# Interfacing with an Electronic Dispenser

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| *CAUTION* | These procedures provide installation instructions for Syntech Supplied Equipment (SSE). A technician familiar with Customer Supplied Equipment (CSE) must be present for installation. Problems with the CSE will prevent functionality regardless of SSE or its installation. |

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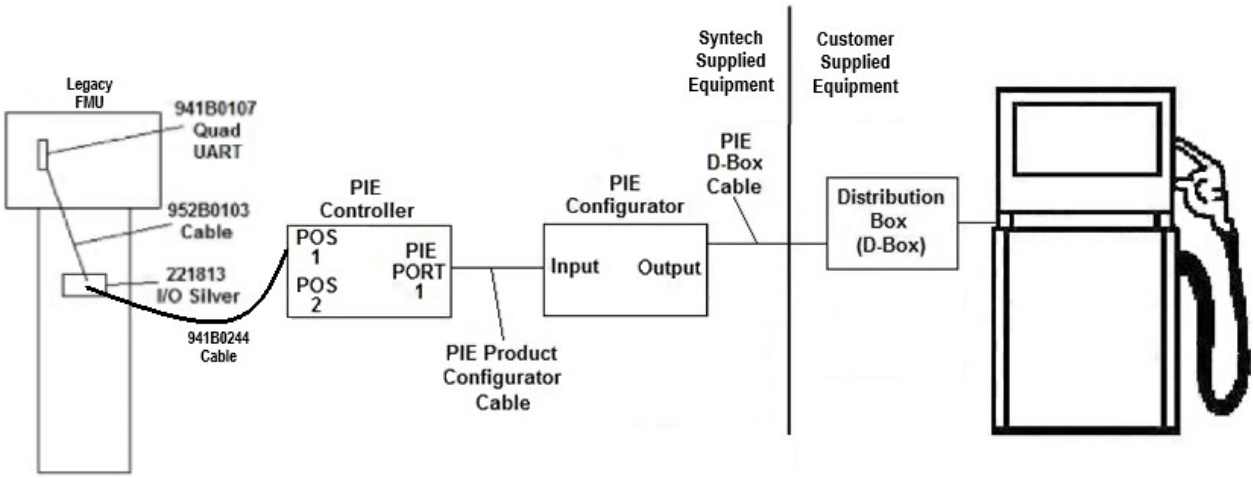
| *TIP* | Other reference materials supplied by Progressive International Electronics (PIE) are included with the SSE as necessary for equipment setup and testing. Save all information, including any disks provided. |




## Description

The images above represent an Electronic Dispenser Interface Kit (EDIK) interfacing a Legacy Fuel Management Unit (FMU) to an electronic dispenser. The SSE replaces the Point of Sale (POS) device found at convenience stores or truck stops and consists of parts produced by both FuelMaster® and PIE. The PIE components are preprogrammed for the desired application. FuelMaster cannot interface with retail electronic dispensers except through PIE equipment. When installed, all credit card inputs are initiated at the FMU rather than the dispensers' readers.

When purchasing an EDIK, include information regarding your dispenser make and model (e.g., Gilbarco Encore 300), a good description of the dispenser and DBox setup, and a simple site layout sketch.

## When Is an EDIK Required?

Most electronic retail dispensers require an EDIK. Some retail dispensers may be connected to FuelMaster with or without an EDIK, but many customers prefer the Interface Kit, as it allows pump price updates directly from FMPlus. Without this, pricing must be updated at the pump itself.

# Fueling Positions, Blending, and Grades

Each side of a Multi-Product Dispenser (MPD) is a fueling position. An Omega JR can control up to 32 fueling positions, however, an FMU may only control up to 8 positions. With 8 grade choices per side, however, a single FMU can control up to 64 grade choices. An FMU may control both mechanical and electronic dispensers.

Some fuels offered are blends of two pure fuels. For example, mid-grade unleaded is a blend of regular and premium unleaded. While the blend ratio is selected during the setup of the FMPlus software, the dispenser itself controls the blending.

# Components and Part Numbers

## Available Interface Kits:

- 941B0245: Gilbarco
- 941B0245A: Wayne
- 941B0245B: Tokheim
- 941B0245C: Bennett
- 941B0245D: Schlumberger
- 941B0245E: Kraus
- 941B0245F: Kit to connect 2nd FMU
- 941B0245G: RS485
- 941B0245H: Nuovo Pignone
- 941B0245J: Deer

## Syntech Supplied Equipment

- Quad UART Board: (STS #: 941B0107)
- Quad UART to I/O Silver Interface Cable (STS #: 952B0103)
- I/O Silver Board (STS#: 221813)

| *NOTE* | Other applications (Tank Monitor, satellite FMUs) may be populated on the board. If an existing FMU has an I/O Silver for another application and an EDIK is needed, specify the other application(s) when ordering. |
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- I/O Silver to Omega JR Interface Cable (STS #: 941B0244)
  - This may be extended by splicing additional Belden 8771 cable to the loose end. If the extension must be pulled through underground conduit, use wet-rated cable. Do not pull this cable in the same conduit as AC power.
- Omega JR
- Configurator (usually seen in gold box like the Omega JR)

- Omega JR to Configurator cable: Supplied by PIE.
- Configurator to DBox cable: Supplied by PIE. There may be two cables if two DBoxes are required.

### Customer Supplied Equipment:

- Uninterruptible Power Supply (UPS): The Omega JR does not have an internal battery. A UPS prevents transaction loss during power failures. No specific size is known, but in-house testing has proven successful for a 650 volt-amp unit.
- DBox: Normally the same brand as the dispensers, but also available from PIE – in which case, will include the Configurator. Each DBox supports up to eight dual-sided cabinets of a single dispenser make. DBoxes for different dispenser makes can be used with a single Omega JR or Configurator.
- Dispenser

## Installation

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| *NOTE* | Use one of the following configurations for installation:<br>▪ FMU -> Omega JR -> Configurator -> Dispenser-Specific DBox -> Single Dispenser<br>▪ FMU -> Omega JR -> PIE DBox -> Single or Multiple Dispenser(s) |

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| *TIP* | Specific installation instructions, as well as Omega JR and Configurator jumper settings, are provided in the PIE Installation Guide. |

1. Connect the DBox or Configurator/DBox combo to the dispenser as outlined in the DBox Manual supplied by PIE.
2. Connect the supplied serial cable to the *PiPort* port.


3. Connect the other end of the serial cable to either *Pi Port 1* or *Pi Port 2* of the Omega JR, depending on the addressing of the dispenser. Pi Port 1 connects to addresses 1-16, while Pi Port 2 connects to addresses 17-32.

4. Connect the serial end of the 941B0244 cable to either the *POS 1* or *POS 2* port of the Omega JR. The POS ports are completely interchangeable.


5. Connect the bare ends of the 941B0244 cable to the provided 5-pin Phoenix connector using the below table:

| Wire Color | PIN | I/O Silver Connection |
|---|---|---|
| Black | 1 | IN + |
| White | 3 | GND |
| Red | 5 | OUT - |

| *NOTE* | The 941B0244 is an RS-232 cable, normally limited to 50 feet. This may be exceeded by increasing the conductor size and quality of cable. If you doubt its capability, test the connection before pulling the cable through conduit. |
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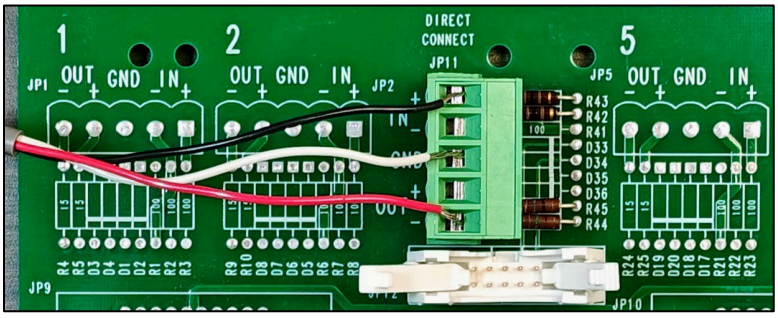
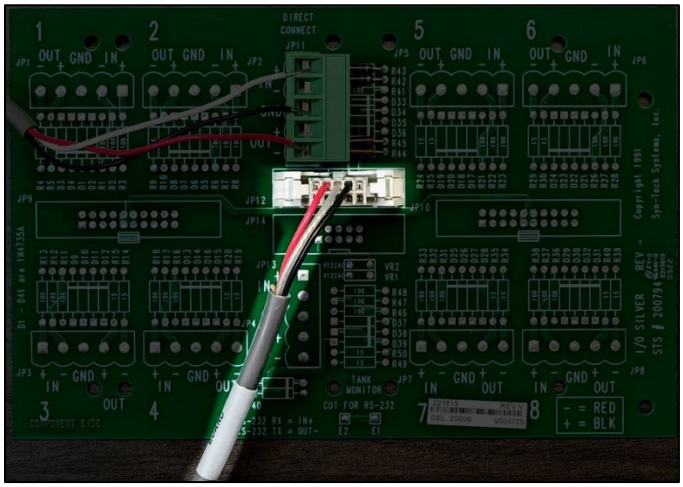
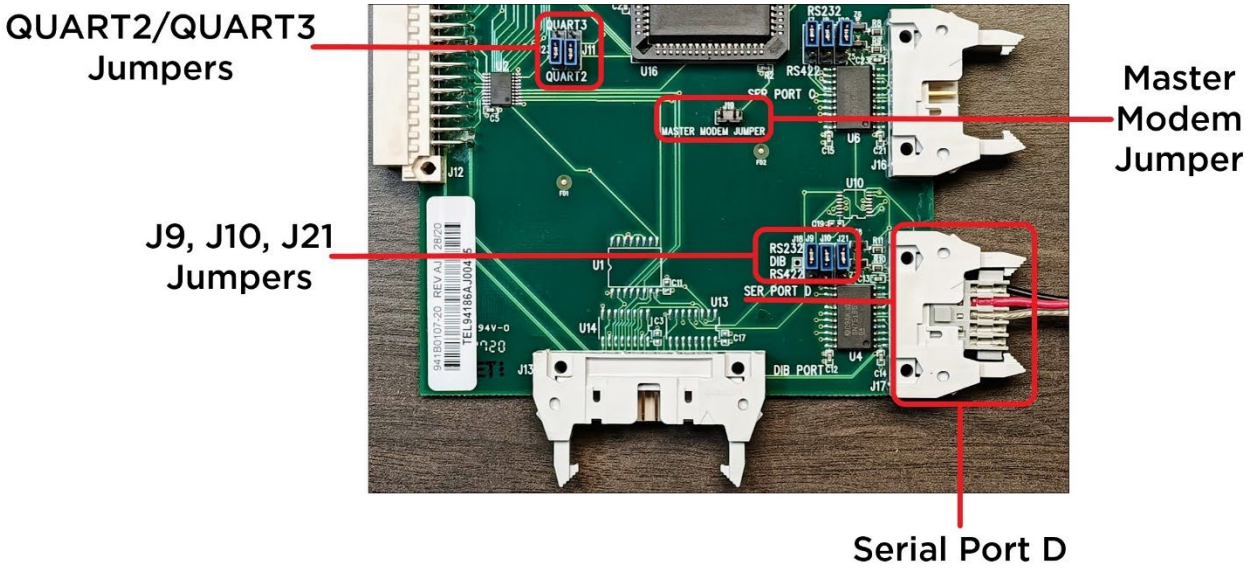
6. Connect the Phoenix connector to the JP11 port of the I/O Silver Board.




7. Connect the end of the 952B0103 labeled *I/O Silver* to the JP12 port of the I/O Silver Board.



8. Connect the end of the 952B0103 labeled *Quad UART* to *Serial Port D* on the Quad UART Board.
9. Install the three jumpers over the RS232 positions of J9, J10, and J21 of *SER PORT D*.
10. Remove the Master Modem Jumper in the middle of the board.
11. Ensure the J10 AND J11 QUART2/QUART3 jumpers are in the QUART2 Position.




12. With the FMU powered off, install the Quad UART board into one of the six expansion slots on the FMU mainboard.

| *CAUTION* | Remove FMU power before installing or removing the Quad UART board to prevent damage to the Quad UART. |
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13. Power on the equipment in the following order:
    a. Dispenser
    b. DBox/Configurator
    c. Omega JR
    d. FMU

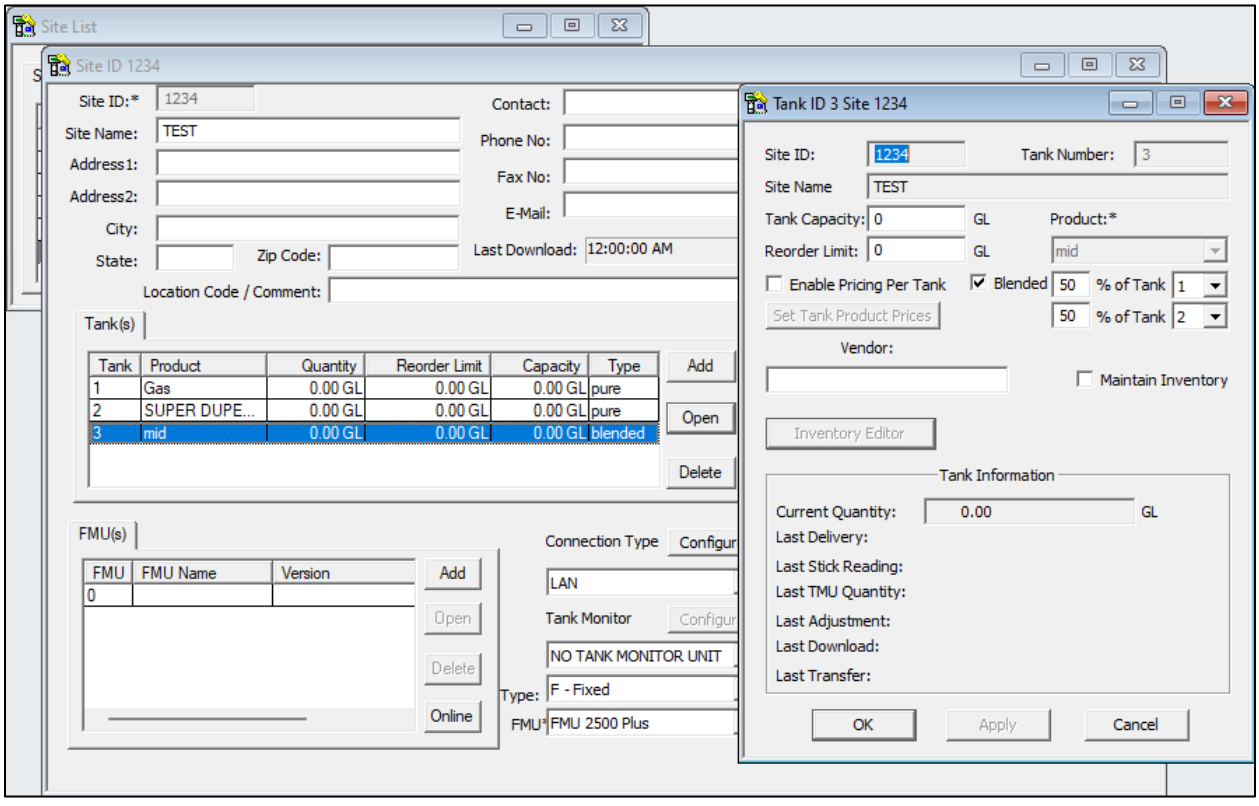
# Software Configuration

## Assumptions

This tutorial assumes

- You have added all applicable products, including blended products.
- You have created the applicable site in the software.
- You know the PIE position and grade addresses set in the dispenser.

1. Create the tanks in the following order:
   a. Pure, non-blended tanks for electronic dispensers
   b. Blended tanks (these are virtual tanks created for inventory tracking)
      i. Select the Add button in the Tank section.
      ii. Check the Blended checkbox. *% of Tank* fields will appear.
      iii. Enter the applicable percentage of the constituent pure tanks for inventory tracking.
   c. Tanks for mechanical dispensers



2. In the FMU(s) section of the Site window, select **Add**.
3. In the Hose(s) section of the Unit window, select **Add**.

| *NOTE* | Two PIE entries are required: one in the Hose Window (can be 1-32) and another in the Grade Positions Window (can be 1-8). |
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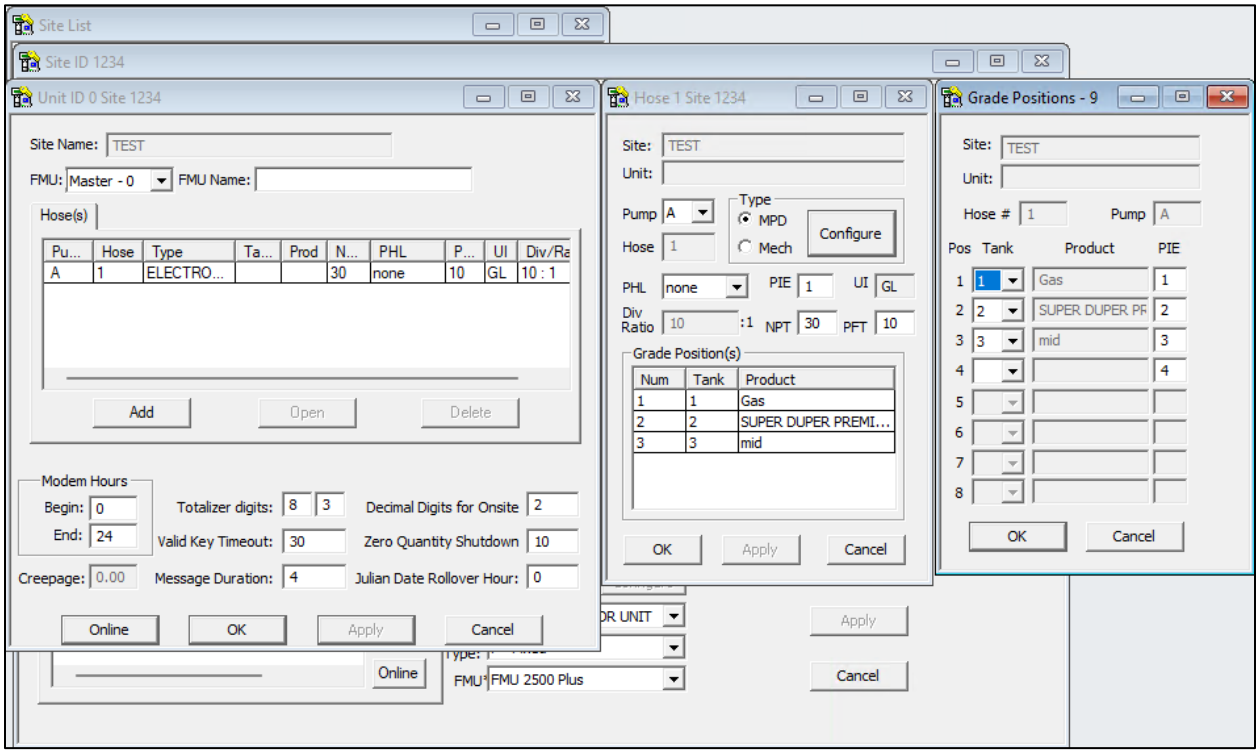
4. Select the **MPD** radio button.
5. Fill in the *Fueling Position* number in the PIE field.




6. Select **Configure**.
7. Select **Yes** in the window asking if you would like to continue.
8. Configure all applicable Grade Positions.
9. If using AIM, the ANID must be the same for all positions using the same hose and nozzle. If multiple hoses or nozzles are attached to the fueling position, the additional hoses/nozzles must have different ANIDs.
10. Upload Configurations.

# Troubleshooting

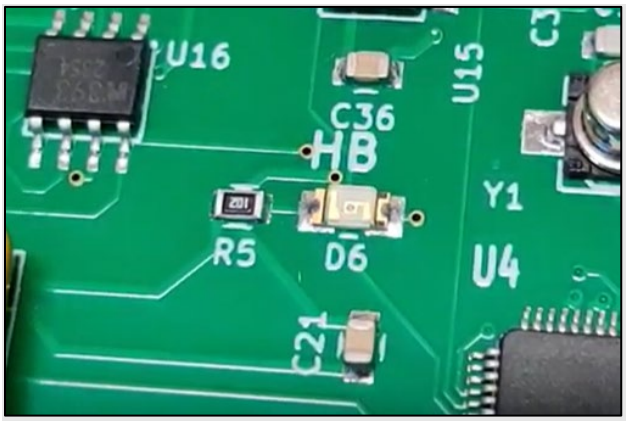
## PIE Diagnostic Programs

PIE recommends performing an equipment test prior to installation and power-up of the Interface Kit, but many installers only perform this test if problems are encountered during installation and power-up. This test is outlined in the diagnostic section of the PIE Installation Guide included with the shipped parts.

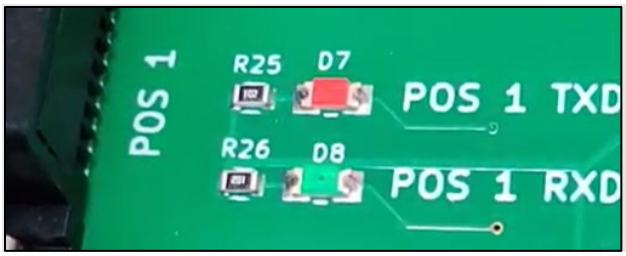
## LEDs

### Omega JR

On the Omega JR, there are several lights that flash in normal operation. First, the white HB (heartbeat) light near the middle of the board should flash every second.




Next, near the POS plug, the POS TXD and RXD lights should be blinking. The green RXD (Received Data) light should blink quickly just before the longer red TXD (Transmitted data) light.




Finally, when connected to a dispenser, the Bank 1 lights should show activity. These lights are to the right of and below the HB light. The red TXD and the green RXD should blink, but the speed at which they show activity can vary from dispenser to dispenser. The cream CTRL light should be lit if the Omega JR is powered up.

### DBox

DBox lights will be in different locations on different styles of DBox. Regardless of the type, the TX Global and RX Global lights should be on the board in some location. Many DBoxes will also have a green power indicator.


## Change Log

| Date | Description |
|---|---|
| 07/24/2014 | Original |
| 07/29/2016 | Added Extended 941B0244 Cable information |
| 07/12/2017 | Reorganized and clarified information about dispenser settings in Omega Jr |
| 10/27/2020 | Rebranded/reformatted |
| 09/15/2023 | Added information for FM*Live* Interface; reorganized and edited. |
| 03/18/2024 | Split off information for FM*Live* Interface into PB-210a. |

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