

Installation of the RS-232 Citel Surge Protection Device

CAUTION This procedure should NOT be attempted in a rainy environment!

For many years, the I/O Silver Board has served as the Surge Protection Device (SPD) between the FuelMaster® Unit (FMU) and external devices, such as tank monitors. We have found that the Citel DLAS-12D3 SPD is a more effective means of limiting surge damage for RS-232 connections.

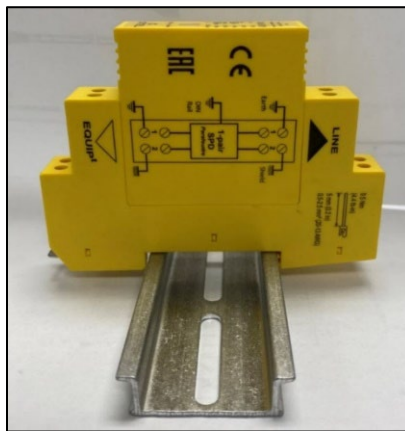


Figure 1 Citel Protector Mounted on DIN Rail

Parts Listing

Part Number	Part Description
191F0235-10	Wired TMU Interface Kit, RS232
266736	Surge Protector Replacement Module, RS232/RS485
191F0234-10	RS232 Surge-to-Board TMU Interface Cable

Installing the SPD

1. Attach the DIN Rail to the interface plate or FMU backplate.
2. Attach the SPD to the DIN Rail, oriented so the wiring diagram faces toward you (on interface plate) or so the EQUIP side faces left (on FMU backplate).
 - a. Hook the SPD onto the DIN Rail.
 - b. Utilize a flat head screwdriver to open the spring-loaded interlock.
 - c. Push the SPD toward the Rail until in place; then, release the interlock to catch the rail.

- 3. Connect the 10-pin 191F0234-10 cable. The FMU cable attachment location differs between Legacy and FMLive units.
 - a. If Legacy, connect the 10-pin 191F0234-10 cable to the J4 connector of the Sat I/O board (Figure 2).

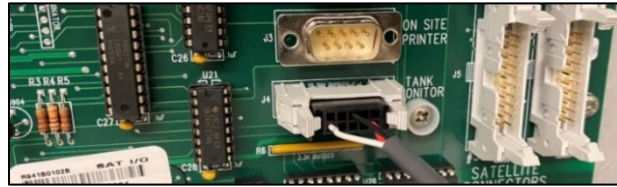


Figure 2 Cable to Sat I/O Connection

- b. If FMLive, connect the 10-pin 191F0234-10 cable to the gray Tank Monitor connector at the top of the EAPro (Figure 3). Ensure the slider below the connector is to the right.

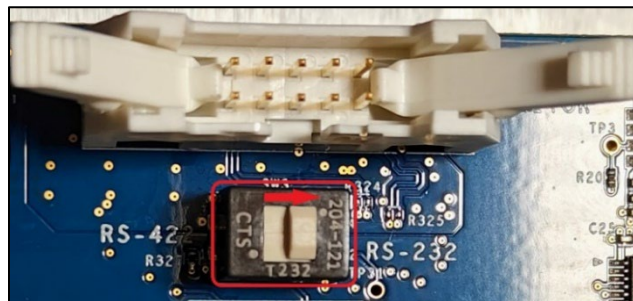


Figure 3 EAPro Connector

- 4. Connect the SPD.

NOTE

There are two sides to the SPD: LINE and EQUIP. The LINE side connects to the external serial device (e.g., the TMU). The EQUIP side connects to the FMU.

- a. On the EQUIP end, insert the black conductor of the 191F0234-10 cable into the terminal with the shield symbol (4b), the green conductor into the 1b terminal, and the red conductor into the 2b terminal (Figure 4).

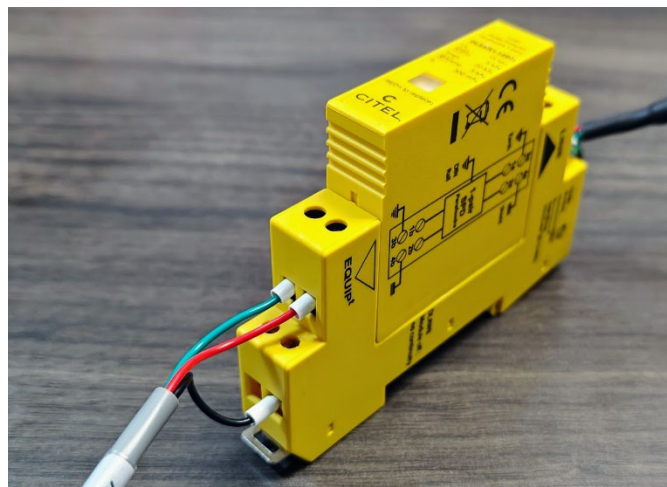


Figure 4 Wiring Diagram on the SPD

- b. Connect the incoming cable to the LINE side of the SPD. Citel recommends using #20-13 AWG cabling stripped no more than .2" (5mm).

- c. Insert the ground signal into the terminal with the shield symbol (4a), the TMU TX signal into the 1a terminal, and the TMU RX signal into the 2a terminal (Figure 4). The table below shows the pinout to connect to the TMU.

Signal	SPB Terminal
TMU Transmit	1a
TMU Receive	2a
Ground	Shield (4a)

NOTE Different makes and models of TMU have different serial pinouts. Consult with the TMU’s manual and/or manufacturer to verify how to land the signals above. Additionally, if it doesn’t seem to be working as specified, flip the transmit and receive wires.

- 5. Tighten the set screws on all conductors until tight.

SPD Communication Troubleshooting

If you are unable to communicate with the TMU, use the following procedures to determine the issue.

Check the Replacement Popper

- The SPD features a red replacement popper on top (Figure 5). If the SPD fails, only the module needs to be replaced. Order a replacement using the chart in the [Parts Listing Section](#). To replace, pull the failed module up and swap in the new module (Figure 6).



Figure 5 The Replacement Popper

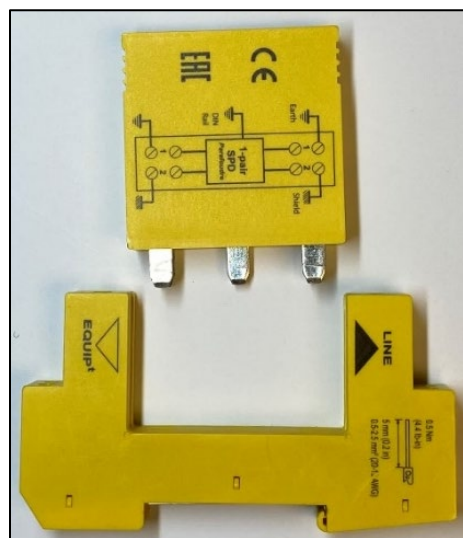


Figure 6 Swapping the Module

Testing via Loopback

- Communication can be tested via a loopback test, which can be run by inserting a jumper wire or paper clip alongside the wires between inserts 1a and 2a.
- Have a technician log into the FMU. Attempt to communicate with the device.
 - If this works, attempt the same test on the other end of the cable run.
 - ◆ If this works, there is a communication issue with the remote device.
 - ◆ If this does not work, there may be an issue with the cable between the FMU and the remote device.
 - If not, attempt the same test on the EQUIP side of the SPD.

TIP

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

Change History

Date	Description
08/16/2022	Originally published.
07/07/2023	Added information pertinent to the RS422 version.
02/01/2024	Separated out information for the RS422 version into PB-261a.
09/04/2024	Resolved issue with incorrect wire color and incorrect LINE-side pinout.