

MANUAL NUMBER X057259 | REVISION A | ENGLISH (US)

Pulse® Mobile HUB

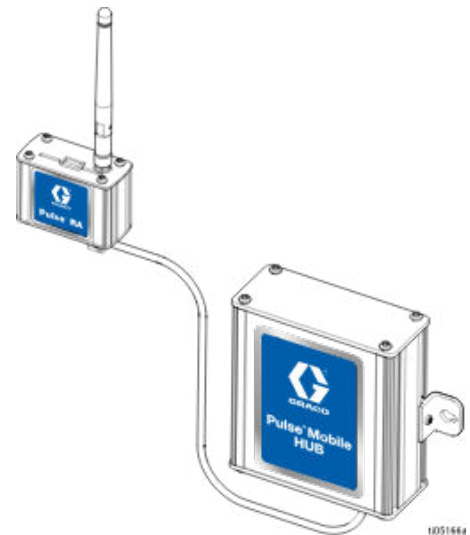
For wireless monitoring and reporting of fluid dispense activity with Graco's cloud-based Fluid Management System.

Not approved for use in explosive atmospheres or hazardous (classified) locations. Not for outdoor use. For professional use only.



Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.



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C O N T E N T S

Models and Approvals	3
Technical Specifications	4
Component Identification	6
Installation	10
Wiring the Terminal Connector (Included)	10
Pulse Mobile HUB Mounting	10
Device Power Requirements	10
Setup	11
Wi-Fi Connection and Configuration	11
Troubleshooting	13
Recycling and Disposal	14
End of Product Life	14
Accessories	15
Dimensions	16
California Proposition 65	17

MODELS AND APPROVALS

Table 1: Pulse® Mobile HUB Approvals

PART NUMBER	APPROVALS
2014181	 IC
2014658	 

TECHNICAL SPECIFICATIONS

The tables provide important information related to the Pulse® Mobile HUB, including product attributes, measurements, and performance characteristics that support the use of the equipment.

Table 1-1: Technical Specifications of Pulse Mobile HUB

	US	METRIC
Operating Temperature Range	-13°F to 158°F	-25°C to 70°C
Storage Temperature Range	-40°F to 158°F	-40°C to 70°C
Operating Humidity	0 to 85 percent, non-condensing	
Power Supply to Mobile HUB*		
Power Source DC	9 to 30 VDC	
Power Consumption	4 W (typical), 27 W (max)	
Wi-Fi		
Protocol	802.11 a/b/g/n/ac	
Frequency Range	2.4 GHz, 5 GHz	
Radio Modulation	FSS, DSS, OFDM	
Notes		
* Power Supply not included. See Accessories .		

Table 1-2: Technical Specifications of Pulse Remote Radio Antenna

	US	METRIC
Weight	0.5 lb	0.25 kg
Operating/Storage Temperature Range	-40°F to 158°F	-40°C to 70°C
Maximum Operating Altitude	6560 ft above sea level	2000 m above sea level
Operating Humidity	0 to 80 percent, non-condensing	
Voltage	5 VDC	
Current	45 mA	
Ingress Protection	IPX0	
RF Frequency Band	2400 to 2483.5 MHz	
Maximum RF Transmit Power		
Model – NA	+19.9 dB	
Model – INT	+8.0 dB	

TECHNICAL SPECIFICATIONS

COMPLIANCE

Device contains IC: 20953-RPI5 and FCC ID: 2ABCB-RPI5

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

The enclosed device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

COMPONENT IDENTIFICATION

The diagrams identify the features of the Pulse® Mobile HUB components.

PULSE MOBILE HUB

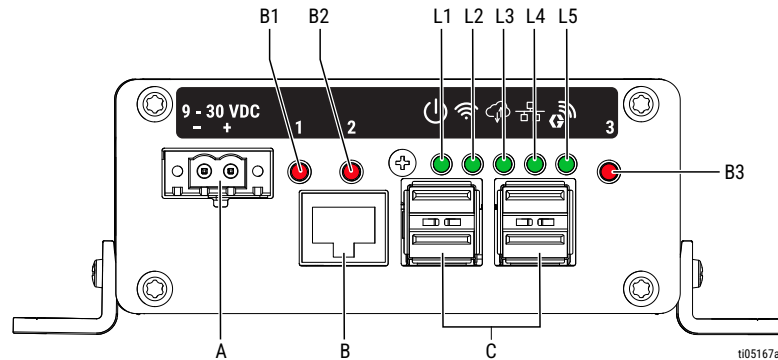


Figure 2-1: Pulse Mobile HUB

Table 2-1: Component Identification of Pulse Mobile HUB Ports

REF.	NAME	DESCRIPTION
A	Power Port	Connects the Pulse Mobile HUB to a power supply.
B	Ethernet	Connects the Pulse Mobile HUB to a Local Area Network.
C	USB	Connects the Pulse Mobile HUB to the Pulse Remote Radio Antenna. Either USB port can be used.

Table 2-2: Component Identification of Pulse Mobile HUB HMI Buttons

REF.	BUTTON PRESS (LESS THAN 3 SECONDS)	BUTTON HOLD (LONGER THAN 3 SECONDS)
B1	<p>Enable Status Lights</p> <p>When pressed, the status lights (L1–5) will illuminate for 10 seconds. See Component Identification of Pulse Mobile HUB HMI Status Lights for detailed descriptions of status light indicators.</p>	<p>Turn on Access Point (Wi-Fi Hotspot)</p> <p>When held, L2 will illuminate green while the access point activates. If the access point fails to activate, L3 will blink red five times. If activated, L3 will blink blue to indicate the access point is active. The access point will turn off automatically after 15 minutes or if a preferred network is located.</p>
B2	<p>Perform Sync with Pulse Cloud</p> <p>When pressed, L3 will illuminate green. If internet connection is not detected, L3 will blink red five times. If internet connection is detected, L3 will blink blue to indicate the sync is active. When the sync is complete, L3 will stop blinking blue.</p>	<p>Toggle Device Discovery Mode</p> <p>When held, L5 will illuminate green while the radio toggles between modes. If successful, L5 will either turn off or blink blue.</p>
B3	<p>Log Export</p> <p>When pressed, the system exports logs (if present) to a compatible removable storage device.</p>	<p>Reboot Device</p> <p>When held, all status lights will flash white and the device will reboot.</p>

COMPONENT IDENTIFICATION

Table 2-3: Pulse Mobile HUB Multi-Button Actions

REF.	BUTTON HOLD (LONGER THAN 3 SECONDS)
B1+B2	L2 will flash green, and the Access Point SSID and Passkey will be reset to the default values provided on the device's label.
B1+B2+B3	All status lights will flash white, and the Pulse Mobile HUB will drop the local database before rebooting (Factory Reset).

COMPONENT IDENTIFICATION

Table 2-4: Component Identification of Pulse® Mobile HUB HMI Status Lights

REF.	NAME	BEHAVIOR	DESCRIPTION
L1	Device Power Status	Off	No power
		Green solid	System on, power normal
L2	Wi-Fi/Access-Point Status	Green solid	Wi-Fi connected
		Green blinking	Wi-Fi connecting
		Red solid	Wi-Fi disconnected (inactive)
		Red blinking (Slow - 1 flash per second)	Wi-Fi disabled
		Red blinking (Fast - 5 flashes per second)	Wi-Fi status unknown
		Blue blinking	Access point enabled
		Off	Status lights disabled
L3	Cloud Status	Green solid	Cloud connection available
		Blue blinking	Cloud sync in progress
		Red solid	Cloud connection not available
		Red blinking	Cloud status unknown
		Off	Status lights disabled
L4	Ethernet Status	Green solid	Ethernet connected
		Green blinking	Ethernet connecting
		Red solid	Ethernet disconnected (inactive)
		Red blinking	Ethernet status unknown
		Off	Status lights disabled
L5	Device Radio Status	Green solid	Radio in operating mode
		Blue blinking	Radio in discovery mode
		Red blinking	Radio not found
		Off	Status lights disabled

COMPONENT IDENTIFICATION

PULSE® REMOTE RADIO ANTENNA

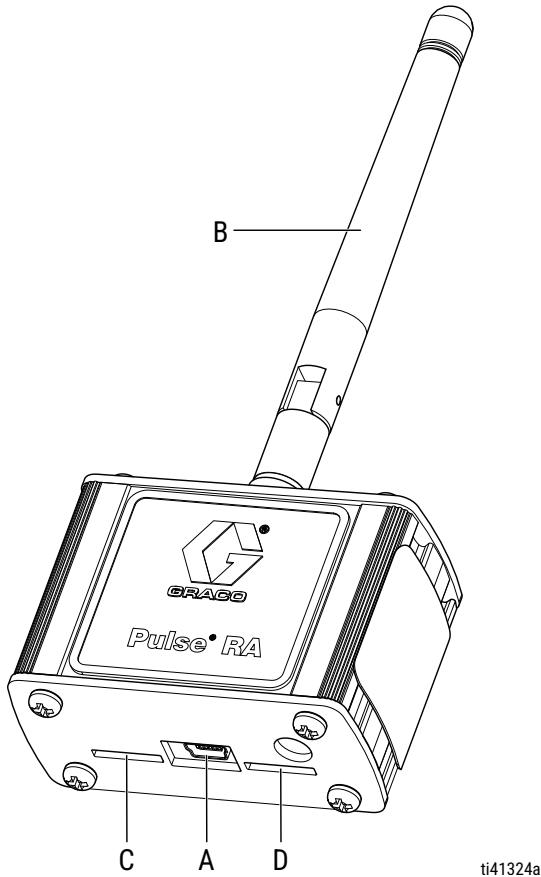


Figure 2-2: Pulse Remote Radio Antenna

Table 2-5: Component Identification of Pulse Remote Radio Antenna

REF.	NAME	DESCRIPTION
A	USB Mini Port	Port for the USB cable that connects the Pulse Remote Radio Antenna to the Pulse Mobile HUB.
B	Antenna	External antenna for RF signal transmission.
C	Status LEDs	LED lights (Red/Orange/Green) indicate the status of the Pulse Remote Radio Antenna. A blinking green light (typical) indicates an active connection has been made to the Pulse Mobile HUB.
D	Power LED	LED light (Blue) indicates the Pulse Remote Radio Antenna unit is powered.

NOTE:

The Pulse Remote Radio Antenna must be located at least 8 in. (20.3 cm) away from the Pulse Mobile HUB.

INSTALLATION

Follow these instructions to install the Pulse® Mobile HUB.

WIRING THE TERMINAL CONNECTOR (INCLUDED)

1. Ensure the power supply is off or disconnected.
2. Strip back insulation on supply wires (user supplied, 12–16 AWG) approximately ¼ in. (7 mm).
3. Insert the exposed conductors into their corresponding terminal openings.

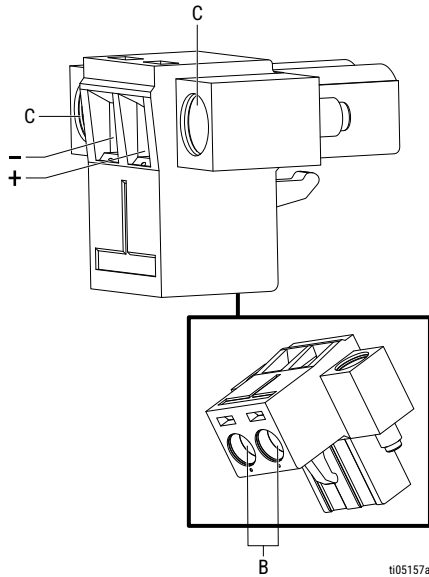


Figure 3-1: Wiring Terminal Openings

4. Tighten the conductor clamping screws (B) firmly.
5. Insert the connector into the power port (A) of the Pulse Mobile HUB.
6. Tighten the connector retaining screws (C). Do not overtighten.

PULSE MOBILE HUB MOUNTING

During installation, zip-ties or screws can be used to allow relocation of the Pulse Remote Radio Antenna to optimize RF communication.

Once RF communication is confirmed, the Pulse Remote Radio Antenna can be permanently mounted.

1. Secure the Pulse Mobile HUB using the mounting feet and user-supplied screws.

2. Plug the Pulse Mobile HUB into a suitable power source.

NOTICE

Fuses (user-supplied) are required. To avoid equipment damage:

- Never operate the Pulse Mobile HUB without a fuse installed.
- A fuse of the correct current rating must be installed in line with the power entry to the equipment.

DEVICE POWER REQUIREMENTS

The Pulse Mobile HUB must remain powered ON during fluid dispensing and cloud data sync operations. If the Pulse Mobile HUB is connected to a switched rather than constant power source, ensure that power remains ON during these critical operations. If power is interrupted, fluid dispensing could be interrupted and data lost.

SETUP

WI-FI CONNECTION AND CONFIGURATION

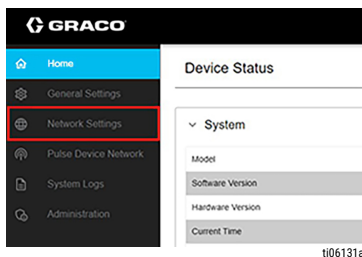
Follow these instructions to enable the Pulse® Mobile HUB's Wi-Fi access point and configure its wireless network connection.

ENABLE WI-FI ACCESS POINT

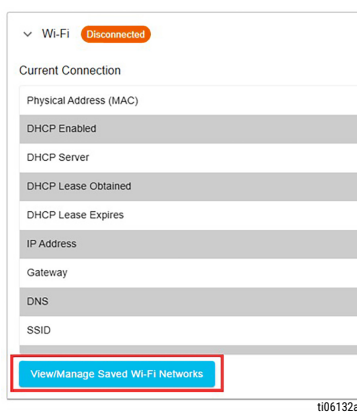
1. Press and hold (B1) to enable the Wi-Fi access point.
2. Connect to the access point using a mobile device or computer. The SSID and Passkey are device-specific. These values are printed on the device serial number label.
3. To set up the Wi-Fi connection, use these default parameters:
 - URL: <http://10.42.0.1>
 - Username: admin
 - Password: admin

SET UP WI-FI CONNECTION

1. Click **Network Settings** on the device configuration webpage.



2. Click **View/Manage Saved Wi-Fi Networks**.



3. Click **+ Add New**.
4. Locate your preferred Wi-Fi network and click **+ Add Selected Network**.

5. Enter your Wi-Fi connection details and select **Save & Connect**.

NOTICE

Saving a connection will trigger deactivation of the Wi-Fi access point. This may result in the webpage displaying an error.

6. Press (B1) to activate the status indicator lights and review the (L2) status light to confirm the Wi-Fi connection status:
 - Connection successful: (L2) will illuminate green for 3 seconds before turning off. The Access Point will turn off.
 - Connection failed: (L2) will illuminate red for 3 seconds before blinking blue. The Access Point will stay on.
 - Invalid Passkey: (L2) will blink red for 3 seconds before blinking blue. The Access Point will stay on.

REGISTER DEVICES

1. Enable Discovery Mode with one of the following methods:
 - a. Open the device configuration webpage, navigate to Pulse Device Network, and toggle on the Discovery Mode switch.
 - b. Press and hold (B2) for at least 3 seconds.
2. Enter registration mode on the Pulse device that is being registered:
 - Meter: Select **Register** on the Setup menu.
 - TLM: Press and hold **Display** until **Registering** appears on the screen.
3. When all devices have registered successfully, exit Discovery Mode by repeating step 1a or 1b.

NOTE:

When Discovery Mode is enabled, (L5) will blink blue to indicate its status.

CONFIGURE DEVICES

1. Visit <https://cloud.gracopulse.com>
2. Log into your user account and organization.
3. Ensure the Pulse Mobile HUB is linked to your organization. Check: **Settings > Device Settings > HUBs**.

SETUP

4. To sync the Pulse Mobile HUB, press (B2).
5. Locate the discovered devices (meter or TLM) and configure them.
6. Press (B2) to resync the Pulse Mobile HUB to download the device configurations.
7. Wake the Pulse device (meter or TLM) for it to use the latest configuration.

TROUBLESHOOTING

Troubleshooting information for the Pulse® Mobile HUB.
Table 5-1: Troubleshooting

PROBLEM	CAUSE	SOLUTION
Registration fails on Pulse Meter or TLM	Device is not in Discovery Mode	Enable Discovery Mode. See Wi-Fi Connection and Configuration .

RECYCLING AND DISPOSAL

END OF PRODUCT LIFE

At the end of a product's useful life, recycle it in a responsible manner.

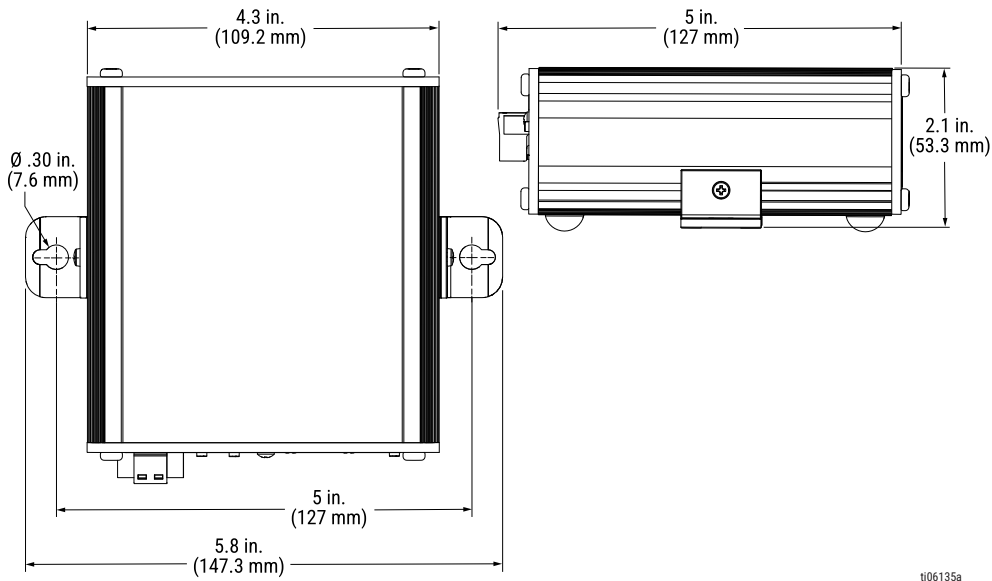
ACCESSORIES

Table 7-1: Accessories and Repair Parts for Pulse® Mobile HUB

PART NUMBER	DESCRIPTION
2012880	Pulse Mobile HUB
25U969	Remote Antenna (NA)
- - -	Remote Antenna (EU/UK)
2016040	AC/DC Wall Power Supply (US)
Notes - - - Not available separately	

DIMENSIONS

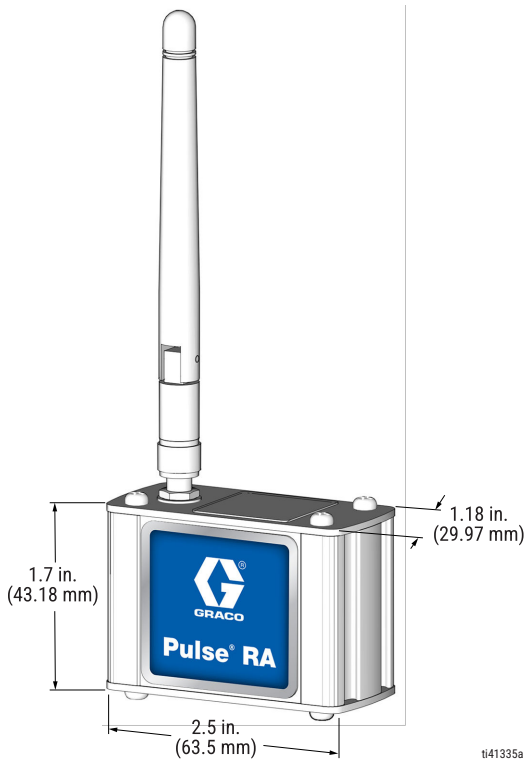
DIMENSIONS FOR PULSE® MOBILE HUB



t106135a

Figure 8-1: Dimension Diagram for Pulse Mobile HUB

DIMENSIONS FOR PULSE REMOTE RADIO ANTENNA




t141335a

Figure 8-2: Dimension Diagram for Pulse Remote Radio Antenna

CALIFORNIA PROPOSITION 65

CALIFORNIA RESIDENTS

 **WARNING** Cancer and reproductive harm – www.P65warnings.ca.gov.

GRACO STANDARD WARRANTY

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

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