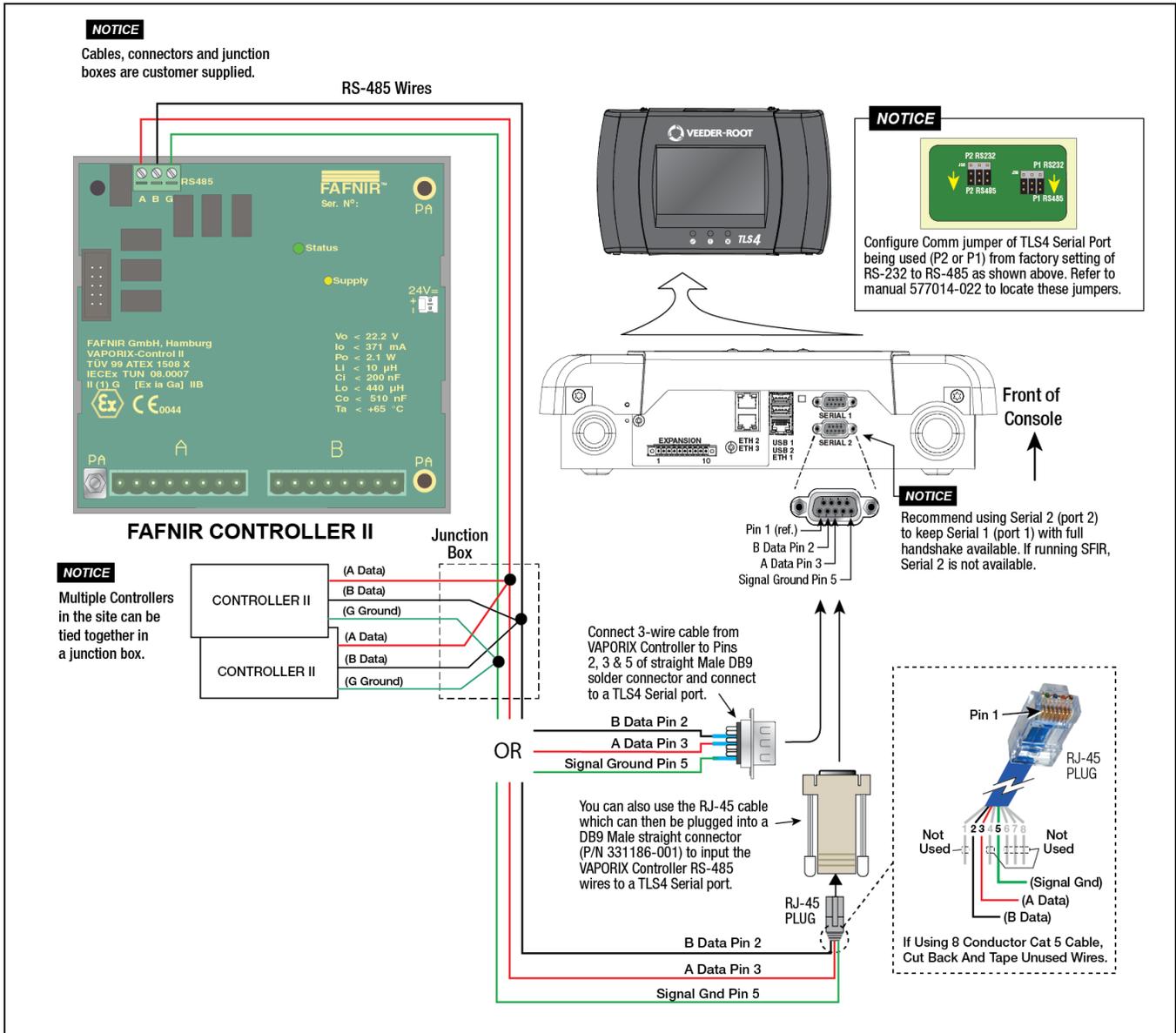


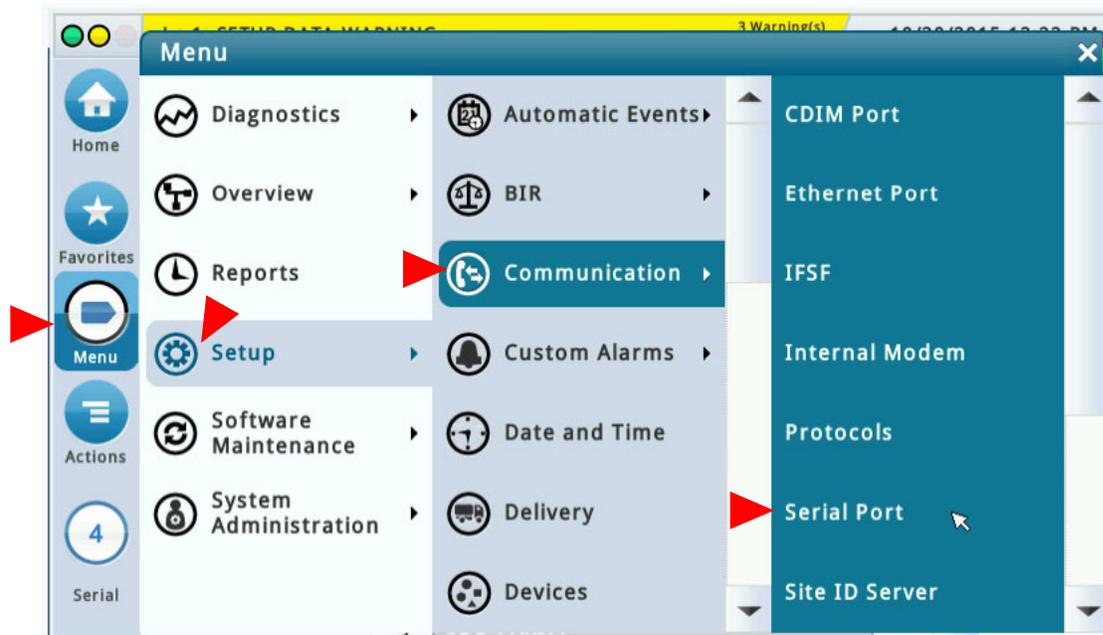
Figure 7. Example TLS4 Comm Wiring Diagram - VAPORIX Controller II

Setup

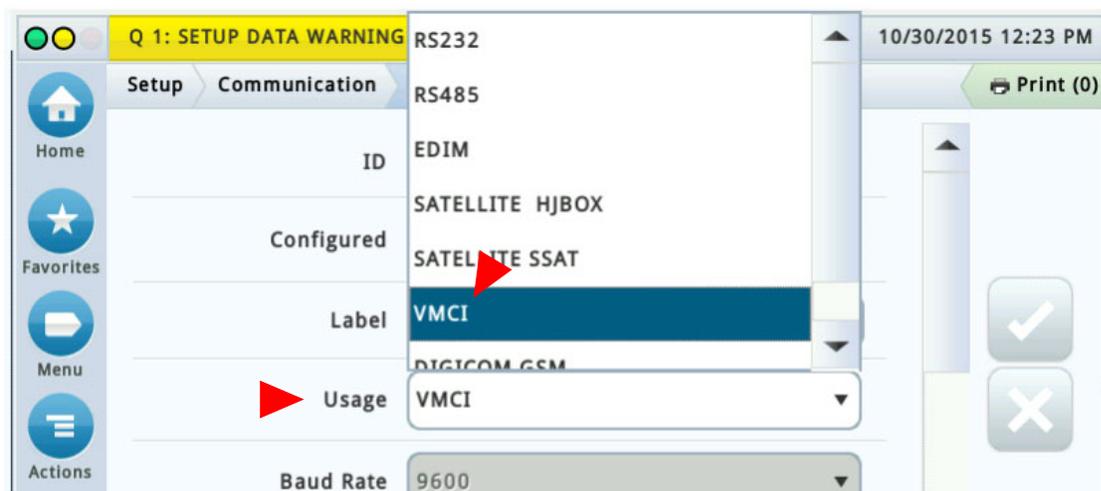
Power up the ATG and complete the following VCM setups.

Setup The Serial Port On The ATG

1. Navigate to **Menu>Setup>Communication>Serial Port**:



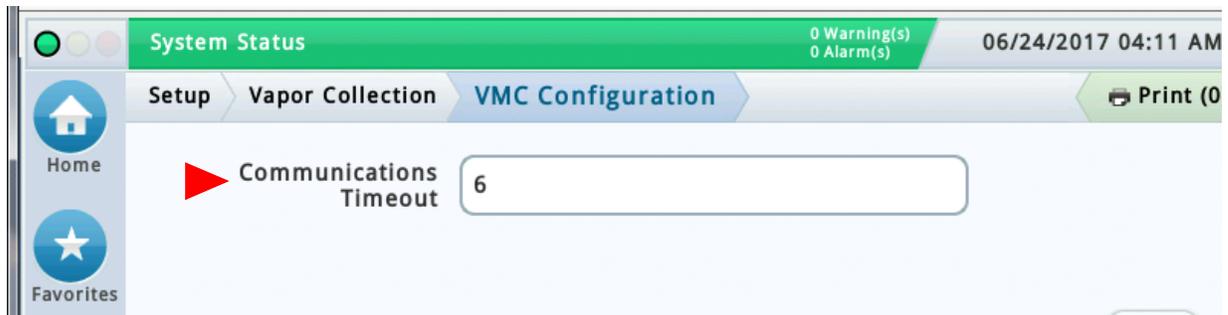
2. Touch the down arrow in the **Usage** field of the Serial Port setup screen and select **VMCI**:



Set the Communications Time Out

The Communications Time Out is the length of time (in hours) that the console will not report communications failures. Loss of communication for more than this time will generate a Communication alarm.

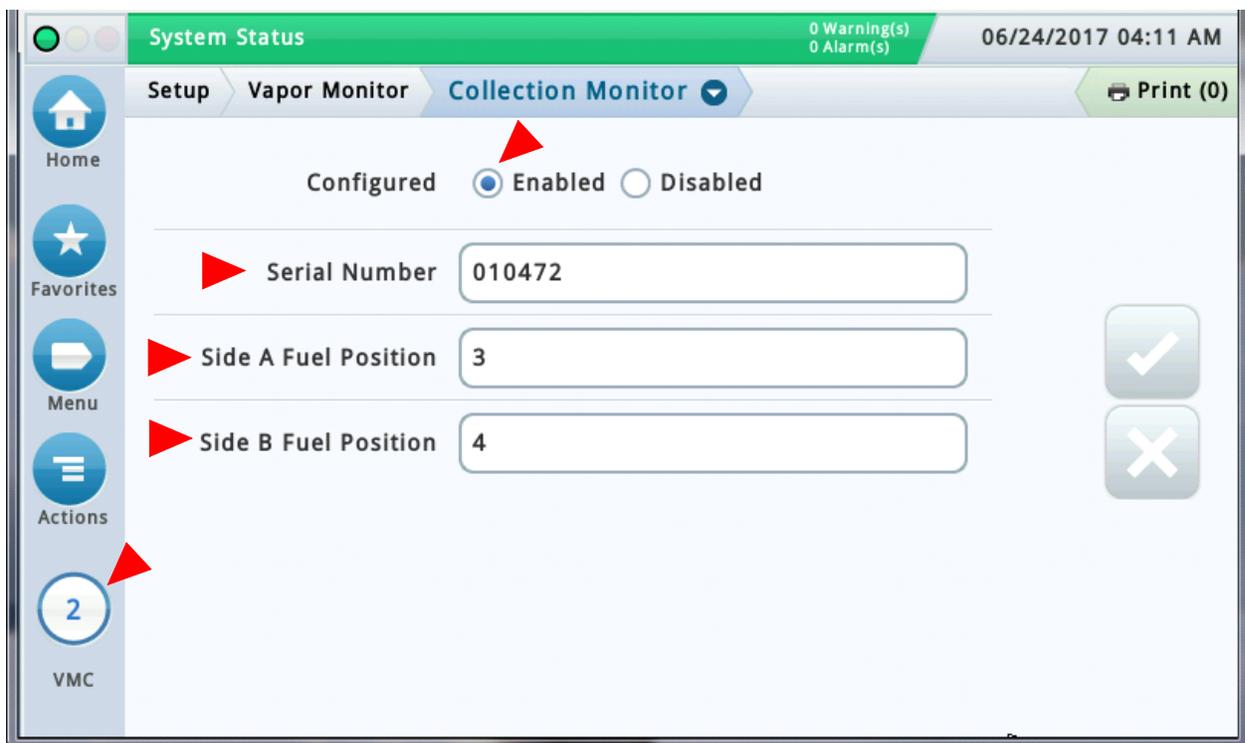
Navigate to **Menu > Setup > Vapor Collection > VMC Configuration**. In the **Communications Timeout** field, select the length of time (in hours) before a communications alarm is posted. The default is 6 hours.



Setup the Vapor Collection Monitor (VAPORIX)

The maximum number of Vapor Collection Monitors is 36, so 72 fueling positions are available.

1. Navigate to **Menu > Setup > Vapor Monitoring > Collection Monitor**



2. Select the Vapor Collection Monitor (VAPORIX) that you want to configure from the bottom ribbon.
3. Enable the device, if applicable.
4. Type the serial number for the controller in the Serial Number field. It must be exactly six (6) digits. Insert leading zeros (0) if required to make it six digits.
5. Assign the labels for the Side A Fuel Position and the Side B Fuel Position in the associated fields. Values are numerical between 1-99 with no duplications. We recommend matching the dispenser side position on the forecourt as the label.
6. Repeat for each Vapor Collection Monitor (VAPORIX) that you have to set up.

Assign an Auto Event to a Relay

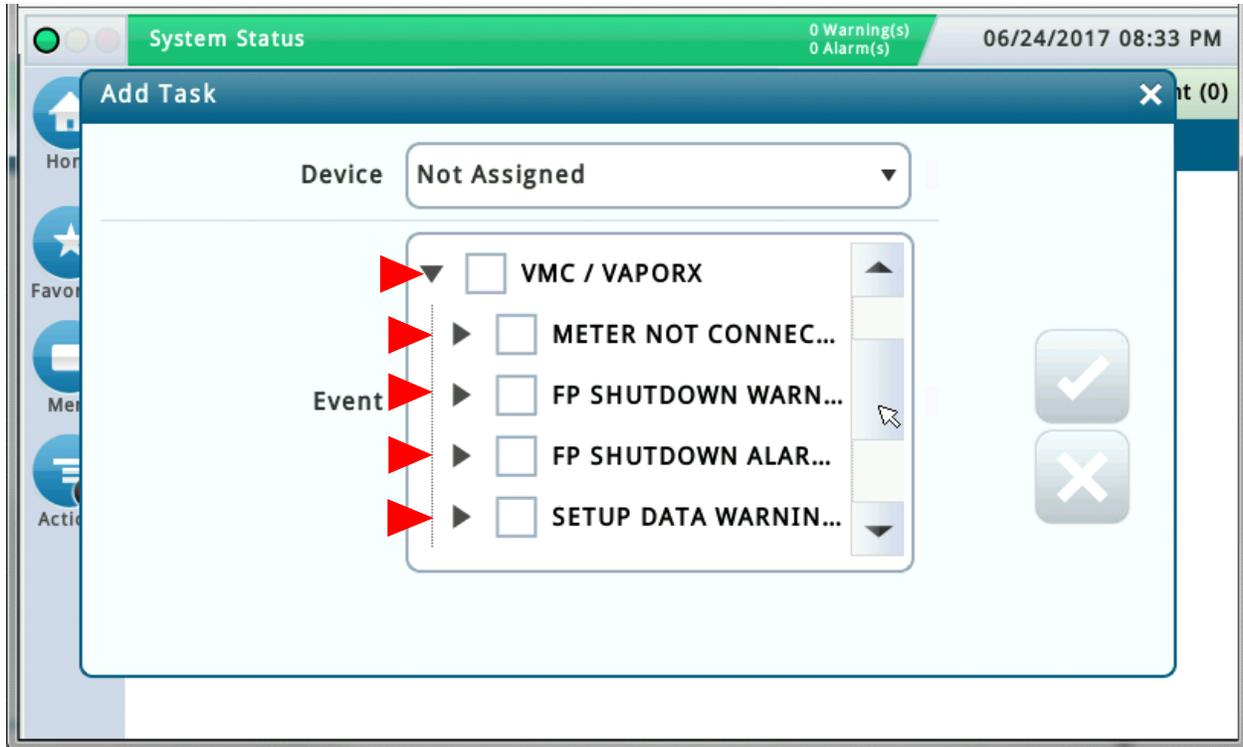
You may want to set up an Auto Event Device task to control a relay when a Meter Not Connected, FP Shutdown Warning or FP Shutdown Alarm, or Setup Data warning is generated. You do this in Setup > Devices as follows:

1. Navigate to **Menu > Setup > Devices**
2. Select a Relay.
3. Enable the Relay, Select the address, type a label name, relay type and orientation.



4. Save the screen.
5. Navigate to **Setup > Automatic Events > Tasks > Device Task**.
6. Touch **Actions > Add Task** [Web View: **Add New Device Task**].

7. Select the relay you set up.
8. Navigate to the VMC/VAPORX section and select the four alarms and warnings mentioned above.



9. Save the screen

Reports

Collection Daily Report

The daily record is generated by each controller at midnight and reflect the day's average A/L for all eligible transactions.

For VAPORIX, eligible transactions are those with a duration of 20 seconds or more with a vapor flow higher than 15 lpm with no liquid pulses and liquid flow is higher than 25 lpm.

1. Navigate to **Menu > Reports > Vapor Monitoring > Collection Daily**
2. Select the fueling position that you want to view. The serial number, side and fueling position for the VMC displays at the top of the page.

NOTICE You can touch **Actions > Toggle A/B Side** to see information on the other fueling position associated with this controller.

	A/L Avg	Transactions	Status
PM	102.3	25	IDLE
PM	99.4	19	IDLE
PM	104.6	22	IDLE
PM	101.9	26	IDLE
PM	102.2	12	IDLE
PM	103.3	31	IDLE
PM	101.7	41	IDLE
PM	102.3	30	IDLE

The range of dates on the report displays below the VMC information. You can touch the Actions icon to further define the range on the report. You can also use the page navigation at the top to scroll through the pages. Columns in the report contain the following information:

Column	Description
A/L Average	The A/L Average (the air to liquid volume ration) for this fueling position for the day.
Transactions	The total number of transactions for the day.

Column	Description
Status	<p>The status of the fueling position at the end of the day:</p> <ul style="list-style-type: none"> • Idle - Normal (No customer is fueling.) • Meter Not Connected - Flow meter is not connected. • FP Shutdown Warning - The fueling position has had at least 10 bad transactions in a row, but the Remaining Time is still counting down. The Remaining Time can vary by country and is programmed in the VMC/VAPORIX firmware (usually 3 or 7 days.) • FP Shutdown Alarm - The fueling position has had at least 10 bad transactions in a row, and the Remaining Time has reached zero. The Fueling Position has been shut down by the VAPORIX Controller in the dispenser.

Collection Faults Report

The Collection Faults Report displays transactions outside the regulated A/L limits define by the controller. The console stores two years of transaction data.

1. Navigate to **Menu > Reports > Vapor Monitoring > Collection Faults**
2. Select the fueling position that you want to view.
3. The Serial Number, Side and Fueling Position displays at the top.

NOTICE You can touch **Actions > Toggle A/B Side** to see information on the other fueling position associated with this controller.

The screenshot shows a mobile application interface for 'Collection Faults'. At the top, there are navigation tabs: 'Reports', 'Vapor Monitor', and 'Collection Faults'. A 'Print (0)' button is on the right. Below the tabs, the text 'VMC: 102050 Side: B FP: 1' is displayed, followed by the date range 'From: 04/18/2017 12:00 AM To: 04/18/2017 11:59 PM'. A table with the following data is shown:

Date	Time	Duration	Status	Error Count	Fuel Count	Recovery Rate	Vapor Rate	Fuel Rate
04/18/2017	05:03 AM	66	NOTPASS	1	11244	116.9	41.7	35.7

On the left sidebar, there are icons for Home, Favorites, Menu, Actions, and FP. The 'FP' icon, which contains the number '1', is highlighted with a red arrow.

Below the VMC information is the date and time range shown. You can touch the Actions icon to further define the range on the report. You can also use the page navigation at the top to scroll through the pages. Columns in the report contain the following information:

Column	Description
Date/Time	The date and time of the data shown.
Duration	The duration of the transaction. The timer starts counting when the flow values exceed 25 liters per minute.
Status	The status of the transaction: <ul style="list-style-type: none"> • Last Transaction Failed - The last transaction for this fueling position is out of the regulated A/L range. • FP Shutdown Warning - The fueling position has had at least 10 bad transactions in a row, but the Remaining Time is still counting down. The Remaining Time can vary by country and is programmed in the VMC/VAPORIX firmware (usually 3 or 7 days.). • FP Shutdown Alarm - The fueling position has had at least 10 bad transactions in a row, and the Remaining Time has reached zero. The Fueling Position has been shut down by the VAPORIX Controller in the dispenser.
Error Count	The number of dispenses outside the acceptable A/L range for this fueling position. More than 10 errors in a row activates the FP Shutdown Warning.
Fuel Count	The total number of transactions for this fueling position. This resets after 65535 events.
Recovery Rate	The percentage value of the A/L ratio of vapor and liquid flow calculated. Values are 000.0 to 999.9 with expected results between 85 and 115%.
Vapor Rate	The measurement of vapor (gpm or lpm). This is used to calculate the Recovery%.
Fuel Rate	The measurement of fuel (gpm or lpm). This is used to calculate the Recovery%.

Collection Transactions Report

The Collection Transactions Report provides every transaction for the device that meets the flow rate and or time requirement as determined by the controller. The console stores 2 years of data.

1. Navigate to Menu > Reports > Vapor Monitoring > Collection Transactions.
2. Select the fueling position that you want to view.
3. The Serial Number, Side and Fueling Position displays at the top.

NOTICE You can touch Actions > Toggle A/B Side to see information on the other fueling position associated with this controller.

Date	Time	Duration	Status	Error Count	Fuel Count	Recovery Rate	Vapor Rate	Fuel Rate
04/18/2017	11:12 AM	40	IDLE	0	11254	100.5	36.0	36.0
04/18/2017	09:00 AM	67	IDLE	0	11253	99.7	36.8	36.8
04/18/2017	08:05 AM	40	IDLE	0	11252	98.3	34.9	34.9
04/18/2017	07:55 AM	21	IDLE	0	11251	107.8	39.2	39.2
04/18/2017	07:47 AM	73	IDLE	0	11250	98.6	36.3	36.3
04/18/2017	06:29 AM	52	IDLE	0	11249	98.7	36.1	36.1
04/18/2017	06:22 AM	85	IDLE	0	11248	99.3	35.6	35.6
04/18/2017	06:18 AM	45	IDLE	0	11247	105.8	31.5	31.5
04/18/2017	05:54 AM	65	IDLE	0	11246	100.5	34.1	34.1

Below the VMC information is the date and time range shown. You can use the Actions to further define the range on the report. You can also use the page navigation at the top to scroll through the pages. Columns in the report contain the following information:

Column	Description
Date/Time	The date and time of the data shown.
Duration	The duration of the transaction.
Status	The status of the fueling position side: <ul style="list-style-type: none"> • Idle - Normal (No customer is fueling) • Last Transaction Failed - The last transaction for this fueling position is out of the regulated A/L range. • FP Shutdown Warning - The fueling position has had at least 10 bad transactions in a row, but the Remaining Time is still counting down. The Remaining Time can vary by country and is programmed in the VMC/VAPORIX firmware (usually 3 or 7 days.). • FP Shutdown Alarm - The fueling position has had at least 10 bad transactions in a row, but the Remaining Time is zero. The Fueling Position has been shut down by the VAPORIX Controller in the dispenser.
Error Count	The number of dispenses outside the acceptable A/L range for this fueling position. More than 10 errors in a row activates the FP Shutdown Warning.
Fuel Count	The total number of events per flow meter. This resets after 65535 events.
Recovery Rate	The percentage value of the A/L ratio of vapor and liquid flow calculated. Values are 000.0 to 999.9 with expected results between 85 and 115%.
Vapor Rate	The measurement of vapor (gpm or lpm). This is used to calculate the Recovery%.
Fuel Rate	The measurement of fuel (gpm or lpm). This is used to calculate the Recovery Rate.

Diagnostics

Collection Status

The Collection Status screen provides a snapshot of the recovery rate, error and fuel counts and time remaining before the FP Shutdown for the VMCs (VAPORIX Controllers) currently active on your system.

Navigate to **Menu > Diagnostics > Vapor Monitoring > Collection Status**.

FP	VMC-Side	S/N	Status	Recovery Rate	Error Count	Fuel Count	Remaining Time
1	1-A	010977	RUN	100.8	0	29071	65535
2	1-B	010977	RUN	101.1	0	29013	65535
3	2-A	011232	RUN	96.4	0	35475	65535
4	2-B	011232	RUN	96.6	0	27795	65535
5	3-A	011062	IDLE	100.4	0	25103	65535
6	3-B	011062	IDLE	100.7	0	12907	65535
7	4-A	011028	IDLE	106.3	0	29594	65535
8	4-B	011028	IDLE	98.0	0	30582	65535

The Collection Status Diagnostics screen contains the following information:

Column	Description
FP	The date and time of the data shown.
VMC-Side	A dispenser typically has fueling positions on two sides. This indicates the VMC Number and side (e.g., 1-A for VMC 1, side A).
S/N	The serial number of the VMC/VAPORIX.

Column	Description
Status	<p>The status of the fueling position:</p> <ul style="list-style-type: none"> • Meter Not Connected - Flow meter is not connected. • Idle - Normal (No customer is fueling). • Running - Normal (Customer is fueling). • Last Transaction Failed - The last transaction for this fueling position is out of the regulated A/L range (bad). • FP Shutdown Warning - The fueling position has had at least 10 bad transactions in a row, but the remaining time is still counting. • FP Shutdown Alarm - The fueling position has had at least 10 bad transactions in a row, and the remaining time has reached zero. The Fueling Position has been shut down by the VAPORIX Controller in the dispenser.
Recovery Rate	The percentage value of the A/L ratio of vapor and liquid flow calculated. Values are 000.0 to 999.9 with expected results between 85 and 115%.
Error Count	The total number of "bad" transactions in a row (i.e., transactions out of the regulated A/L range.) If the counter is lower than 10, the counter is reset to zero on each "good" transaction (i.e., when the A/L is within the regulated A/L range.) If the error counter is more than 10, the counter is increased by one on each "bad" transaction.
Fuel Count	The total number of dispense transactions.
Remaining Time	The number of minutes before the VMC/VAPORIX shuts down the fueling position (i.e., before the FP goes from FP Shutdown Warning state to a FP Shutdown Alarm state.) The Remaining Time can vary by country and is programmed in the VMC firmware (usually 3 or 7 days.).

VMC Version

The VMC Version screen lets you view the serial numbers and hardware and software information for a VMC (VAPORIX).

NOTICE The report only shows information for currently active VMCs. It does not report on historical information for VMCs that may have been removed.

1. Navigate to Menu > Diagnostics > Vapor Monitor > VMC Version
2. Select a VMC/VAPORIX Controller:

VMC	S/N	Hardware	Software
1	102050	HW B04 (512K)	SW 2.07_Re1

The Collection Status Diagnostics screen contains the following information:

Column	Description
VMC	The fuel position of the VMC/VAPORIX.
S/N	The serial number of the VMC/VAPORIX.
Hardware	The hardware version of the VMC/VAPORIX.
Software	The software version of the VMC/VAPORIX.

Alarms And Warnings

The following alarms and warnings from the ATG are associated with VAPORIX and VMC devices.

Message	Cause	Action
Setup Data Warning	Fueling Position (FP) already assigned to another VMC.	Assign a different fueling position number to the VMC in Setup > Vapor Collection Monitor > Sensor
	Same Fueling Position (FP) assigned to both sides.	Assign a different fueling position number to the side in Setup > Vapor Collection Monitor > Sensor
	Invalid serial number for VMC.	Correctly enter the serial number for this VMC in Setup > Vapor Collection Monitor > Sensor . NOTE: If the serial number on the housing is less than six digits, add leading zeros to pad the number to exactly six digits when entering in this field (i.e., if the serial number is 1234, enter 001234.)
FP Shutdown Alarm	The fueling position has been shut down by the Vapor Monitor Controller (VMC/ VAPORIX) because the Remaining Time (the time before a shutdown, programmed in the firmware) has expired.	Call for service following the procedures established for your site.
FP Shutdown Warning	The fueling position has generated the number of errors necessary to issue a warning (programmed in the VMC firmware). The Remaining Time begins to count down to the time when the VMC/ VAPORIX will shut down the fueling position.	Call for service following the procedures established for your site.
Meter Not Connected.	Airflow meter is disconnected from the VMC.	Call for service following the procedures established for your site.
VMCI DIM Comm Timeout Alarm*	VMC powered off.	Call for service following the procedures established for your site.
	VMC not connected.	
	*Sub-alarm information available via Actions > VMCI Comm Timeout indicates which VMCs are affected.	Incorrect VMC serial number.

Alarm Filtering

Rather than show an alarm for each timeout when someone shuts dispenser power off at night, the Active Alarms Report gives one alarm for the VMC Comm Timeout.

Troubleshooting

VAPORIX-Control Status Indicator

The status of the vapor recovery and monitoring system is indicated using the three colors (green, orange and red) and different flashing schemes of the A/B LEDs on the front of the VAPORIX Controller (see Figure 8).

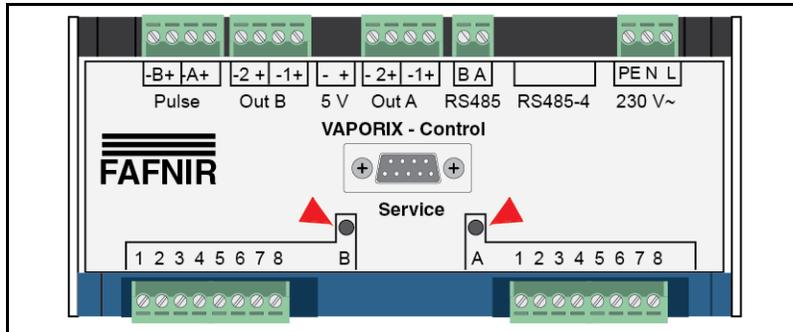


Figure 8. VAPORIX Control Diagnostic LEDs

VAPORIX-Control Status Codes

Table 1 describes the VAPORIX-Control flashing LED status codes.

Table 1. VAPORIX-Control Flashing LED Status Codes

Color	LED Mode	Description
Green	Flashing slowly	Respective vapor recovery system and the monitoring system is intact. There are no faults and the system is ready for operation.
	Flashing quickly	Fuel flow is in progress.
Orange	Flashing quickly	Measuring value sensor defective or connection fault on the plug-in connector.
	Flashing between green and orange	Vapor recovery rate of the respective system was outside the admissible tolerance during the last filling process.
	flashing very quickly	An alarm signal is issued, there is a fault in the respective vapor recovery system, which must be rectified within 168 hours by a service technician. No fuel flow in progress.
	Flashing slowly	An alarm signal is issued, there is a fault in the respective vapor recovery system, which must be rectified within 168 hours by a service technician. No fuel flow in progress.
Red	Flashing	Timeout and a signal is issued that shuts down the dispenser.
	On for a long time, off for a short time	Rectify error immediately or replace sensor, otherwise an alarm is triggered after 10 tank fillings.

For information on the VAPORIX Firmware Update, the VAPORIX Diagnostics program, and resetting the alarm using the Dongle to the VAPORIX Controller, refer to Fafnir’s VaporTEK™ Service and Troubleshooting Manual MDS-5064.

Table 2 is a VAPORIX troubleshooting guide and Table 3 defines status error codes that apply to the VAPORIX unit.

Table 2. VAPORIX Troubleshooting Guide

Symptoms			Probable Cause	Corrective Action
Primary	Secondary	Tertiary		
A/L Range is out of range	No 200s in Concentration Field	A/L Ratio is out of range on side A/B	Long-term wear	Re-calibrate system
		A/L Ratio is out of range on one side only (e.g., side A = Low)	Leak downstream of flow meter	Locate and repair leak
	200s in Concentration Field		Wetted concentration sensor	Locate and repair liquid leak/purge sensor
200s in Recovery Rate% Field			Vapor flow without liquid pulses due to an adjustment procedure/leak on the system.	Locate vapor leak on opposite side of the dispenser, where there is no flow.
199s in Recovery% Field			Wetted sensor/ wrong pulse rate setup	Locate and repair liquid leak/pulse sensor/setup correct pulse rate.

Table 3. VAPORIX Status Error Codes

Symptoms			Probable Cause	Corrective Action
Primary	Secondary	Tertiary		
Status Error 0-0010-0000	Measured gas flow may be too high.	N/A	Wetted sensor	Locate and repair leak/purge sensor and automatic reset after the liquid is evaporated.
Status Error 0-0000-0001	VAPORIX-Flow is not available.		Wrong power input wiring.	Check the wiring and automatic reset when the problem is corrected.
Status Error 0-0000-0010	VAPORIX-Control detects fuel and vapor flow at different sides of the dispenser.		Wrong flow sensor connection (side A in side B port and side B in side A port).	Check and correct the wiring and automatic reset when the problem is corrected.
Status Error 0-0000-1100	N/A		Clock backup battery alarm.	Battery is discharged and VAPORIX-Control needs to be exchanged.
Status Error 0-0001-0000			Internal error	Check supply voltage and take power from VAPORIX-Control for a few seconds. If there is no improvement, exchange VAPORIX-Control.
Status Error 0-1000-0000			The dongle has activated the maintenance mode.	N/A
Status Error 1-0000-0000			PCM functionality	
Sensor Number 999			Sensor is defective.	Replace the sensor.



For technical support, sales or
other assistance, please visit:
www.veeder.com