



Connecting pulsers to FuelCloud hardware

Testing, troubleshooting, and best practices.

Manual Version 1.0 | Revised 03/13/23

Recommended wiring

2-Wire Pulsers

Passive

Belden 8762



3-Wire Pulsers

Active

Belden 8772



Best practices

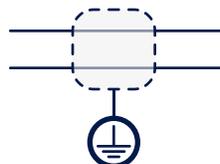
- Pulser wires are required to be in separate conduit than AC power wires by the NEC & local fire code.
- The shield of the pulser wire should be connected to earth on one end only.

2-Wire (Passive) Pulser



Pulser

Pulse
Pulse



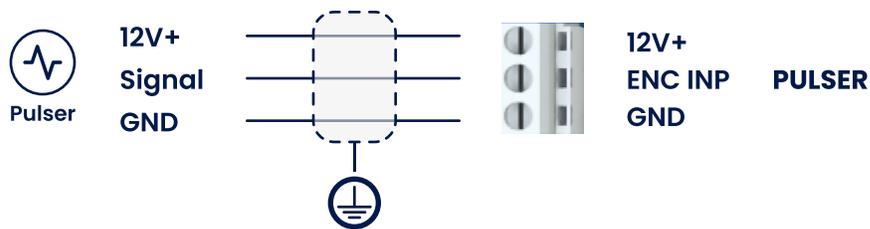
12V+

ENC INP

GND

PULSER

3-Wire (Active) Pulsar



- Do not earth wires through DC GND on FuelCloud hardware.
- Keep pulser wires at least 1" away from power wires inside FuelCloud equipment.
- We don't recommend using inline pulsers that are connected on fuel hoses that can be vibrated by the pump. That movement can be read as volume flow.

Troubleshooting

FuelCloud app counting more gallons than the meter

- 1 Verify that the pulse rate of the meter or pulser is accurately reflected on the FuelCloud website.
- 2 Verify that best practices are followed (see previous page).

Not counting pulses:

- 1 Check that the fueling position configuration online matches the physical pulse connections.
- 2 Disconnect the pulse wires from CloudBox or CloudLink.
- 3 Check if the pulser requires separate AC power and if power is connected.
- 4 Connect one pulse wire to one multimeter probe and the other pulse wire to the other multimeter probe.
- 5 Set the multimeter to continuity.
- 6 Put the pump in bypass and pump fuel.

- 7 If the multimeter does not beep indicating continuity, then the pulser:
- Either does not have power.
 - Or cannot read the mechanic gear of the meter or register.
 - Or is otherwise broken and needs to be replaced.



Note: This only works for contact closure 2 wire pulsers.

Testing the CloudBox

The CloudBox (version 1.4) does not have pulse fuses and generally does not have any issues with pulsers. Check if the CloudBox can read pulses by visually inspecting the pulse LED next to the pulse wiring terminals. The pulse LED illuminates whenever there's a closed circuit on the pulser.

Once the pulser output has been verified with a multimeter, verify the CloudBox pulse terminals next.

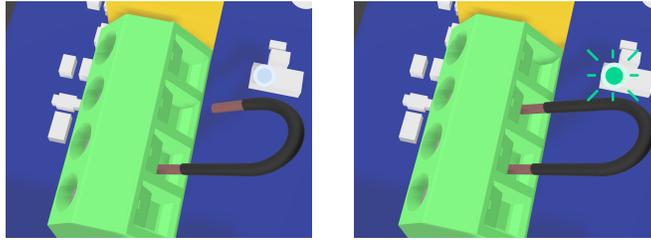
Multimeter

The CloudBox should read ~11.4VDC between pulse and GND.

Tap Test

- 1 Disconnect all wires connected to the pulse terminals.
- 2 Locate a small piece of wire that is stripped on both ends.
- 3 Move the bypass switch to off.
- 4 Using the FuelCloud app select the CloudBox pump.
- 5 Once the app shows the pump screen, place one of the wires into GND and the other end into Pulse on the pulse terminal.

- 6 Every time the wire is removed from one of the terminals, the FuelCloud app will report 0.1 gallons (if the pulse rate is set to 10:1). The volume displayed is based off the pulse rate.



Testing the CloudLink

The CloudLink uses fuses for each pulse wiring terminal for a total of 15 fuses. Blown fuses are unrepairable and require an RMA of the CloudLink. When testing pulse terminals, make sure that all pulse wires are removed.

GND

To test if the fuses on GND terminals are blown, a continuity test can be performed between each GND terminal and the RS485 GND. If the GND terminal fuses are the only fuses blown, the GND terminal for RS485 can be used as a backup.

12V+

To test the CloudLink's 12V+ terminal, ensure that the CloudLink has power and run a DC voltage test between the RS485 GND and each 12V+ terminal. The voltage for each 12V+ terminal should be a little over 11 volts DC.

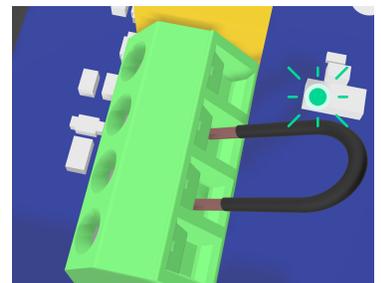
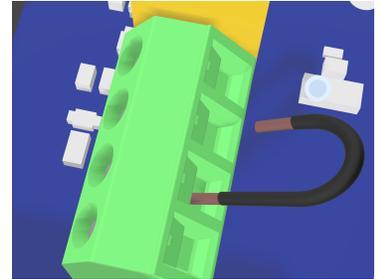
ENC FILL

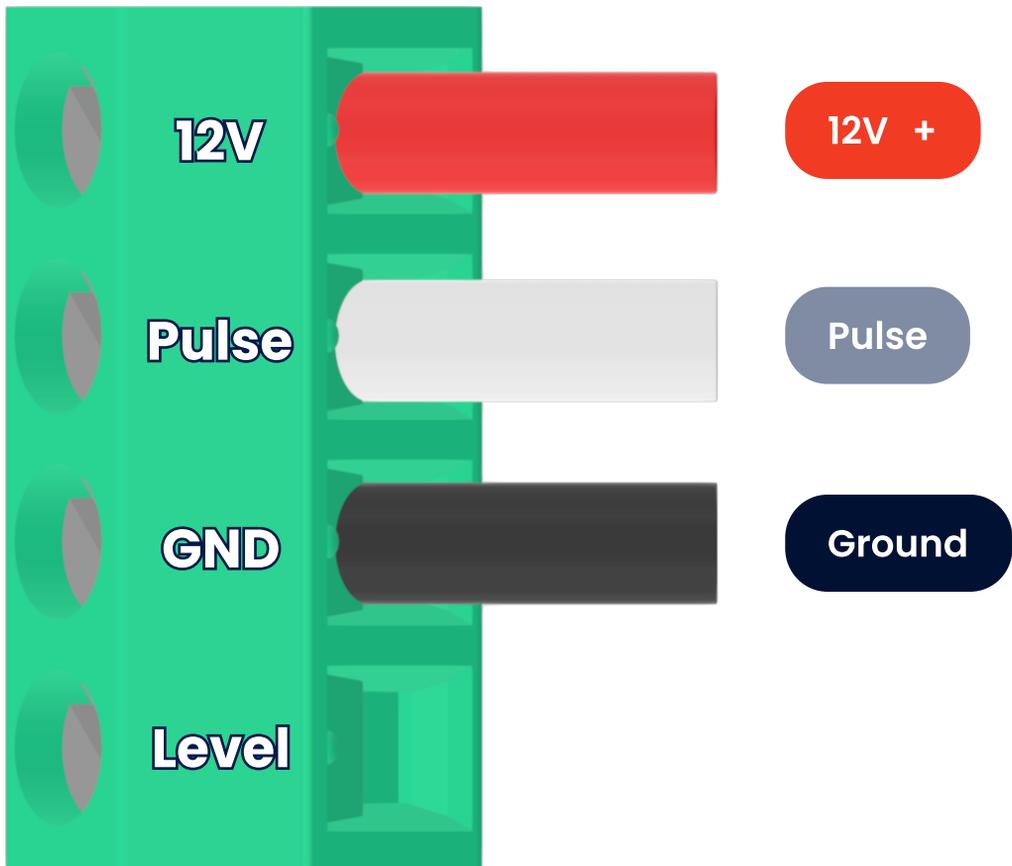
Similar to the 12V+ terminals, the ENC FILL terminals can also be tested with the RS485 GND terminal. Each terminal should read about 10 volts DC.

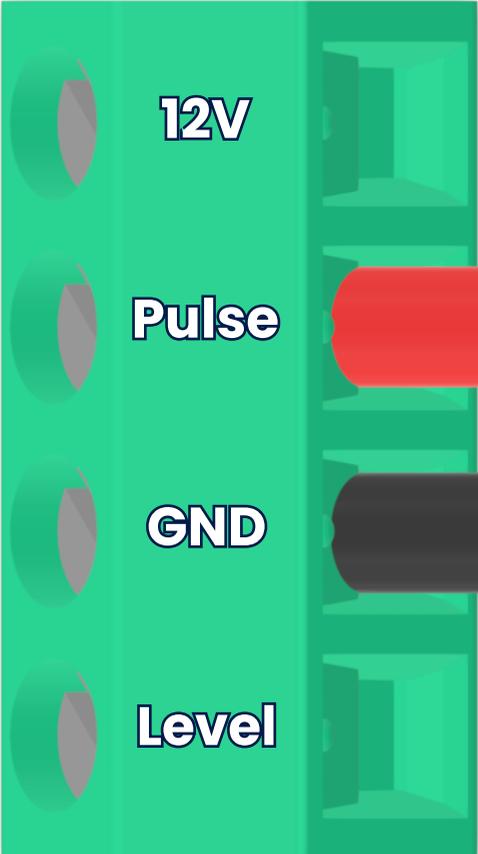
Tap Test

Once the voltages on the CloudLink terminals have been verified, the pulse inputs can be checked with the FuelCloud app and a tap test.

- 1** Disconnect all wires connected to the pulse terminals.
- 2** Locate a small piece of wire that is stripped on both ends.
- 3** Move the bypass switch of whichever pulse input you want to test to off.
- 4** Using the FuelCloud app, start the corresponding pump of the pulse terminal you want to test.
- 5** Once the pump is on, place one end of the wire into GND and the other end of the wire into Pulse / ENC INP.
- 6** Every time the wire is removed from one of the terminals, the FuelCloud app will report 0.1 gallons (if the pulse rate is set to 10:1). The volume displayed is based off the pulse rate.







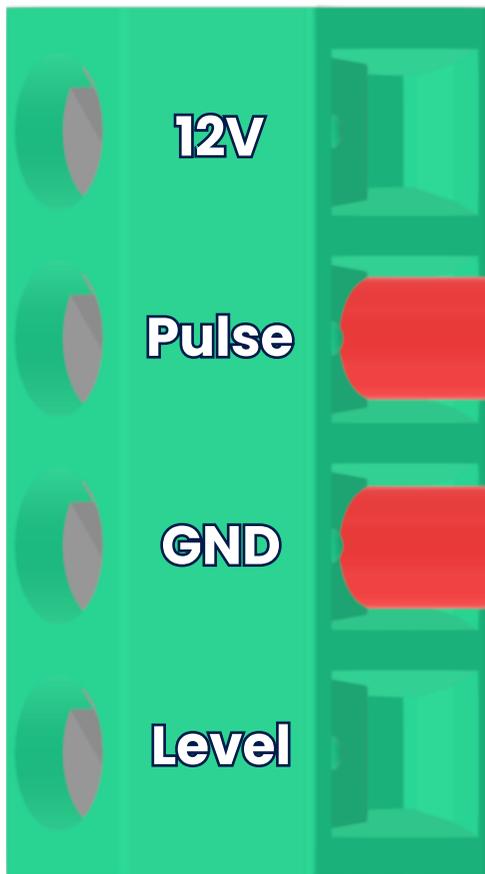
12V

Pulse

GND

Level





Pulse

Pulse

External AC Power

Line

Neutral

Earth

Line, neutral and earth require external AC power.