

OMNTEC[®] Tank Monitor Interface

CAUTION The FMU upper cabinet door must be opened for this procedure. Exercise caution to prevent moisture (rain, snow) from entering FMU.

Purpose

FuelMaster FMUs (Fuel Management Units) may interface with OMNTEC Tank Monitor Units (OMNTEC TMU) to obtain tank data. The interface is not active; tank monitor alarms show on reports, but not as they occur. Tank monitor reports are acquired when a command is sent from the software to the FMU. The FMU passes the command through to the tank monitor. Command sets are selectable in the software by manufacturer and model. In this case, OMNTEC is the selection, and the command set is for a selection of reports applicable to all OMNTEC tank monitors that will accept communications through an RS232 connection.

Interface components for a Master FMU are available in kit form (Figure 1). The Tank Monitor Interface Kit (TMIK) includes an I/O Silver Board (see Figure 2). I/O Silver Boards are configured for specific applications, such as a tank monitor interface. If the TMIK is being purchased and installed in an FMU already possessing an I/O Silver Board used for another application, let Syntech know the application. The TMIK I/O Silver Board may be sent with the additional components installed on the board to cover other applications.

The TMIK includes the following components with Syntech part numbers:

Part #	Description	Amount
201847	I/O Silver Board Assembly	1
201839	Ribbon Cable Assembly	1
190977	5 pin Pluggable Terminal Block	1
201782	Jumpers	2
199273	Standoffs, Hex, M-F, AL,6-32X1.00	6

A wireless connection between the FMU and tank monitor may be configured using a Zlinx wireless modem. The application is covered in Product Bulletin 133.

If using a cable connection, short runs of 75 feet or less may be made with an RS232 connection. OMNTEC offers a 75-foot RS232 cable designed for the purpose. It has OMNTEC part number RD-232C-75. The installation instructions (page 4) provide instructions for manufacturing a cable if the OMNTEC RD-232C-75 is not available.

Two different kits were tested for runs over 75 feet up to 3000 feet. One of those devices was an OMNTEC FM422KIT as shown in Figure 3 which included the converter, power supply, and 6-foot null modem cable shown in the figure. Another kit tested by Syntech was a B&B Electronics 4WSD9TB RS232/422 Converter, with a B&B Electronics 485PS Power Supply, and a 6-foot null modem cable. They both perform the same function, and are closely matched in price. A null modem cable was opted over a null modem adapter. A Converter with an adapter could not be secured to the tank monitor to prevent disconnection. The null modem cable provided for a more secure connection.

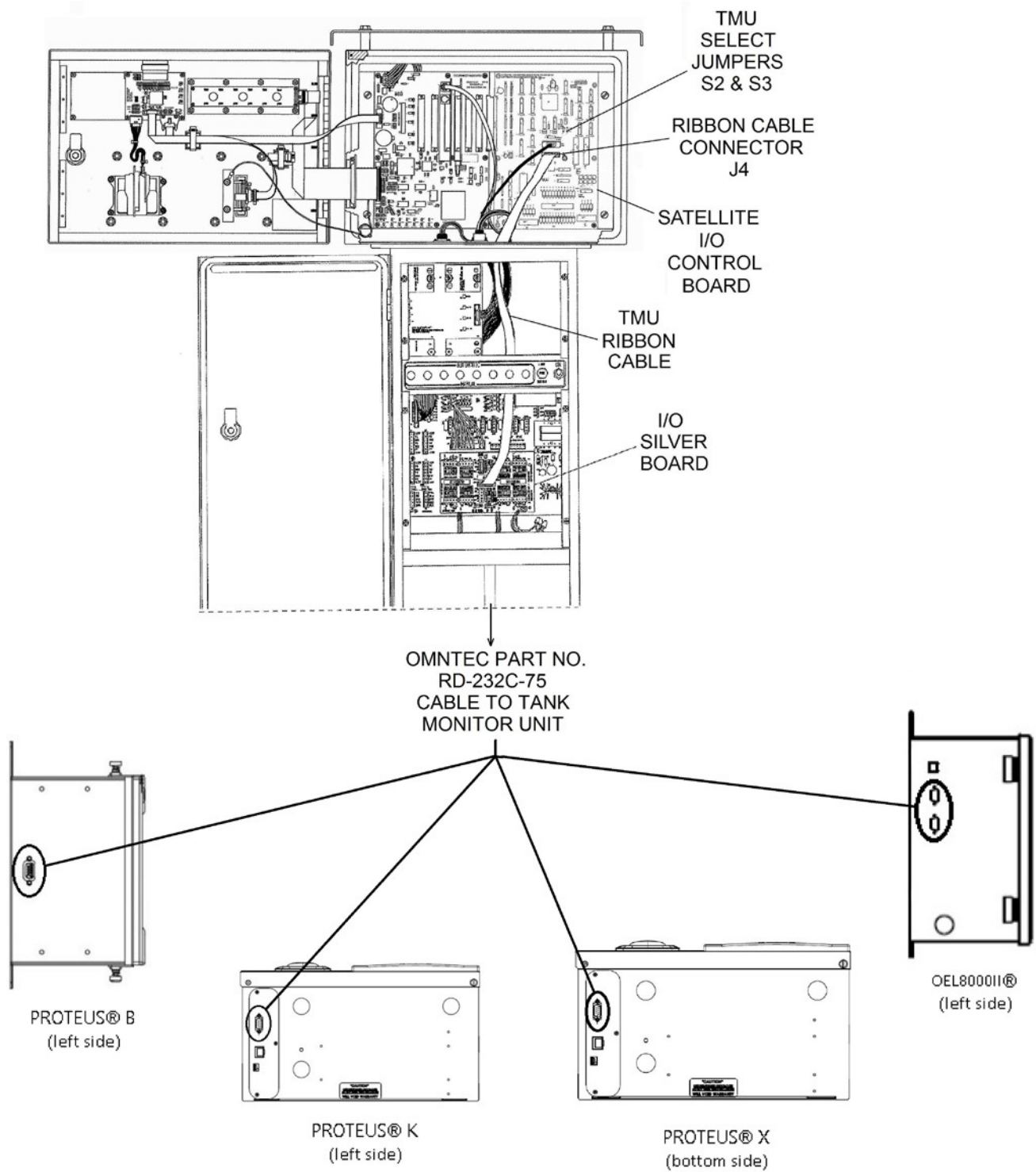


Figure 1. OMNTEC Interfaces for FMU with Tank Monitor Interface Kit (Tank Monitor DB9 Connectors are Circled)

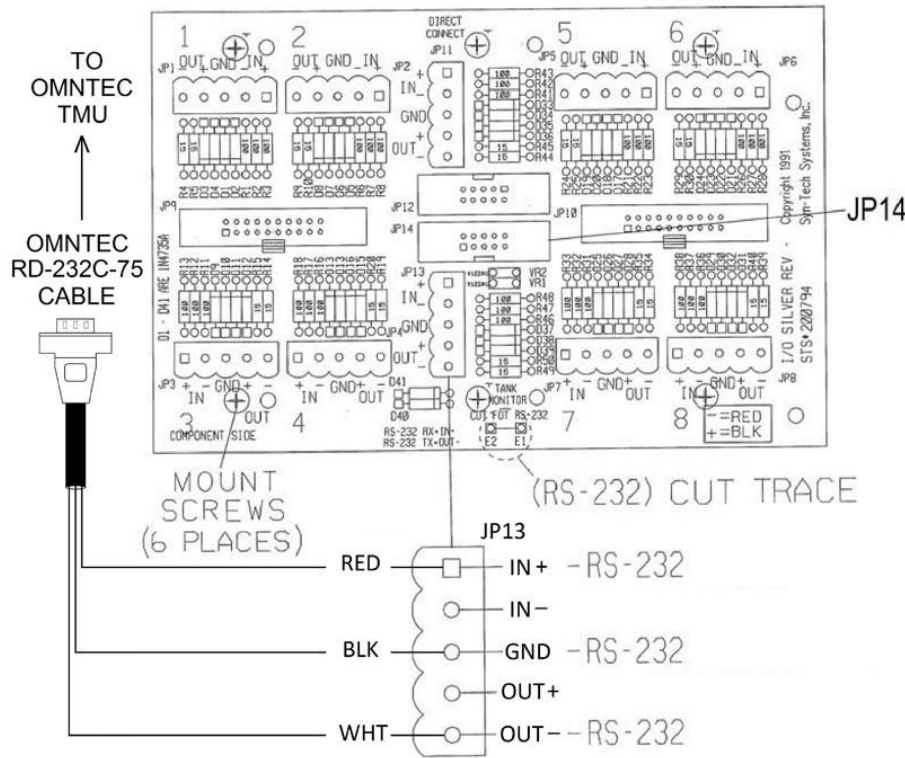


Figure 2. OMNTEC RS232 Cable Connection to I/O Silver Board

TMIK Installation

Perform the following to install the TMIK:

1. Shut off AC power to the FMU and all connected dispensers at the circuit breaker.
2. Unlock and open the FMU cabinet and pedestal doors, and remove the upper and lower electrical access covers from the pedestal electrical access panel.
3. (RS232 Cable) Pull the loose wire end of the OMNTEC RD-232C-75 cable through rigid explosion-proof conduit from the TMU control box to the FMU electrical access panel.
4. (RS422 using converter) Pull RS422 cable through rigid explosion-proof conduit from the TMU control box to the FMU electrical access panel.

NOTE If the FMU was previously configured with an I/O Silver Board for another purpose, the new I/O Silver Board may be ordered with the additional components necessary to also support the previous configuration.

5. If applicable, remove the previously used I/O Silver Board mounted over the Pedestal I/O Board on six standoffs:
 - a. Note location and disconnect all ribbon cables and plugs from I/O Silver Board.
 - b. Remove I/O Silver Board from standoffs (6 screws).
6. If no previous I/O Silver Board, remove six screws from Pedestal I/O Board (above and below TB1, TB2, and TB3 where shown in Figure 2) and thread six 6-32 X 1.00 standoffs into the screw holes.

7. Position new I/O Silver Board over Pedestal I/O Board and attach to standoffs with 6 screws.
8. (RS232 Cable) For RS232 applications, cut the trace between E1 and E2 at the bottom center of the I/O Silver Board.
9. Connect one end of the 201839-ribbon cable into JP14. Route the other end of the new ribbon cable up to the FMU upper cabinet and plug into J4 of the Satellite I/O Control Board. If applicable, reconnect any pre-existing cables and plugs.

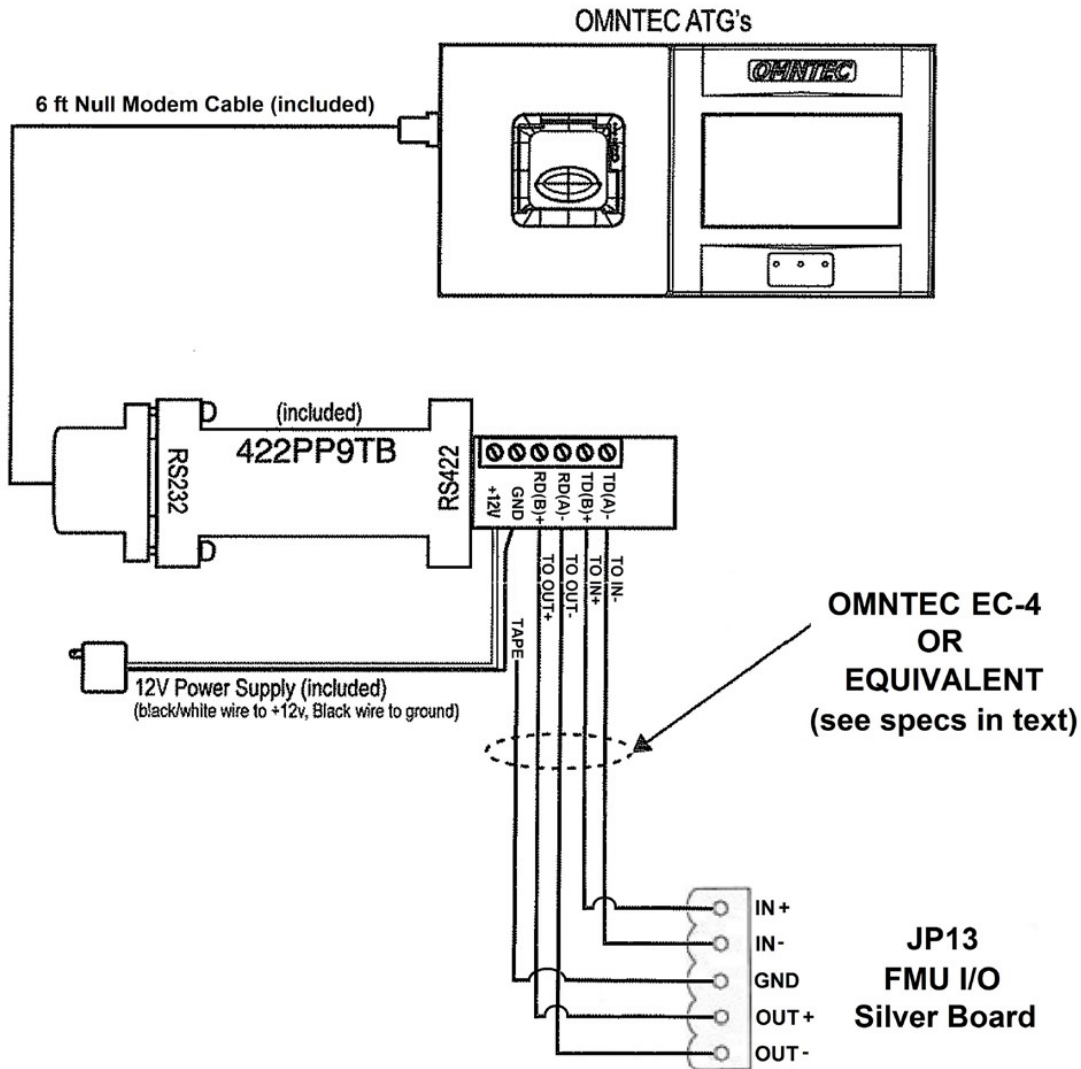


Figure 3. Connecting the OMNTEC FM422KIT to the FMU I/O Silver Board

10. (75 feet or less cable) If using the OMNTEC RD-232C-75 cable, match the wire color to the pin as shown in Figure 2. Make the applicable cable connections according to the below connection points. FMU JP13 is the 5-pin connector on the I/O Silver Board. OMNTEC DB9 are the pin connections you make to the DB9 connector on the OMNTEC TMU when running RS232 from the FMU to the TMU.

FMU JP13	IN+	GND	OUT-
OMNTEC DB9	2	5	3

NOTE Depending upon the cable used, a braided shield or drain wire may be utilized for GND in Figure 3. As shown in the figure, it is only connected at the FMU end of the cable.

11. (Extended Length Cable) See Figure 3. The OMNTEC FM422KIT may be used to extend the cable length beyond 75 feet. In Figure 3, the EC-4 cable is Belden 9940 cable, a 4 conductor, shielded, 22 AWG, stranded wire, PVC insulated, RoHS compliant, 300-volt cable. At the top of the figure is the tank monitor connection. At the bottom is the FMU connection. The 422PP9TB requires a connection to a 12V power supply supplied with the kit. They will need to be located where there is a 115VAC outlet to plug into
12. On the Satellite I/O Control Board, set the S2 and S3 TMU SELECT jumpers to two upper pins for RS232, or two lower pins for RS422.
13. Refer to the OMNTEC TMU Operator's Manual or applicable manufacturer's technical support staff and program the OMNTEC TMU for correct emulation.
14. Installation of the Tank Monitor Interface Kit has to be enabled in both the FMU and Central Controller software. In addition, it is advisable to determine the communications parameters set in the tank monitor, and make those settings in the FMU. In the Tank Monitor Control Box, determine the baud rate, data bits, stop bits, and parity configured for the OMNTEC TMU.

NOTE The only setting that may be changed with a Supervisor Prokee/Smartcard is the baud rate to communicate between the FMU and tank monitor. For this reason, it is recommended FMU communications settings be made either with a laptop connection, or by Syntech's Customer Satisfaction Center (CSC), assuming they can obtain a communications connection with the FMU.

15. A Supervisor Prokee/Smartcard may be used to view tank monitor settings, but only the baud rate may be changed. To view tank monitor settings:
 - a. Insert a Supervisor Prokee/Smartcard. The following menu will appear:

```
SUPV: 1=SYSTEM, 2=PM, 3=ODOM, 4=AIM *
```

```
A=CONFIG, B=ISSUES, C=TANKS, D=EXIT *
```

- b. Select A=CONFIG. The following menu will appear:

```
CONFIGURATION: 13:05:24 06/17/14 TUE.
```

```
A=MODIFY, B=TESTS, C=TIME/DATE, D=EXIT
```

- c.

- d. Select A=MODIFY. The following menu will appear:

```
CONFIG MENU:  1=COMM, 2=TOTALIZERS A=PUMPS,  
B=SYSTEM, C=SHOW OPTIONS, D=EXIT
```

- e. Select C=SHOW OPTIONS. Depending upon the software version, the option numbers may vary, but the options will show if TANK MONITOR INTERFACE: ENABLED, TMU INTERFACE TYPE: (7, E,1 or 7, O,1 or 8, N,1), and the TMU BAUD RATE is set. If the TANK MONITOR INTERFACE is not ENABLED, or if the communications parameters do not match the tank monitor communication parameters, go to step 16 and configure the FMU with a laptop or CSC connection.

16. Configure FMU with laptop connection (or by Syntech's CSC):

- a. Reapply AC power to the master FMU configured with the TMIK.
- b. If applicable, make a laptop connection in accordance with Product Bulletin 111.
- c. Using a 5a command:
 - 1) ENABLE the TANK MONITOR INTERFACE by depressing the space bar when the flashing cursor follows the TANK MONITOR INTERFACE: DISABLED prompt.
 - 2) Set the TMU DATA FORMAT to correspond with the data bits, parity, and stop bits of the tank monitor. Choices are 7, E,1; 8, N,1; 7, O,1.
 - 3) Set the TMU BAUDRATE to correspond with the baud rate setting in the tank monitor. Choices are 300, 1200, 2400, 4800, 9600, and 19200.
 - 4) The DAILY TMU INVENTORY option, when enabled, will automatically generate a command at midnight to obtain an inventory report from the tank monitor. If desired, ENABLE the DAILY TMU INVENTORY.
 - 5) The TMU MANUFACTURER option is tied to DAILY TMU INVENTORY. A TMU inventory report is normally generated by the FuelMaster software. When DAILY TMU INVENTORY is selected, the command is generated from the FMU. When this option is turned on, the TMU MANUFACTURER must be selected to know which command must be sent from the FMU to the tank monitor. Choices are VR TLS-300, VR TLS-350, and VR TLS-350R. Any one of these selections may be made to obtain automatic inventory reports from OMNTEC tank monitors.
- d. If applicable, disconnect the laptop connection in accordance with Product Bulletin 111.

17. Configure the software:

- a. The tank monitor interface must be configured in the software. Access the software, and the site and master FMU where the TMIK was installed.

NOTE The tank monitor selection must be made before the Configure button is depressed. The Configure button permits the selection of various reports that may be obtained from the selected tank monitor. The available reports are dependent upon the tank monitor selected.

- b. Near the bottom of the Site ID __ window, there is a Tank Monitor pulldown menu. Make the OMNTEC tank monitor selection from the pulldown menu.
- c. Click on the Configure button. A TMU Monitor window will open and permit the selection of various reports which may be obtained for OMNTEC tank monitors.
- d. Select the desired reports by clicking on and adding a check mark to the box preceding the applicable report. When complete, click on the OK button at the bottom of the window. The TMU Monitor window will close.
- e. The tank monitor is configured in the software. OMNTEC tank monitor reports may be obtained whenever an Online connection is made from the software to the FMU by selecting TMU Interface from the Go Online with FMUs window.

18. The tank monitor interface is complete.

TIP

If any questions arise, contact Syntech Systems, Inc.'s Customer Satisfaction Center (CSC) at 1-800-888-9136, ext. 2, or email support@myfuelmaster.com.

Change Log

Date	Description
12/24/2014	Original
1/20/2015	Revision: Added breakdown of TMIK, page 1 Changed reference page 1 from RS422 with Patton converter to RS422 with OMNTEC Booster Kit Figure 2, page 3, removed reference to RS422 connection points Added Figure 3, page 4, to show installation of OMNTEC Booster Kit Removed NOTE, page 4, discussing drain connections Removed CAUTION, page 4, for cutting trace on I/O Silver Board for RS422 Step 10, page 4, removed reference to RS232/422 Converter Added step 11, page 4, to describe use of OMNTEC Booster Kit Revision 2/17/2015: Changed RS422 converter references in last two paragraphs of page 1 Accomplished Figure 1 for better definition of tank monitors Changed step 4, page 3, to reference RS422 using converter Figure 3, page 4, working with OMNTEC, reworked the drawing to remove one of the 422PP9TB and power supply, and change the cable from EC-6 to EC-4 Step 12, page 4, added "two lower pins for RS22" Step 16.c.(5), page 5, added "Any one of these selections may be made to obtain automatic inventory reports from OMNTEC tank monitors". OMNTEC uses the same commands as Veeder Root
11/23/2020	Reformatted/rebranded