



## Diesel Fire Pump Controller Wiring

The wiring between the fire pump controller and the diesel engine have been standardized so that terminal number at the engine is the same terminal number at the controller.

The electrical wiring between the power source and the diesel engine fire pump controller shall meet the NFPA 20, Chapter 12.3.5.1, 12.3.5.2 and 12.2.5.3, NFPA 70 National Electrical Code Article 695 or C22.1 Canadian Electrical Code, Section 32-200 or other local codes.

All wiring between the fire pump controller and the diesel engine must be stranded wire per NFPA 20.

### ***Do not use solid core wire.***

Always verify that both the diesel engine and the fire pump controller are the same DC Voltage either 12- or 24-Volts DC.

If installing a new fire pump controller on an older diesel fire pump verify the engine is **Negative Ground**. Some older diesel fire pump engines are **Positive Ground**. If you have a **Positive Ground** engine it will need to be converted to **Negative Ground** before replacing the controller.

Diesel engine driven fire pump controllers shall be powered by a dedicated source protected by a fuse or circuit breaker. Verify the label on the cabinet to select the correct protection. Always follow this procedure when connecting or disconnecting the controller: Connect both batteries before connecting the AC power. Disconnect the AC power before disconnecting the batteries. Disconnecting the batteries while the AC is connected may result in severe damage to the controller electronic boards.

**Terminal #1 “Energize to Start”** Is a 12/24 Volt DC positive signal from the controller to the diesel engine. It energizes the fuel rail/solenoid & the cooling water solenoid for the diesel engine heat exchanger. It needs to be **10-GAUGE** wire minimum.

**Terminal #2 “Engine Run”** Is a 12/24 Volt DC positive signal from the diesel engine to the fire pump controller signaling the engine is running. This causes the fire pump controller to disengage the starter during automatic starts. It needs to be **14-GAUGE** wire minimum.

**Terminal #3 “Overspeed”** Is a 12/24 Volt DC positive alarm signal from the diesel engine to the fire pump controller signaling the engine RPM has exceeded 120% of rated RPM. The fire pump controller will shut down the engine when this occurs during an Automatic start. It must be reset at the engine before the fire pump controller can be reset. It needs to be **14-GAUGE** wire minimum.

**Terminal #4 “Low Oil Pressure”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the engine a low oil pressure condition exists. This alarm will Stop the engine ONLY if triggered during a manual run test or a weekly test. If triggered during an auto start the engine will continue to run. It needs to be **14-GAUGE** wire minimum.

**Terminal #5 “High Engine Temperature”** Is a 12/24 Volt DC negative signal from the diesel engine to the fire pump controller signaling the engine a high engine temperature condition exists. This alarm will Stop the engine ONLY if triggered during a manual run test or a weekly test. If triggered during an auto start the engine will continue to run It needs to be **14-GAUGE** wire minimum.



**Terminal #6 “Battery 1”** Is the 12/24 Volt DC positive from battery #1. The fire pump controller is powered via this wire and also charges the battery #1 via this wire. It needs to be **10-GAUGE** wire minimum.

**Terminal #7 “Engine Alternator”** Is a 12/24 Volt DC positive signal from the diesel engine to the fire pump controller to provide battery charging via the diesel engine alternator while the engine is running. This normally only found on older diesel engines. These engines require Option V001 Alternator output current divider. *(See Image GPD 1)* It needs to be **10-GAUGE** wire minimum.

**Terminal #8 “Battery 2”** Is the 12/24 Volt DC positive from battery #2. The fire pump controller is powered via this wire and also charges the battery #2 via this wire. It needs to be **10-GAUGE** wire minimum.

**Terminal #9 “Start Contactor 1”** Is a 12/24 Volt DC positive signal from the controller to the diesel engine to crank the engine on starter/battery 1. It needs to be **10-GAUGE** wire minimum.

**Terminal #10 “Start Contactor 2”** Is a 12/24 Volt DC positive signal from the controller to the diesel engine to crank the engine on starter/battery 2. It needs to be **10-GAUGE** wire minimum.

**Terminal #11 “Ground”** Is the common 12/24 Volt DC negative/chassis ground for both battery banks. It needs to be **10-GAUGE** wire minimum.

**Terminal #12 “Energize to Stop”** Is a 12/24 Volt DC positive signal from the controller to the diesel engine to command the engine to stop. It is only used on Caterpillar engines. It needs to be **14-GAUGE** wire minimum.

*(See Image GPD2 for Terminals #1 thru Terminal #12)*

**The following terminals are utilized on newer electronic engines equipped with an ECM.**

**Terminal #301 “ECM selector switch in Alt. Position”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the Electronic Control Module is in the alternate position. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

**Terminal #302 “Fuel Injection Malfunction”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the Electronic Control Module has a fault. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

**Terminal #303 “ECM Warning”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the Electronic Control Module has a fault. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

**Terminal #304 “ECM Fault”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the Electronic Control Module is in fault. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.



**Terminal #305 “PLD Low Suction Pressure”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the Pressure Limiting Driver is in a low suction condition. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

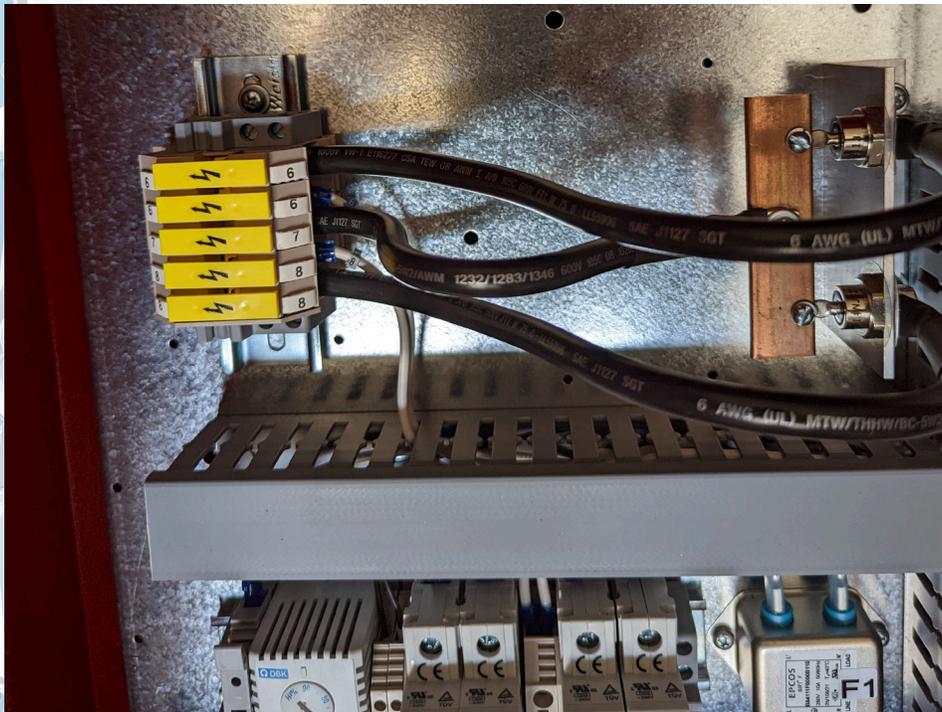
**Terminal #310 “High Raw Water Temperature”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the raw water temperature for the heater exchanger is above 105 degrees F. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

**Terminal #311 “Low Raw Water Flow”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the raw water flow to the heater exchanger is low. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

**Terminal #312 “Low Engine Temperature”** Is a 12/24 Volt DC negative alarm signal from the diesel engine to the fire pump controller signaling the engine temperature is below 140 degrees F. It usually means the block heater is off or has failed. This will trigger an “Engine Trouble” alarm. It needs to be **14-GAUGE** wire minimum.

*(See Image GPD3 for Terminal #301 thru Terminal #312)*

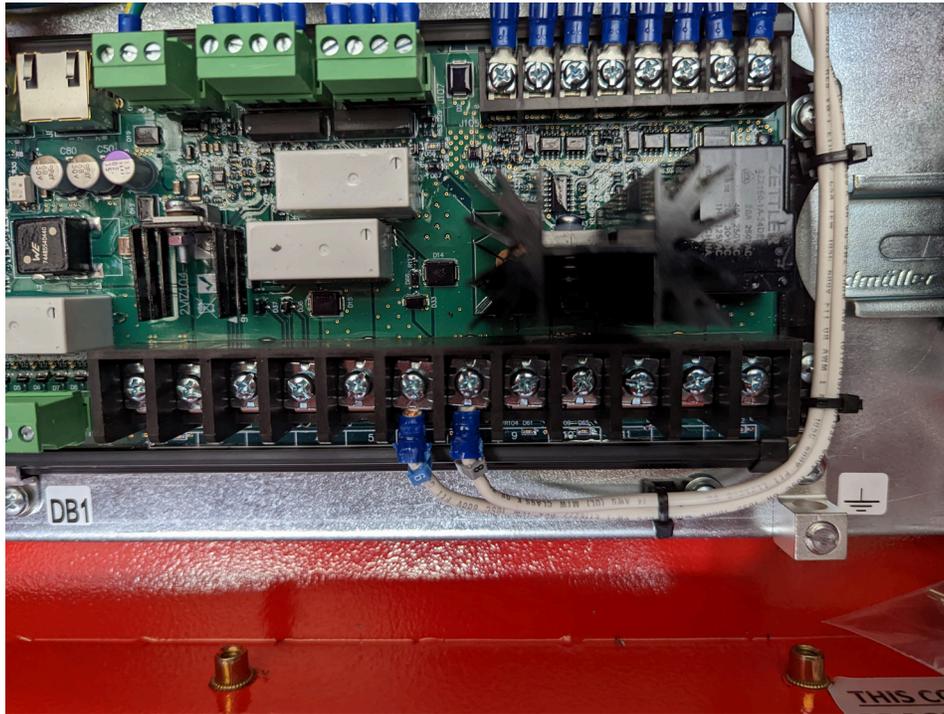
## • GPD1





**CYBERTRONIC  
CONTROLS**

**GPD2**



**GPD3**



# Diesel Engine Fire Pump Controller

## 12VDC or 24VDC Negative Ground

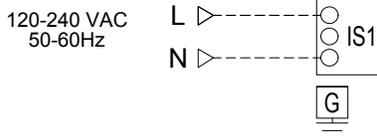
# Model: GPD

Terminal Diagram

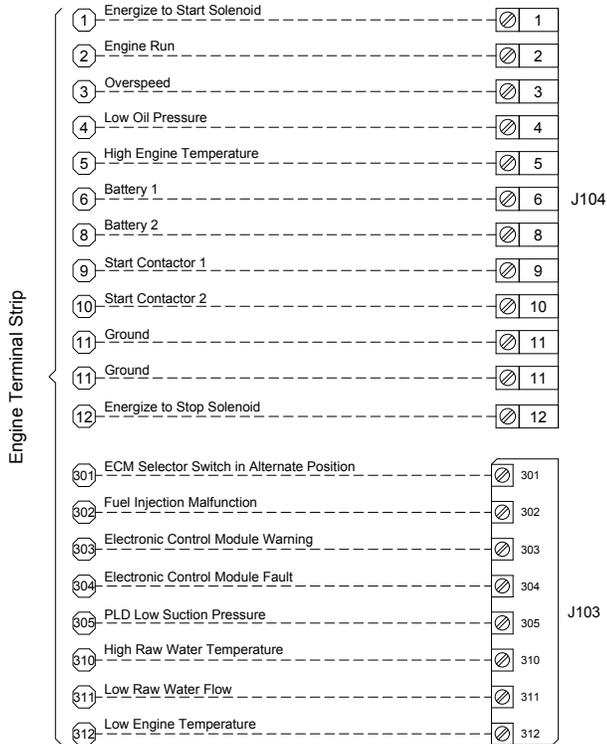
Built to the latest edition of the NFPA 20 standard

### Power Supply

Terminals Wire Size:  
14 - 6 AWG  
3.9 Nm

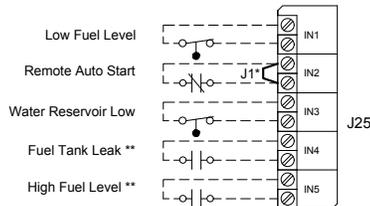


### Engine Connections (DB1)



### Field Connections (DB1)

Terminals Wire Size:  
24 - 12 AWG  
0.5 Nm



### Network Connection (VMB1)

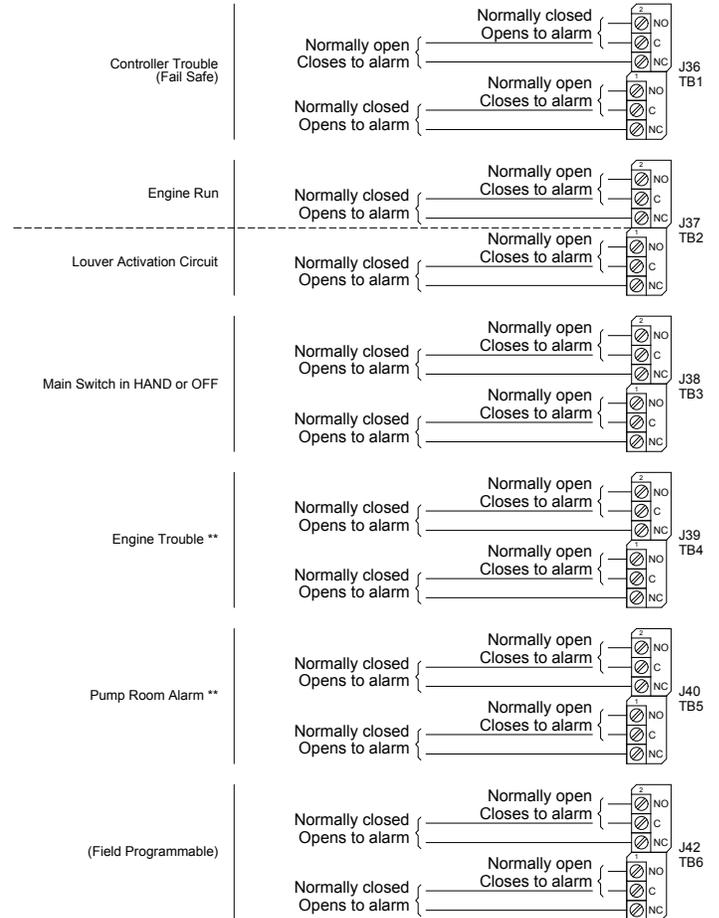
Shielded Female Connector RJ45

Modbus TCP/IP



### Remote Alarm Terminals (DB1)

Terminals Wire Size:  
250VAC / 8A Max.  
24 - 12 AWG  
0.5 Nm



All wiring between the controller and diesel engine shall be stranded (NFPA20)

Wiring between controller and engine (terminals 301, 302, 303, 304, 305, 310, 311, 312, 2, 3, 4, 5) must be #14AWG as minimum.

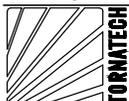
Wiring between controller and engine (terminals 12 [rated at 10A or 22A for 20 seconds] 1, 9, 10 [rated at 10A]) must be stranded #10AWG as minimum.

Wiring between controller and engine (terminals 6, 8, 11 [rated at 30A]) must be stranded and sized according to distance.

- 0-5' (0-1.5m) - 12 AWG (4 mm<sup>2</sup>)
- 6-10' (1.8-3m) - 10 AWG (6 mm<sup>2</sup>)
- 11-15' (3.3-4.5m) - 8 AWG (10 mm<sup>2</sup>)
- 16-20' (4.8-6m) - 2x10 AWG (2x6 mm<sup>2</sup>)
- 21-32' (6.4-9.75m) - 2x8 AWG (2x10 mm<sup>2</sup>)

Drawing for information only.  
Manufacturer reserves the right to modify this drawing without notice.  
Contact manufacturer for "As Built" drawing.

\* Remove jumper to use this feature  
\*\* Re-assignable



REV.	DESCRIPTION	DD/MM/YY	Drawing number
4	Removed Seismic logo (optional)	18/05/22	GPD-TD700 / E
3	Revised text	22/07/21	
2	Revised IN3	22/05/19	