



P4-Series LPG Dispenser Interface with FuelMaster FMU 2500 Card Readers

!!WARNING!! – RISK of ELECTRICAL SHOCK! All electrical connections must be made by a qualified and competent electrician, or fuel management system technician with appropriate experience with the specific model systems being interconnected. Failure to properly interconnect the dispenser to the fuel management system may result in injury, or damage to either the dispenser or FMS electronics. Parafour Innovations, LLC is not responsible for either injuries resulting from improper connection, or resultant damage to any equipment. The Parafour warranty does not cover replacement parts or labor for either system resulting from installation related damage.

IMPORTANT NOTE: To connect the P4-Series Dispensers to the FMU2500, the FMU needs to have the correct pump interface board, which is Fuel master part number STS# 233560, Rev B "Dual Control Board". If the FMU2500 has a pump interface board labeled "Pump Relay Board Rev C" STS# 198617, or other, then the intercommunication may not work. Contact FuelMaster Direct, or their local servicing distributor for ordering the correct board. ILLUSTRATION 4

The PARAFOUR P4-Series dispensers have a 5 wire interface to the Fuelmaster FMU 2500.

There are 2 shielded pair in the main harness from the P4-Series dispensers. Each pair is separately shielded. One pair has black and white wires, and one pair has black and red wires. The Black/White pair are for the card reader authorize circuit from the card reader. The Black/Red pair are for the pulse output to the card reader. Additionally, there is a red wire which has a 120vac signal when the dispenser is in use (also used for the pump motor starter command, and may be used for opening a solenoid for internal valve control, maximum of 2.0 amps load). The pulser wires **MUST** be connected to the FMU with shielded wire equal to that provided from the dispenser. The authorize wires do not have to be shielded, however it is much easier to install using a single cable with 2 shielded pair (same colors is strongly recommended). Failure to use shielded wired for the pulser may result in erratic signals or lost pulses. The 120vac in-use signal wire, may be run in the same conduit, provided that both the pulse signal and the authorize wires are shielded.

The Black/White pair authorizes the dispenser when the FMU2500 closes a relay when authorized. If the fuelmaster is being setup where LPG dispenser is "Hose 1" then the black wire is connected to "LN1" and the white wire to LD1" on the fuelmaster. Likewise is designated "Hose, 2,3,4...etc, it should be connected to the corresponding "LN" and "LD" terminals. SEE ILLUSTRATION 1

There are 2 (two) wires for the pulser circuit. One is black and one is red. The RED wire is pulser plus and the BLACK is pulser (-) signal. The RED wire is connected to the Pulser terminal on the fuelmaster, to "P1". The BLACK is connected to the "0V" terminal. Then you need to install a 330 ohm, 1 watt resistor between "12V" and "P1". If you used Belden type shielded wire for the pulser connection in the conduit between the Dispenser and the FMU2500 (This is recommended) then the drain wire from the cable shield should also be connected with the violet wire to "0V". The pulse signal distance should not exceed 50'. SEE ILLUSTRATION 5

There is 1 (one) red wire from the P4-Series, for the Pump Handle Switch (Also referred to as the "Hook Signal" or "In-Use Signal"). This wire is connected to the Fuelmaster "PHS1" terminal. When the dispenser is authorized by the FMU, and the start button is pushed to the "Start" position (Or when the nozzle is lifted on models which are equipped with a lift-to-start switch), the PARAFOUR Dispenser will send a 120vac signal to the FMU, which the FMU interprets as a an "In-Use" signal. If the R92 resistor is clipped on the FMU board (see next paragraph), then when the start button is pushed to stop the dispenser (Or the nozzle is replaced on models equipped with lift-to-start), the 120vac signal will be interrupted, and the FMU will sense this as a "Transaction End" command from the PARAFOUR dispenser. ILLUSTRATION 2

On the main connection board, there is a row of 4 pin connectors, from the pump interface. Again, assuming that you are assigning LPG as hose 1, you must remove the 4-pin connector, and to the left of the connector, there are 2 resistors, soldered to the board. A small one and a large one. The large one is "R92". You need to clip the top connector of lead of this resistor, and fold the resistor slightly aside to eliminate intermittent touching. Reconnect the 4 pin connector after clipping the resistor. SEE ILLUSTRATION 3

This is all there is to connecting. Also note that you will have to enter the programming mode on the P4-Series dispenser, and make the setup for card reader communication. Dispenser programming is explained in the PARAFOUR Dispenser manual.

P4-Series Dispenser Configuration for Fuelmaster FMU2500

1. Press and hold the "M" key, until ATTENDANT appears on the keypad display
2. Press the "M" key twice until MANAGER and then TECHNICIAN appears on the screen
3. Press "E" to enter the TECHNICIAN menu
4. Enter the Technician menu password (Default is 0000) Press E"E to enter the TECHNICIAN menu.
5. Press the "M" key to slowly scroll through the menu options. When "SW2" appears, Press the "S" key until the prompt shows "MCR INPUT. Press "E" to save.
6. Press the "M" key to slowly scroll through the menu options. When the prompt for MCR appears, Press the "S" key until "100 PULS/VOL" is displayed. (For some card reader systems this may need to be set to "10 PULS/VOL") Press the "E" key to save
7. Press the "M" key to slowly scroll through the menu options. When the prompt for MCR PULSE appears, Press the "S" key until 4.0MS appears on the screen. Press "E" to save.
8. Press the "M" key until SOLENOID DELAY prompt appears.
9. Press "E" to enter the option
10. Enter 5-10 Seconds for the solenoid delay (this delay may vary in order to prohibit pulses sent to the FMU 2500 until it's fixed pulse input delay time is exceeded. This is usually 5-10 seconds). Press Enter to save
11. Press the "C" key repeatedly until the menus are fully exited, and the PARAFOUR appears on the display.

You will also need to set up the FMU likewise. Bear in mind that all customers using FuelMaster systems may have their own unique setup profile. Both the dispenser and the FMU MUST be configured for the same pulses per volume unit (gallons or liters).

PARAFOUR Dispenser Connection	Function / Purpose	FuelMaster Connection
BLACK Wire (wht/blk pair)	FMU Authorize (No polarity)	LN1
WHITE Wire (wht/blk pair)	FMU Authorize (No polarity)	LD1
RED Wire (red/blk pair)	Pulser (+) (reference voltage from FMU)	12V
BLACK Wire (red/blk pair)	Pulser (-) (pulse Signal to FMU)	0V
Red	110 vac "Pump Handle Signal"	PHS1

NOTE: FMU connector terminals assume that PARAFOUR dispenser is "Hose 1" If another hose designator is required, select appropriate FMU connector terminals corresponding to the desired Hose designation. (NOTE: wire colors indicated in illustration may NOT be correct)



ILLUSTRATION 1: Dispenser Authorize connections from Dispenser to FMU (Connections shown at FMU). Connect to “LN1” and “LD1 (Photo taken from field installation).



ILLUSTRATION 2: Dispenser “in-Use” or “Pump Handle Signal” from Dispenser to FMU (Connections shown at FMU). Connect to “PHS1”. Note that wire indicated in the photo is Orange, however the actual Pump handle Signal wire from the dispenser is RED. (Photo taken from field installation).

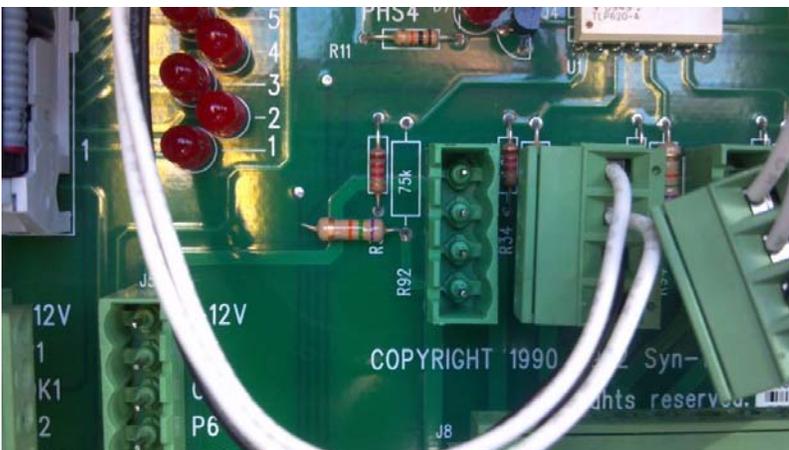


ILLUSTRATION 3: FMU 2500 resistor R92 cut and folded away for safety. This tells the FMU to sense the PHS1 wire for Start/End, and interpret 120 vac voltage drop when dispenser is turned off, as end of transaction. (NOTE: wire colors indicated in illustration may NOT be correct)



ILLUSTRATION 4: Correct Pump Control Board, FuelMaster Part Number “STS#233560, RevB, Dual Control Board”. (This replaces Standard high voltage/amperage pump control board, if so equipped)



ILLUSTRATION 5 – PARAFOUR Dispenser Pulser circuit wiring. PARAFOUR RED wire (Pulser +) connected to P1. PARAFOUR BLACK wire (Pulser -) connected to “0V”. 330 ohm, ½ watt resistor between “12V” and “P1”. NOTE: The BLUE wire in the illustration should be BLACK. (Photo taken from field installation).

END

For support call Parafour Innovations at 1-512-868-4099