FUELCLOUD

CloudBox 2

Installation Manual

Hardware Version 2.0
Manual Version 1.3
Revised 1/31/25

Welcome to FuelCloud!

This installation guide contains all of the information you need to install your hardware, create your online account, and begin using FuelCloud.

Before beginning physical installation of your FuelCloud hardware, create an account at fuelcloud.com and register your device's serial number to your account. Physical installation can't be completed without an online account.

Get the installer app today!

Download on the App Store

GET IT ON Google Play

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Before Installation

Installation

Privacy Statement

FuelCloud is committed to protecting user's privacy. For more information about FuelCloud's privacy policy, please review our full terms and conditions at: **fuelcloud.com/legal/privacy-policy**

FCC Statements

Find complete details of our FCC compliance at: **fuelcloud.com/legal/fcc-compliance**

Terms and Conditions

For complete terms and conditions, including warranty disclaimers visit: **fuelcloud.com/legal/terms-condition**

Compatibility & Specs

Radio Specifications:

Technology	Frequency Band	Maximum Power
WLAN 802.11 bgnac	2400-2483.5 MHz	18 dBm +/- 2 dBm
WLAN 802.11 ax	5.15-5.85 MHz	12.5 dBm +/- 2 dBm
Bluetooth	2400-2483.5 MHz	14 dBm +/- 2 dBm

Hardware Specifications:

Power Supply Requirements	120-240VAC 50/60 Hz 207W 12-24VDC 44W Class 2 Input
Pump Control Ratings 2 pumps, same specs	120-240VAC 50/60Hz 1HP @ 120VAC 2HP @ 240VAC 120VAC @ 16A General Purpose (2000W) 240VAC @ 16A General Purpose (2000W) 12VDC, 15A General Purpose (180W) 24VDC, 7.5 General Purpose (180W)
Dimensions	**Height:** 13.24" (336mm) **Width:** 13.24" (336mm) **Depth:** 7.72" (196mm)
Weather Ratings	NEMA 1, 2, 3, 3R, 3X, 3RX, 3S, 3SX, 4, 4X, 5, 12, 13
Temperature Ratings	-40°F to 122°F (-40°C to 50°C)
Pulse Input 2 terminals, same specs	**Power supply:** 12VDC, 100mA **Rate:** 1:1 to 10,000:1 **Speed:** 120,000 pulses per minute **Duty cycle:** 50% **Contact:** (ex: reed switch, contact close) **Open collector:** (ex: 12VDC, signal, ground)
I/O	RS485 RS232 2x2 Wi-Fi 6E BLE 5.2 2X Gigabit Ethernet

Declaration of Conformity:

Hereby, FuelCloud, declares that this CloudBox 2 is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

FuelCloud vakuuttaa täten että CloudBox 2 tyyppinen laite on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Hierbij verklaart FuelCloud dat het toestel CloudBox 2 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Bij deze verklaart FuelCloud dat deze CloudBox 2 voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Par la présente FuelCloud déclare que l'appareil CloudBox 2 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Par la présente, FuelCloud déclare que ce CloudBox 2 est conforme aux exigences essentielles et aux autres dispositions de la directive 2014/53/EU qui lui sont applicables. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Hiermit erklärt FuelCloud, dass sich dieser/diese/dieses CloudBox 2 in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 2014/53/EU befindet". (BMWi) The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ FuelCloud ΔΗΛΩΝΕΙ ΟΤΙ CloudBox 2 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Con la presente FuelCloud dichiara che questo CloudBox 2 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

Por medio de la presente FuelCloud declara que el CloudBox 2 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]

FuelCloud declara que este CloudBox 2 está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [URL of DoC]
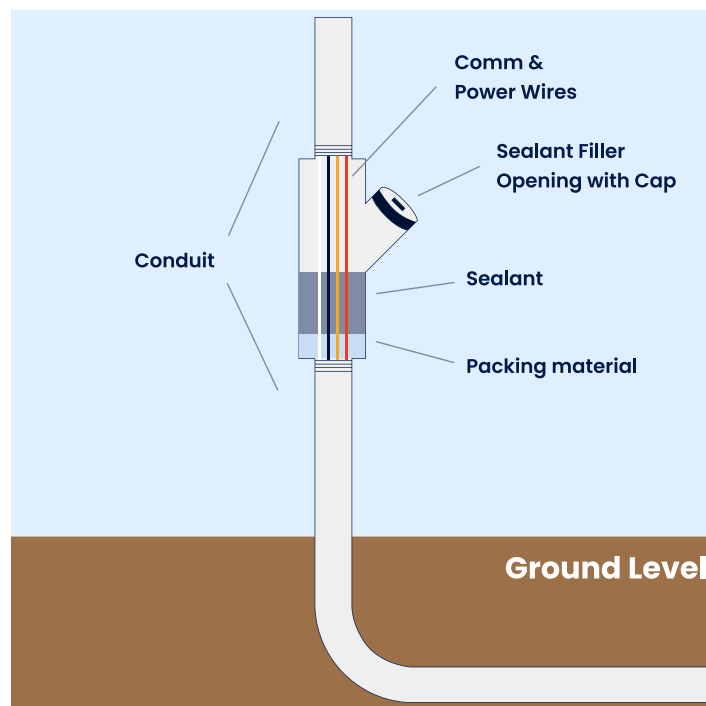
⚠ Hardware and Install Warnings

Installations must be in accordance with the National Electrical Code (NFPA No. 70) and the Automotive and Marine Service Station Code (NFPA No. 30A). The installer is responsible for investigating and following any applicable local codes.

Restricted Access:

Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.

Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

Seal offs must be used when conduit is exiting an explosion proof zone. (class 1 div 1 or class 1 div 2)

Comm & Power Wires

Sealant Filler Opening with Cap

Conduit

Sealant

Packing material

Ground Level

Hazardous Area (Where **not** to mount the CloudBox):

Do not mount the CloudBox 2 or any FuelCloud device within the hazardous / classified area.

Hazardous Zones:

| Dispensing Device	Class 1 Div 1	Class 1 Div 2
Compressed natural gas (CNG)	Entire space within the dispenser enclosure.	1.5 m (5 ft) in all directions from the dispenser enclosure.
Liquefied natural gas (LGN)	Entire space within the dispenser enclosure.	3 m (10 ft) in all directions from the dispenser enclosure.
Liquefied petroleum gas (LP-Gas)	Entire space within the dispenser enclosure; 450 mm (18 in.) from the exterior surface of the dispenser enclosure to an elevation of 1.22 m (4 ft) above the base of the dispenser; the entire pit or open space beneath the dispenser and within 6 m (20 ft) horizontally from any edge of the dispenser when the pit or trench is not mechanically ventilated.	Up to 450 mm (18 in.) above ground and within 6 m (20 ft) horizontally from any edge of the dispenser enclosure, including pits or trenches within this area when provided with adequate mechanical ventilation.

*Pulled from NEC 2018

Hazardous Area Examples:

Classified areas adjacent to dispenser mounted on aboveground storage tank:

18 in. (0.5 m)

20 ft. (6 m)

18 in. (0.5 m)
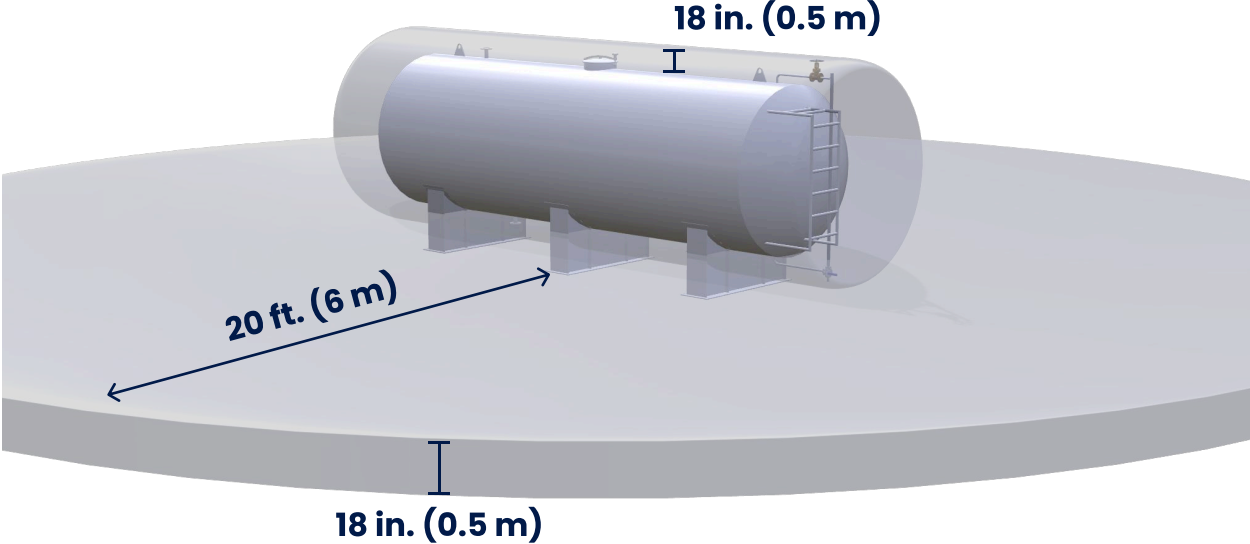
Classified areas adjacent to dispensers:

18 in. (0.5 m)

20 ft. (6 m)

18 in. (0.5 m)
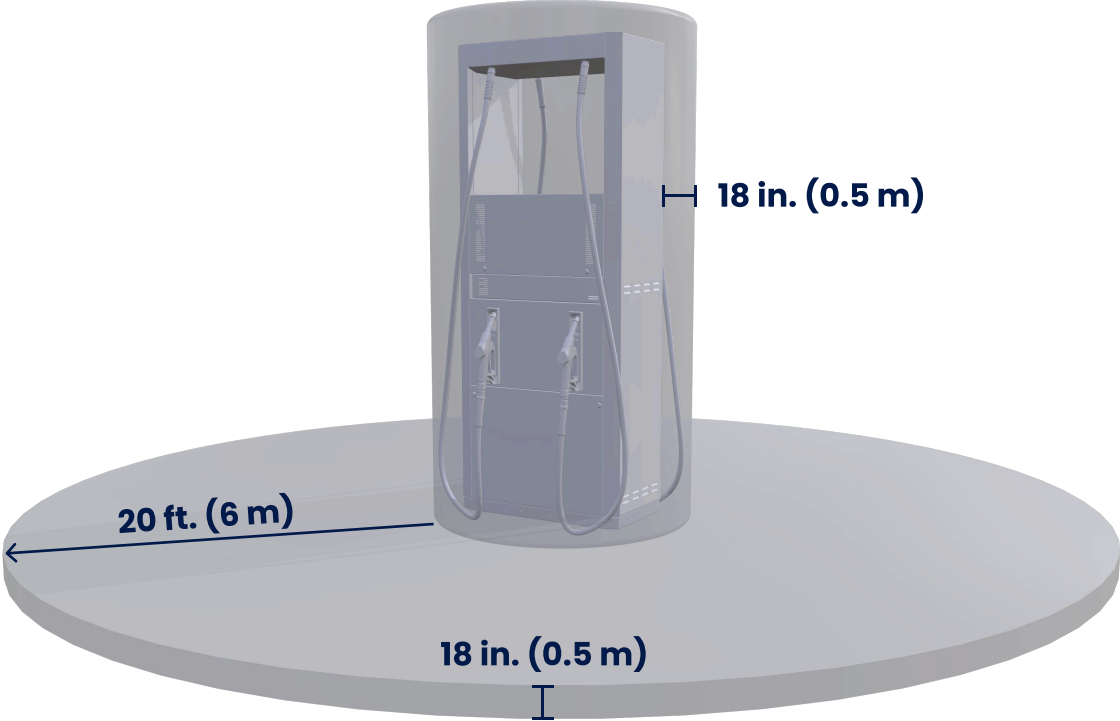
Wireless Warnings:

The total wireless range of the CloudBox 2 is 75′ in line of sight. To ensure best performance, do not install the CloudBox 2 in a location where the signal can be blocked or degraded.

Additional Warnings:

Battery Replacement: The CloudBox 2 contains a rechargeable battery. If the battery needs to be replaced, please contact FuelCloud or an authorized technician.

External Devices: All peripheral equipment connected to the CloudBox 2 system must be UL and CSA listed.

Certifications / Approvals:

The CloudBox 2 is UL/cUL 1238 listed: MH61718

FuelCloud OPCO, LLC   **FuelCloud FCHCB0002.0UL**

RATINGS:

Max Ambient Temperature Rating: 50°C

Input: 120-240VAC 50/60 Hz 207W
              12-24VDC 44W Class 2 Input

Output: 120-240VAC 50/60Hz
              1HP @ 120VAC
              2HP @ 240VAC
              120VAC @ 16A General Purpose (2000W)
              240VAC @ 16A General Purpose (2000W)
              12VDC, 15A General Purpose (180W)
              24VDC, 7.5 General Purpose (180W)

Enclosure: NEMA 1, 2, 3, 3R, 3RX, 3S, 3SX, 3X, 4, 4X, 5, 12, 13

For supply connection use wires rated for at least 90C (194F).
For use with equipment specified in the installation instructions.

SEE INSTALLATION INSTRUCTIONS

WARNING: SIGNAL WIRING IN THIS BOX MUST BE RATED AT LEAST 300V.

CAUTION: BONDING BETWEEN CONDUIT CONNECTIONS IS NOT AUTOMATIC AND MUST BE PROVIDED AS A PART OF THE INSTALLATION.

ATTENTION: LE CABLAGE DE SIGNALISATION RACCORDÉ DANS CETTE DOÎTE DOIT CONVENIR POUR UNE TENSION NOMINALE D'AU MOINS 300V.

ATTENTION: L'INTERCONNEXION DES CONDUITS NE SUFFIT PAS POUR ASSURER LA MISE À LA MASSE; ELE DOIT FAIRE PARTIE INTÉGRANTE DE L'INSTALLATION.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Check List

Complete the following steps before beginning installation of FuelCloud hardware. Failure to perform the below checks may result in the FuelCloud system or fuel equipment being damaged or not working as intended.

1   Turn off all power to the pump and tank.

2   Ensure that your installation location meets the following physical requirements:

   ✔   Clear line of site to pump **or** located where wireless signal will not be blocked or degraded.

   ✔   No wiring obstructions.

   ✔   Good cellular connectivity.

   ✔   Hardware will be mounted outside of hazardous zones - see **warnings** for more information.

   ✔   Hardware dimensions for mounting: 12.60"H x 12.60"W x 7.72"D (320mm H x 320mm W x 196mm D).

3   Ensure that your site power supply and fuel equipment is compatible with FuelCloud's hardware. See **Compatibility & Specs** for more information.

Identify Your Installation Location

Ensure the following:

- Line of sight to the CloudBox 2

- Good LTE cellular coverage

- Fueling within 75' of the CloudBox 2

Turn Power Off

Turn off all power to the pump at the breaker.

OFF

Remove Plugs

Two of the conduit holes pictured have disposable plugs. These plugs must be removed before installation. If these conduit holes are not to be used, cap the holes with UL listed plugs.
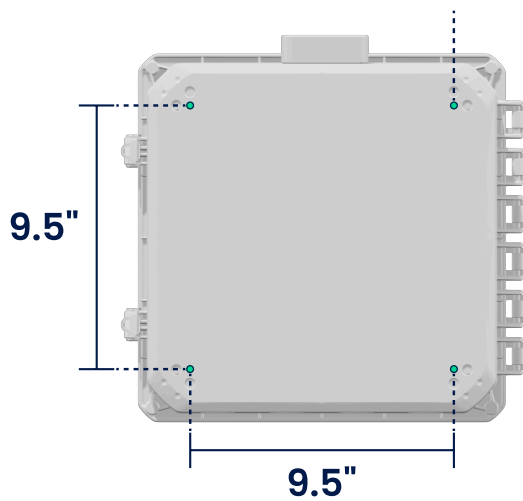
Mounting

Attach the 2 mounting flanges to the back of the CloudBox 2. Then mount the CloudBox 2 using any available fasteners.

Screw Size: 10-32

9.5"

9.5"

13.5"

9.5"

13.5"

13.24"

7.72"

13.24"

13
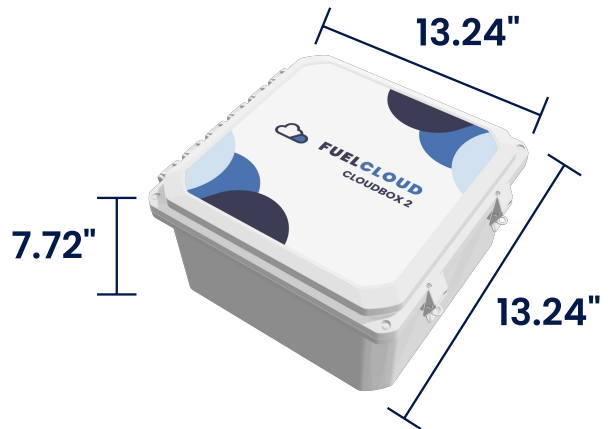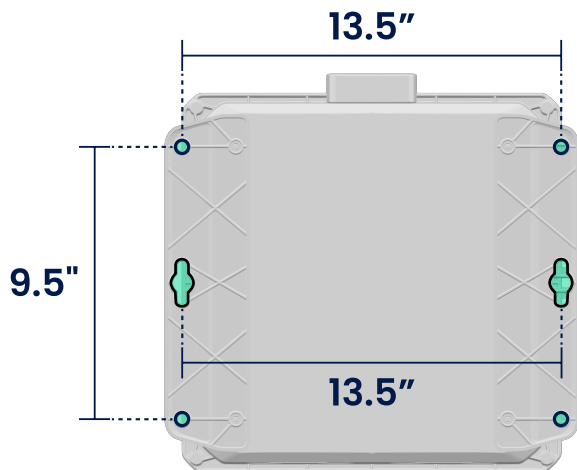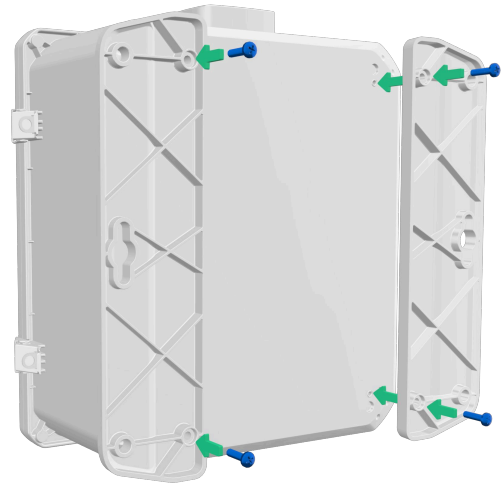
Standalone Pump Wiring

FuelCloud Hardware Power In / Power Out
The CloudBox 2 can work on AC or DC power.

> ⚠️ **Warning:** The CloudBox 2 requires an external circuit-beaker (AC) or fuse (DC) be connected before the input power. It is recommended that the current protection devices are located near the CloudBox 2.
>
> **Wiring Requirements:** All connections to the terminal board must be made using conductors rated 300V minimum.
> - **Tightening:** Min 0.5 Nm, Max 0.6 Nm
> - **Type:** Copper solid or stranded
> - **Wiring gauge:** 10-30AWG

DC Site Wiring

For mobile site applications, the CloudBox 2 switches the pump, PTO, or solenoid on the positive side.

A solenoid valve should be used with a PTO, otherwise fuel can be turned on or off without control from the FuelCloud app.

Supply Power

The CloudBox 2 can be powered in the following scenarios:

- 120-240VAC 50/60Hz 207W
- 12-24VDC 44W Class 2 Input

See pages 16-18 for wiring diagrams.

AC L/L1
AC N/L2
Earth

AC Input Power

DC+
IGN
DC-
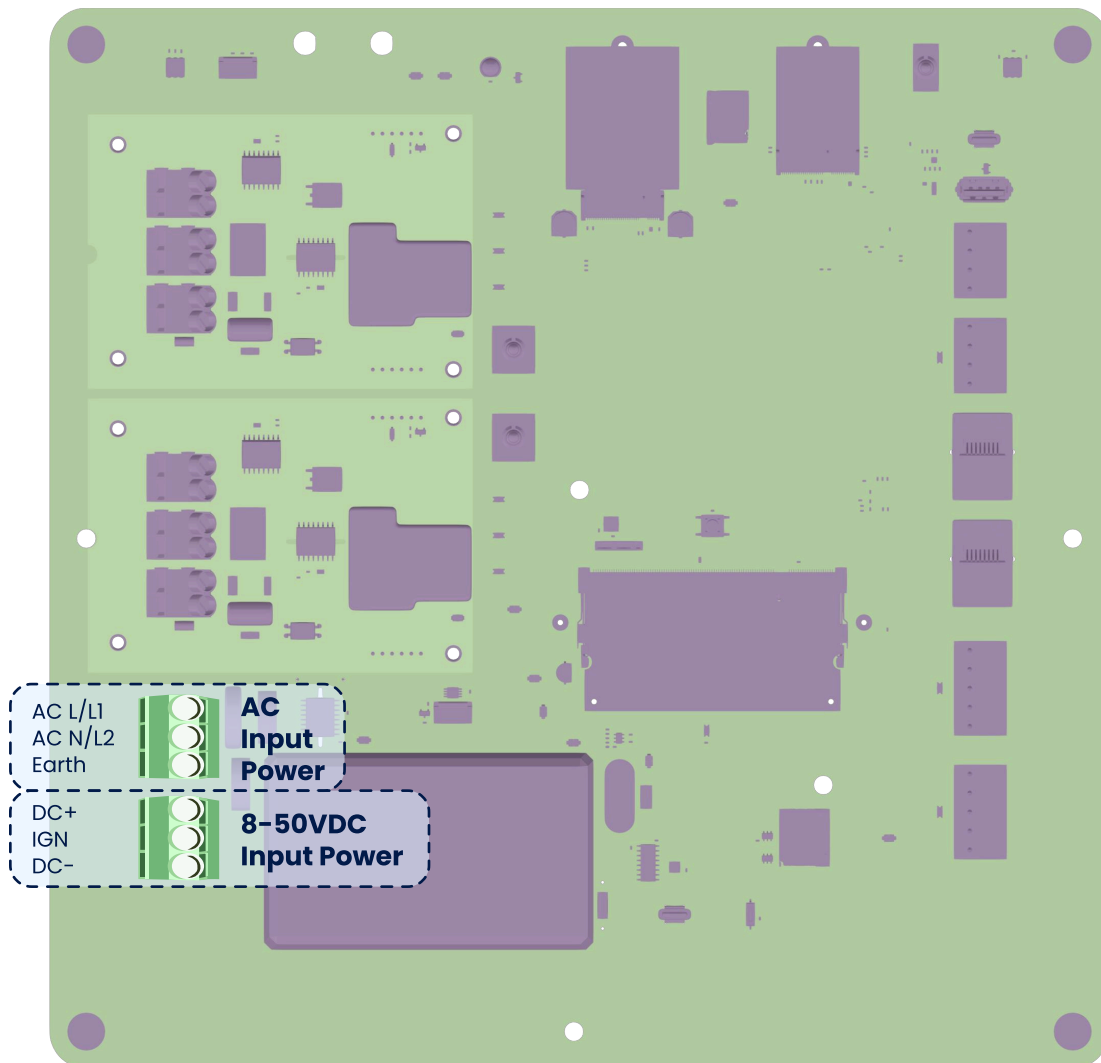
8-50VDC Input Power

AC Power Wiring

120VAC Supply Power

Breaker	Line		AC L/L1	
	Neutral		AC N/L2	INPUT
	Earth		Earth	
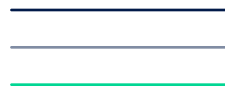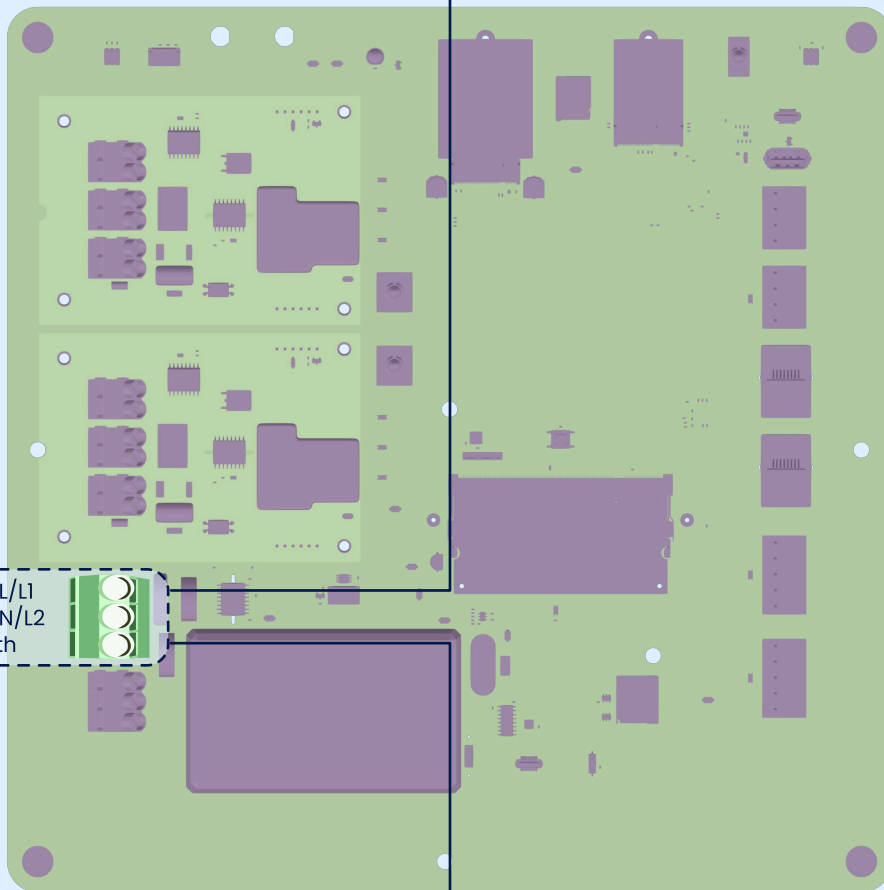
AC L/L1
AC N/L2
Earth

240VAC Supply Power

Breaker	Line		AC L/L1	
	Line 2		AC N/L2	INPUT
	Earth		Earth	
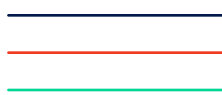
Always On Class II DC Wiring

Always On DC Supply Power
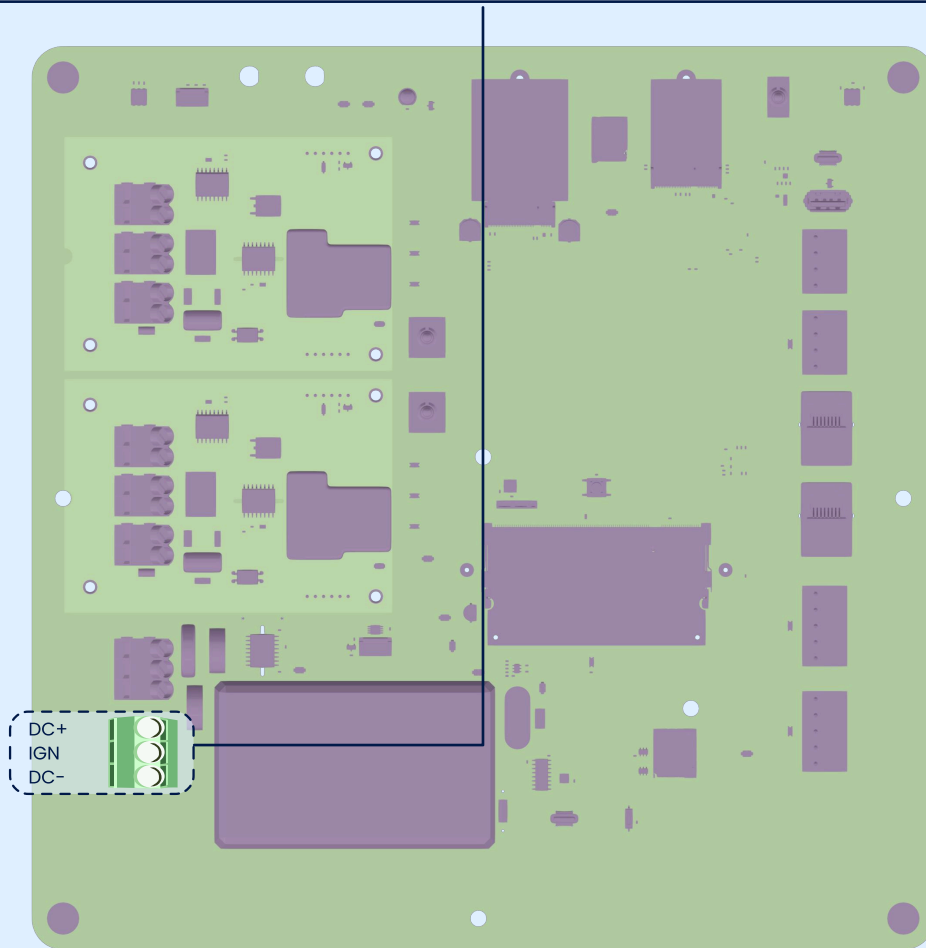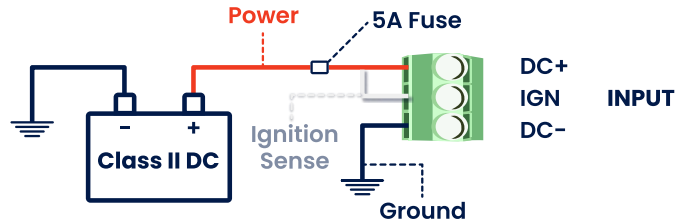
Power
5A Fuse
DC+
IGN   INPUT
DC–
Ignition
Sense
Class II DC
Ground

DC+
IGN
DC–

⚠️ **Caution:** 5A inline fuse is required for DC installations.

Switched Class II DC Wiring

Switched DC Supply Power

- Power
- Class II DC
- Ignition
- Ignition Sense
- Vehicle Firewall
- Vehicle Fuse Box
- 5A Fuse
- DC+
- IGN
- DC–
- INPUT
- Ground

DC+
IGN
DC–
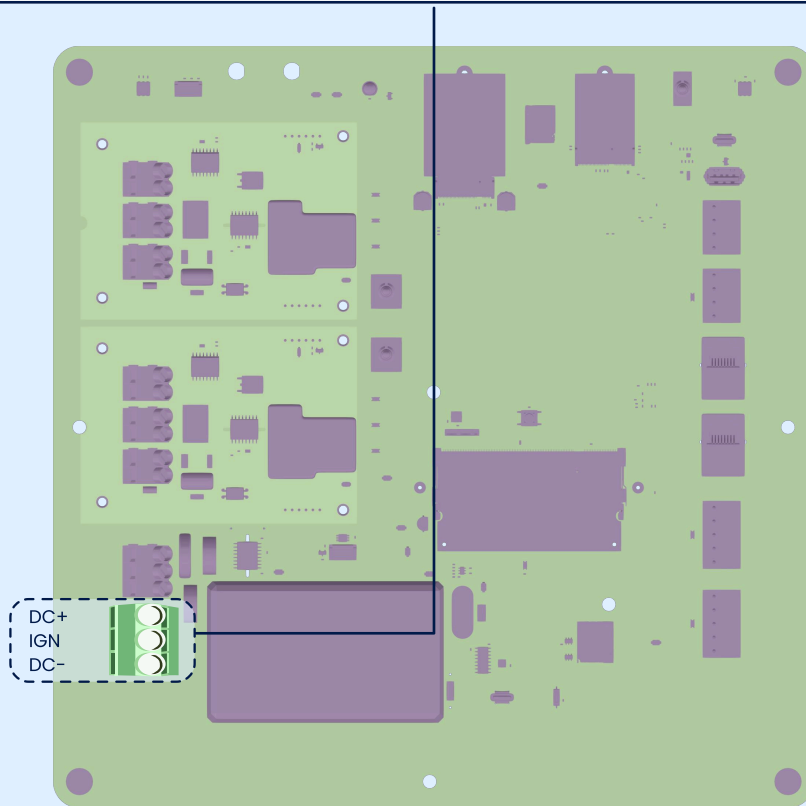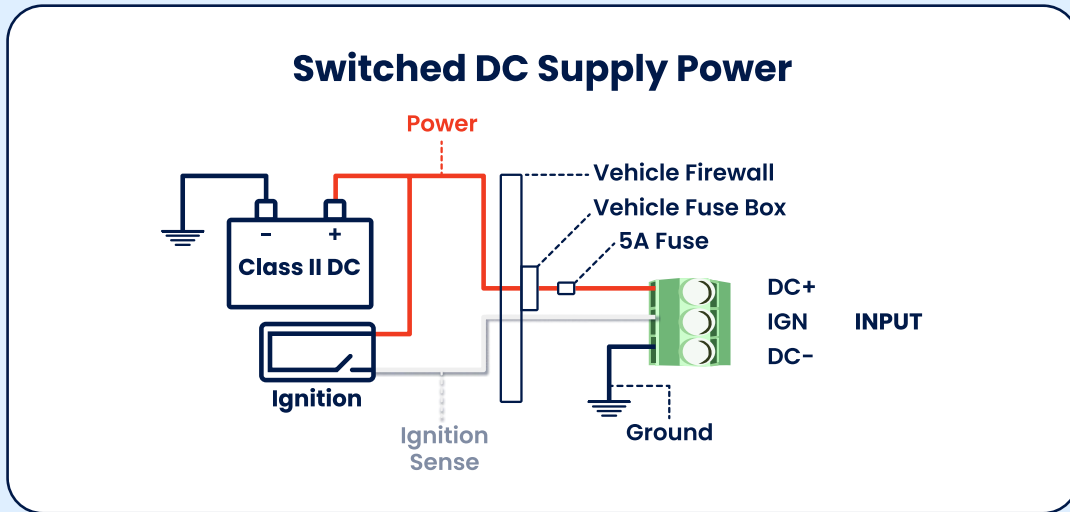
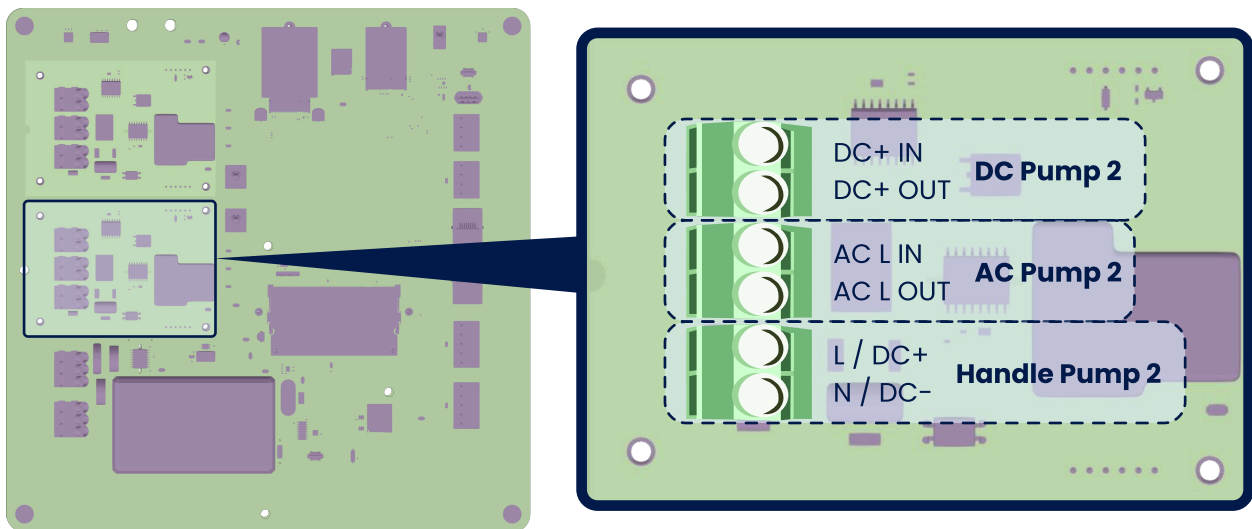⚠️ **Caution:** 5A inline fuse is required for DC installations.

Control

The CloudBox 2 supports 2 fueling positions. The wiring terminals for each position are located on their respective daughter boards. The following pages only show connections to Position 1, but both positions support the same wiring options.
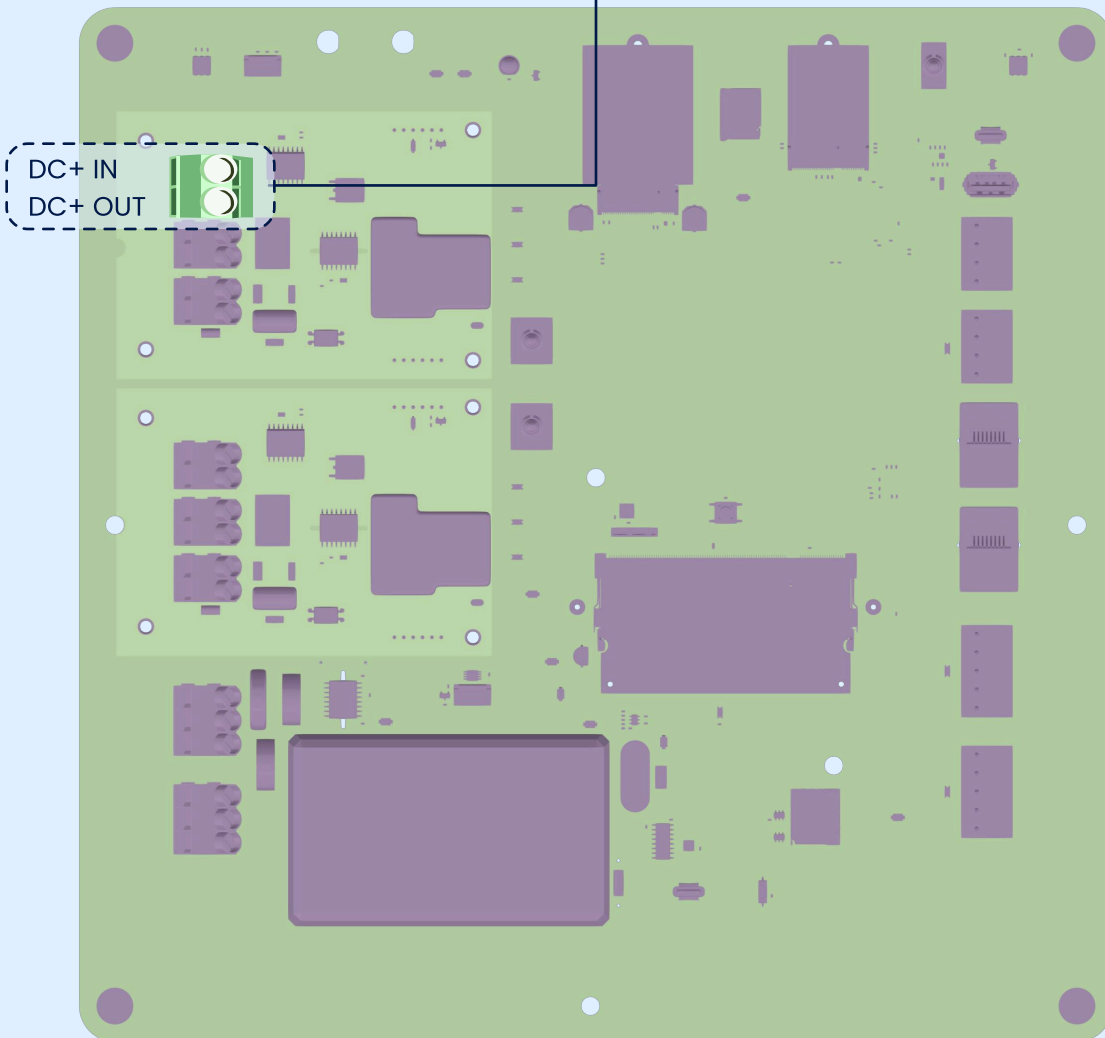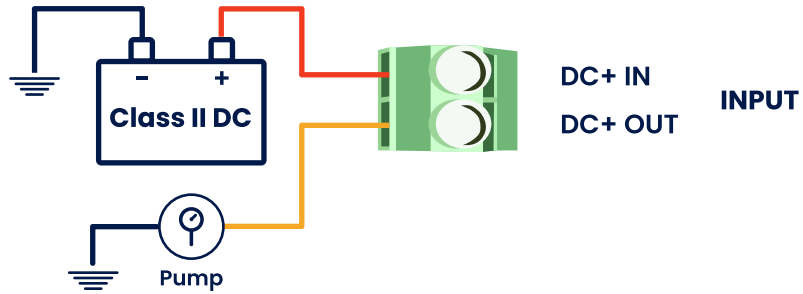
Position 1
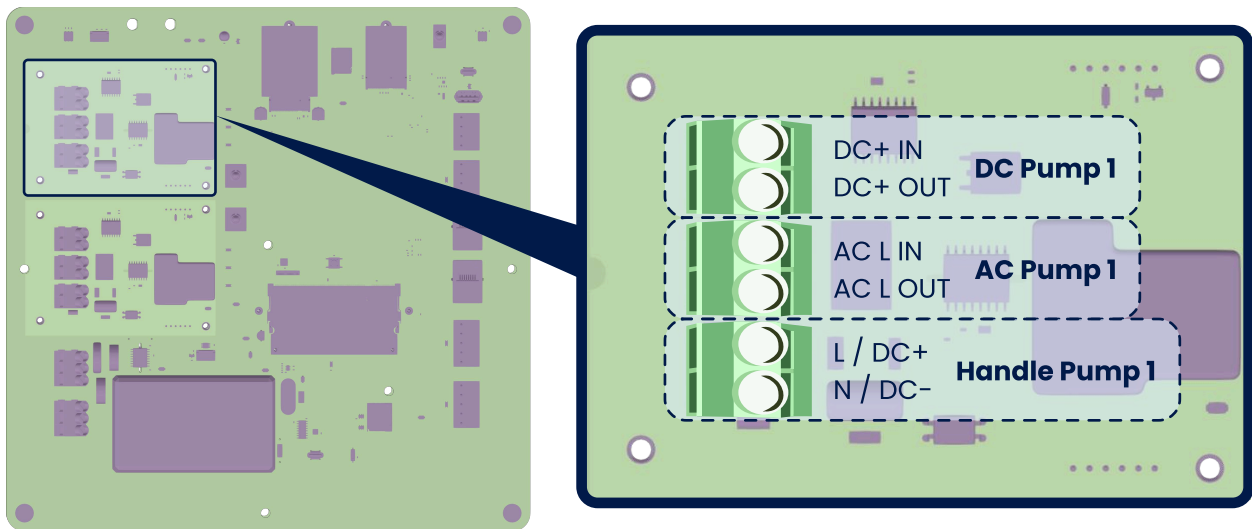
Position 2

DC Pump Control

8-50VDC Pump Control

DC+ IN
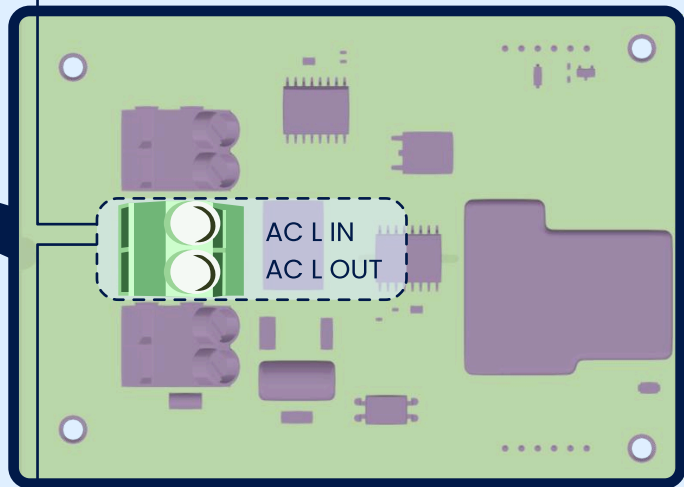
DC+ OUT

INPUT

Class II DC

Pump

DC+ IN

DC+ OUT

AC Pump Control

120VAC Pump Control

Line

⚡ Breaker

Neutral

Pump

Earth Ground

L IN
L OUT

INPUT

AC L IN
AC L OUT

240VAC Pump Control

Line 1

⚡ Breaker

Line 2

Pump

Earth Ground

L IN
L OUT

INPUT
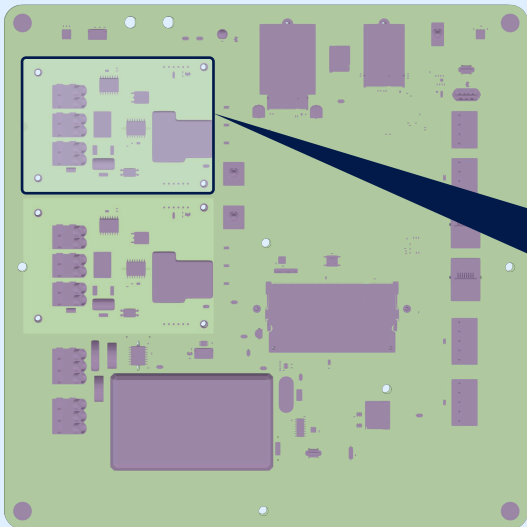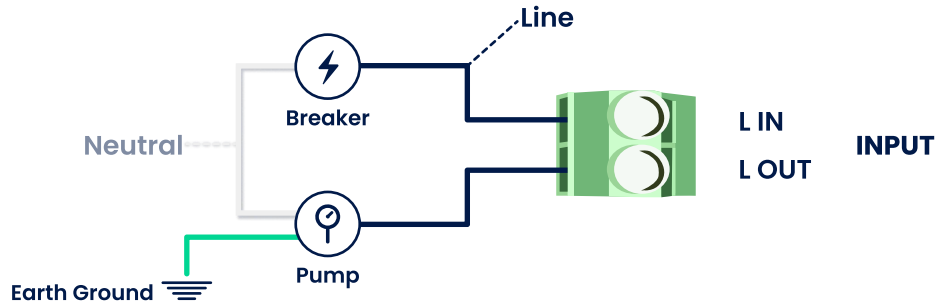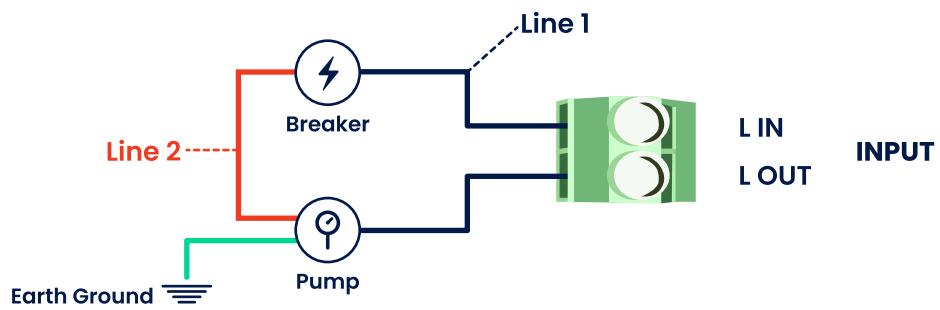
Dispenser Control

Dispenser Control

Line

Dispenser Return/ Handle

L / DC+

N / DC−

INPUT

Breaker

Neutral

L / DC+

N / DC−
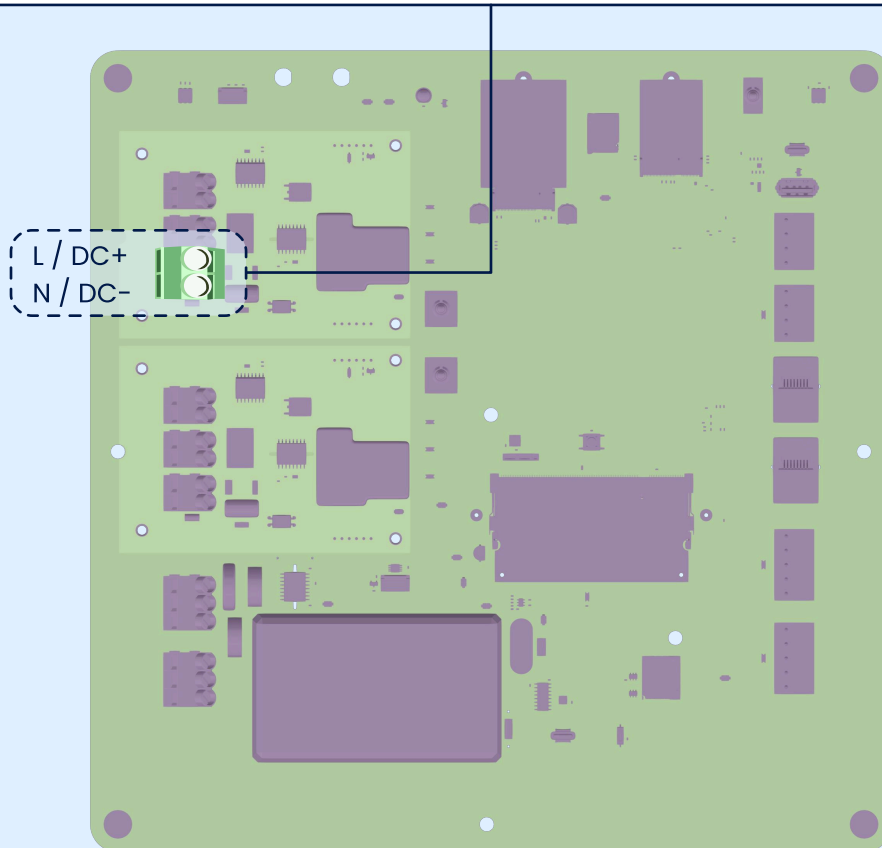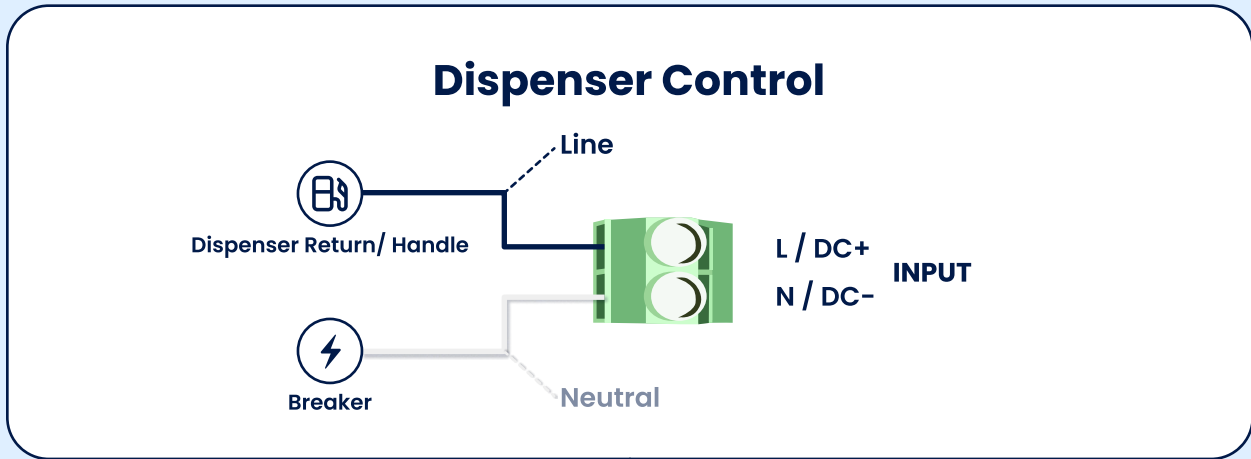
⚠ **Caution:** The CloudBox 2 authorizes the dispenser. The pump should be controlled by the dispenser.

Pulsers

- All pulser wire should be shielded twisted pair wire (14-22AWG).

- Pulser wiring must not share the same conduit as pump AC power.

- Pulser shield must be connected to Earth on one end only.

> ⚠️ **Warning:** Do not put Pulser Wire into AC Conduit. Doing so is a violation of fire code.

2-Wire Pulser:

- Attach one wire to the terminal marked "Pulse".
- Attach one wire to the terminal marked "GND".
- Attach the pulser shield wire to the terminal marked "Shield".

3-Wire Pulser:

- Attach 12V power line from the pulser to the terminal marked "12V+".
- Attach signal wire to the terminal marked "Pulse".
- Attach the ground wire to the terminal marked "GND".
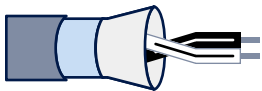- Attach the pulser shield wire to the terminal marked "Shield".

4-Wire Pulser:

- Attach 12V power line from the pulser to the terminal marked "12V+".

- Attach the signal A wire to the terminal marked "Pulse".

- Attach the ground wire to the terminal marked "GND".

- Attach the signal B wire to the terminal marked "Quad".

- Attach the pulser shield wire to the terminal marked "Shield".

Recommended wiring

2-Wire Pulsers
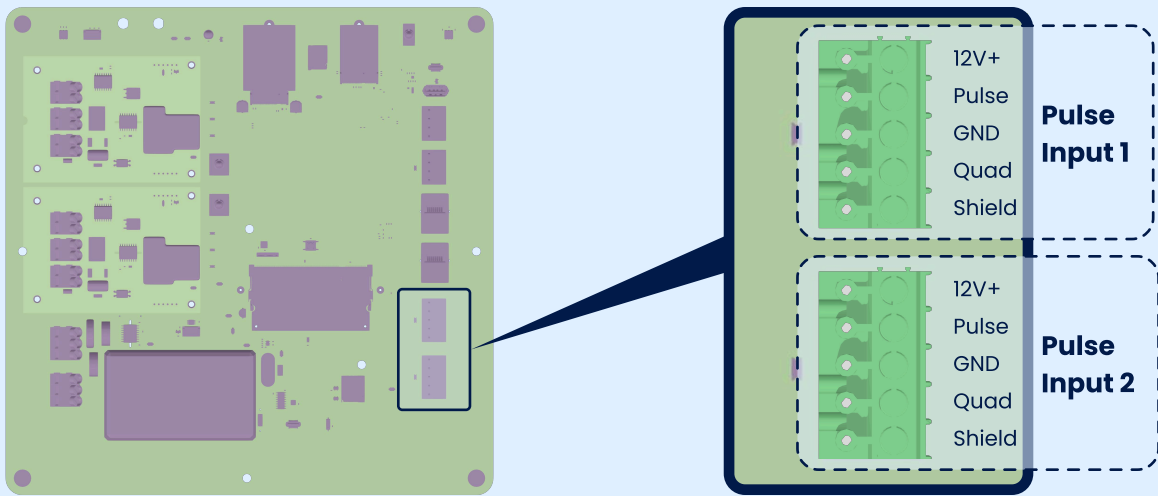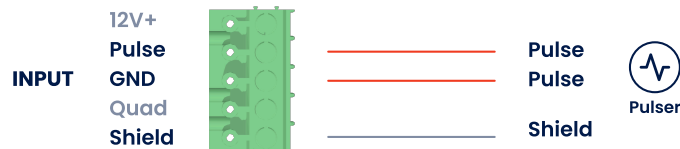Passive

Belden 8762

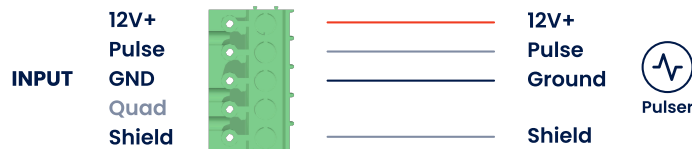**3-Wire Pulsers**
Active

Belden 8772

Pulser Wiring

	12V+	
	Pulse	**Pulse**
	GND	**Input 1**
	Quad	
	Shield	
	12V+	
	Pulse	**Pulse**
	GND	**Input 2**
	Quad	
	Shield	

2-Wire (Passive) Pulser

	12V+		
	Pulse	Pulse	
INPUT	GND	Pulse	Pulser
	Quad		
	Shield	Shield	

3-Wire (Active) Pulser

	12V+	12V+	
	Pulse	Pulse	
INPUT	GND	Ground	Pulser
	Quad		
	Shield	Shield	

4-Wire (Quadrature) Pulser

	12V+	12V+	
	Pulse	Pulse A	
INPUT	GND	Ground	Pulser
	Quad	Pulse B	
	Shield	Shield	
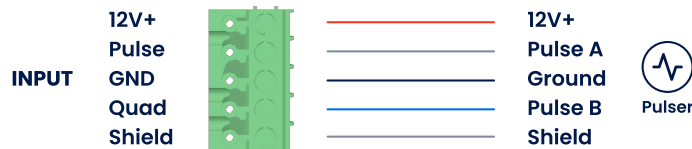
⚠ **Caution:** Connect the pulser wiring shield to the shield terminal to prevent electrical noise.

Local Network Option

The CloudBox 2 can be connected to a local network through **Ethernet Port 1** on the right side of the CloudBox 2 board. When the CloudBox 2 is connected to a local network, users can use their own Wi-Fi access point instead of the FuelCloud network.

- Broadcast forwarding must be enabled for the Wi-Fi network.
- The network must have access to the internet.
- If you want your CloudBox 2 to connect to your local network wirelessly, please follow the Infrastructure Mode guide found in the online FuelCloud Help Center.


Ethernet Port 1

Ethernet Port 2
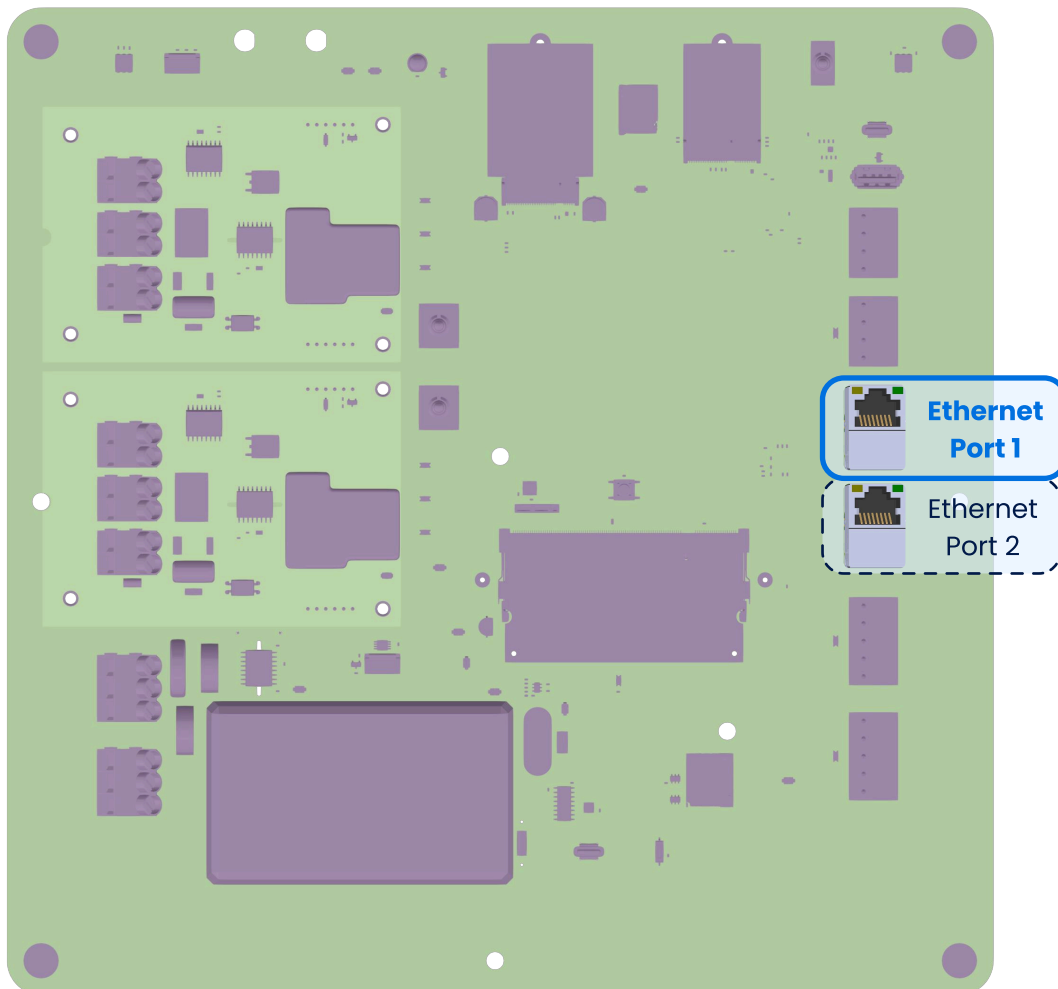
Power On & Verification

After installing FuelCloud hardware and restoring power to the pump, verify the following items:

1 Power to the hardware

- Flip the power switch to the on (up) position.

- Check that the lights and LEDs on the circuit board are illuminated.

- If the board does not have power, check that the circuit breaker has not tripped.

ON

TRIP   OFF

Top of circuit board
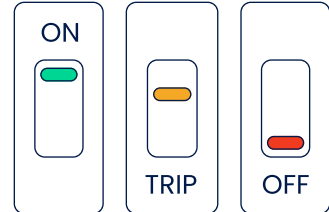
Status LED   Power LED   ON/OFF Switch   Internet LED
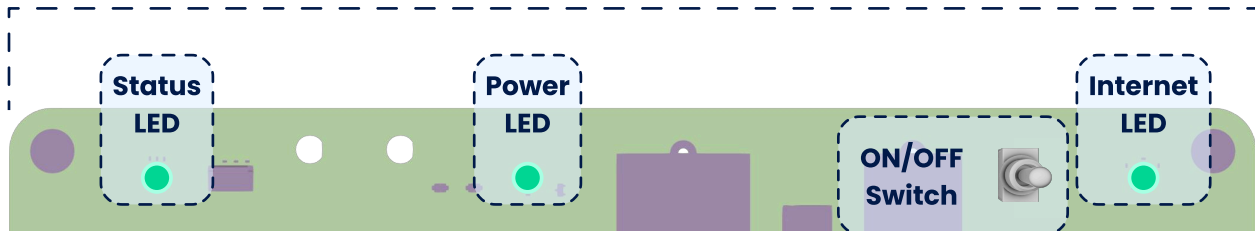
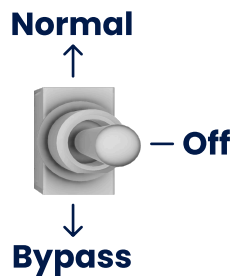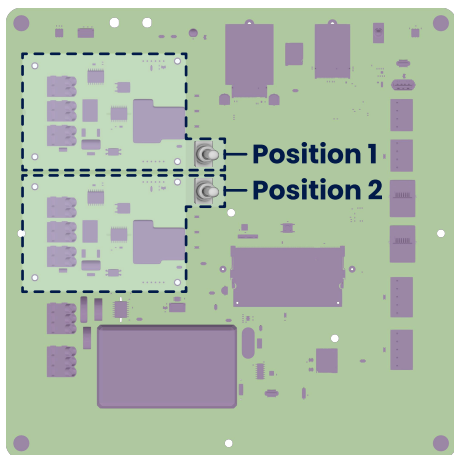## 2 Power to the pump

- Before testing a fueling position, make sure the corresponding switch is set to Normal to ensure the pump receives power.

Position 1
Position 2

Normal
↑
— Off
↓
Bypass

Normal: Pump is controlled by the app.

Off: No power will be allowed to the pump.

Bypass: Bypasses the FuelCloud app.

Note: The FuelCloud app will still work in Bypass mode.

3   Hardware Wi-Fi

- To ensure that your CloudBox 2 is successfully broadcasting a Wi-Fi signal, look for the FuelCloud Wi-Fi network on a Wi-Fi enabled device. The Wi-Fi SSID will be FMS_XXXXX where XXXXX are the last five digits of the CloudBox 2 or NXFM100 serial number.

- If using ethernet, connect to your local network.

4   Test transaction

- Before a test transaction can be performed, the customer's administrator needs to create a Driver Profile and PIN for you in their FuelCloud account. Once this is done, run a test transaction using the FuelCloud mobile app.

- The FuelCloud app may perform a firmware update on first use. After the update has finished you can run the test transaction.
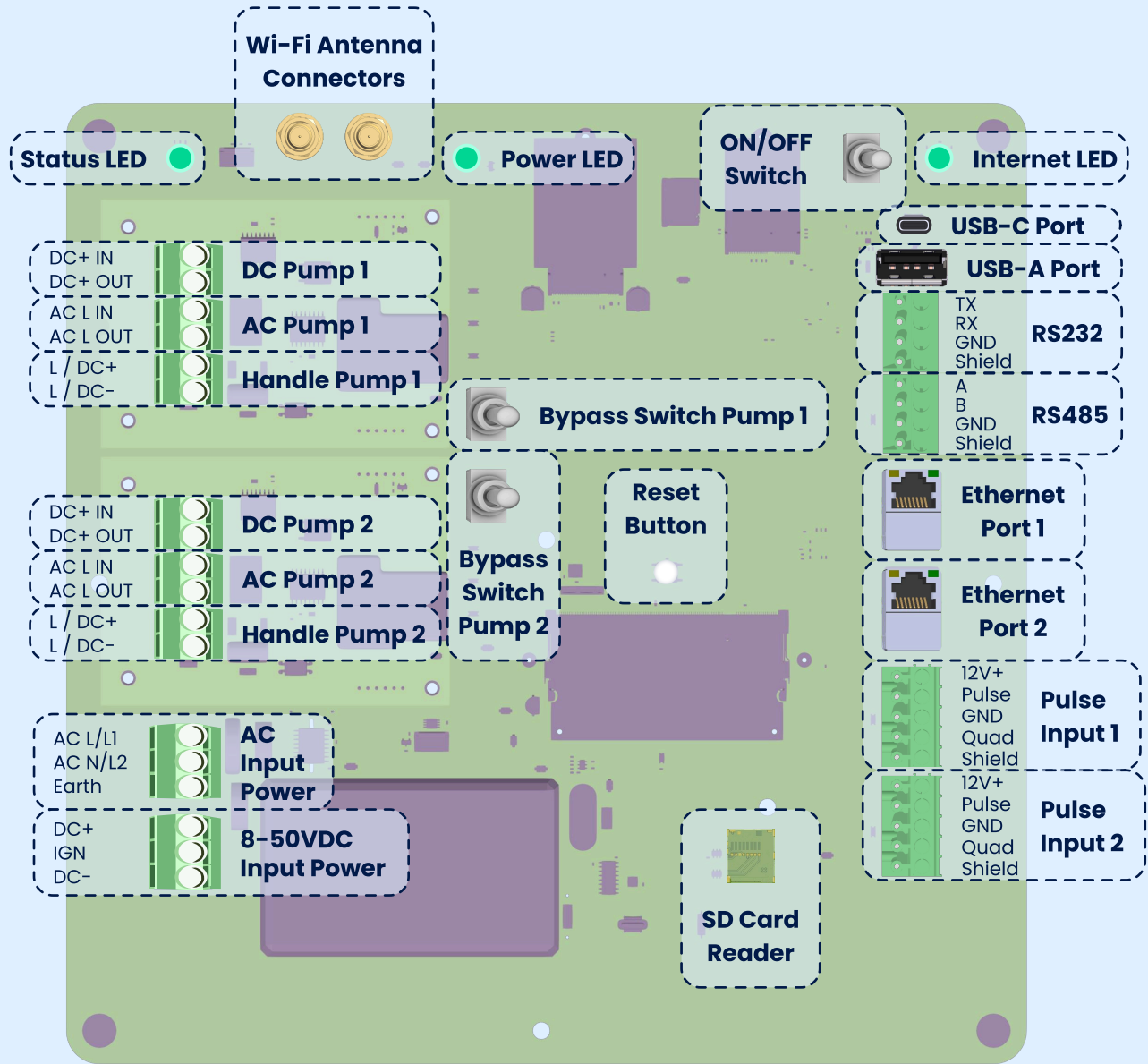
5   Check pulse rate

- Confirm that the volume displayed on the FuelCloud app matches the volume of fluid being dispensed.

- The pulse LED on the circuit board will turn on and off as the terminal receives pulse signals.

6   You're all finished. Congrats!

- For technical support, call FuelCloud Support: (844) 792-6071

CloudBox 2 Overview

Wi-Fi Antenna Connectors

Status LED 🟢

🟢 **Power LED**

ON/OFF Switch

🟢 **Internet LED**

USB-C Port

DC+ IN
DC+ OUT **DC Pump 1**

USB-A Port

AC L IN
AC L OUT **AC Pump 1**

TX
RX
GND
Shield **RS232**

L / DC+
L / DC- **Handle Pump 1**

A
B
GND
Shield **RS485**

Bypass Switch Pump 1

DC+ IN
DC+ OUT **DC Pump 2**

Reset Button

Ethernet Port 1

AC L IN
AC L OUT **AC Pump 2**

Bypass Switch Pump 2

Ethernet Port 2

L / DC+
L / DC- **Handle Pump 2**

12V+
Pulse
GND
Quad
Shield **Pulse Input 1**

AC L/L1
AC N/L2
Earth **AC Input Power**

12V+
Pulse
GND
Quad
Shield **Pulse Input 2**

DC+
IGN
DC- **8-50VDC Input Power**

SD Card Reader

Status LED colors:

🟢 **Green:** On and active

🟡 **Yellow:** On and inactive

Internet LED colors:

🟢 **Green:** Strong connection

🟡 **Yellow:** Good connection

🔴 **Red:** Poor connection

⊘ **Off:** No connection

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