

Pulse[®] HUB Series 2

3A8903B

EN

For use with Pulse Fluid Management System components only.

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

Part No. 25U972



Important Safety Instructions

Read all warnings and instructions in this manual and all related Pulse manuals before using the equipment. Save all instructions.



Overview and Component ID

Pulse HUB Series 2

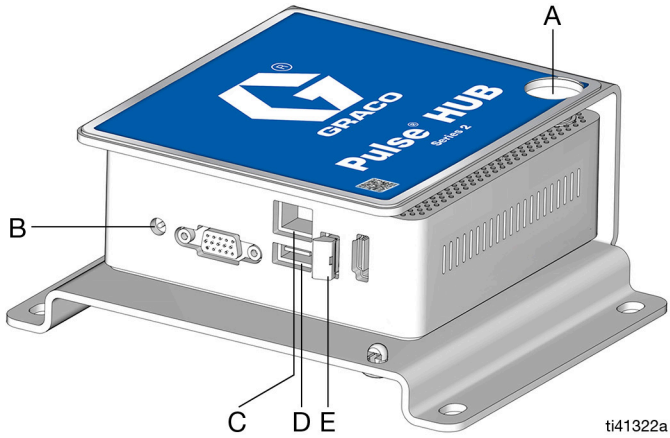
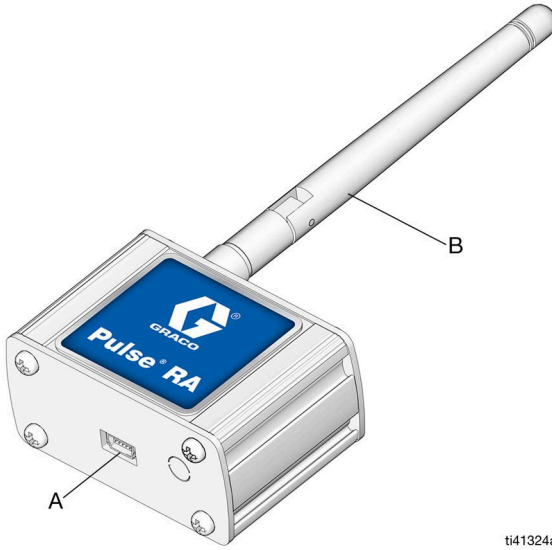


FIG. 1

| Item | Name | Description |
|------|----------------------------|--|
| A | Power Button | Pressing the power button (A) powers the HUB. The power button (A) illuminates when power is applied. |
| B | Power Inlet Port | Plug the end of the power adapter into the power inlet port (B). Plug the other end of the power adapter into a 120 - 240 VAC electrical outlet. |
| C | Ethernet Connection | Supplies the connection to the LAN (Local Area Network). |
| D | USB Port | Pulse Remote Radio Antenna (RA) cable connector |
| E | USB Memory Drive | Memory drive for external database backups (removable). |

Pulse Remote Radio Antenna



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FIG. 2

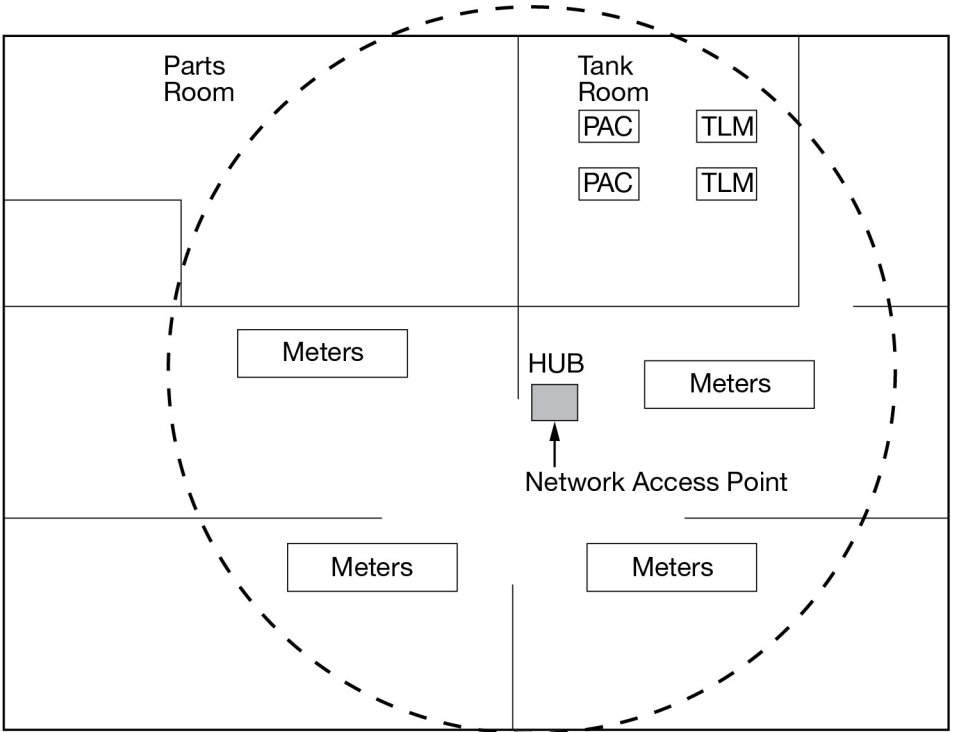
| Item | Name | Description |
|------|----------------------|---|
| A | USB Mini Port | Plug mini end of the USB cable into the port. The other end of the cable plugs into the USB Port (D) of the Pulse HUB Series 2. |
| B | Antenna | External antenna for RF signal transmission, |

NOTE: When mounting the Pulse Remote Radio Antenna, it must not be located within 8 in. (20.3 cm) of the Pulse HUB Series 2.

Installation

Locate the Pulse HUB Series 2 in the main part of the shop, high on a wall or on the ceiling, in a location that provides an unobstructed line of sight, near the meters, PACs, and/or tank level monitors. Always comply with all applicable local, state and national fire, electrical, and safety regulations.

Facility Layout



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FIG. 3

Connecting HUB to LAN (Local Area Network)

There are two options available for connecting the HUB to the LAN: Ethernet Connection (C) or WiFi. When using the Ethernet Connection (C), make sure that the cable is securely plugged in before powering the device.

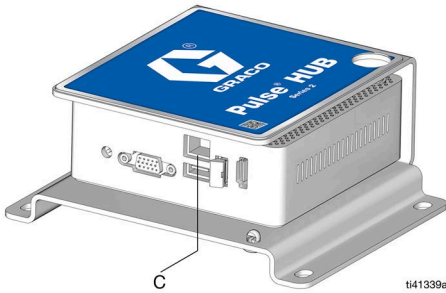


FIG. 4

WiFi Connection

See Setup Your Network Guide included with the HUB for assistance in connection to the LAN network.

HUB Installation

During installation zip-ties or screws can be used to allow relocation of the HUB to optimize RF communication.

Once RF communication is confirmed, the HUB can be permanently mounted on the wall or ceiling.

Secure HUB backplate to the wall or ceiling using backplate mounting holes and (user supplied) screws (FIG. 5).

Plug the Pulse Hub Series 2 into an Uninterruptible Power Supply (UPS) that has surge protection. The minimum specifications are that the power requirements be at least 425 V-A and 260 W with 895 Joules of surge protection. An example is the CyberPower ST425 Standby UPS System.

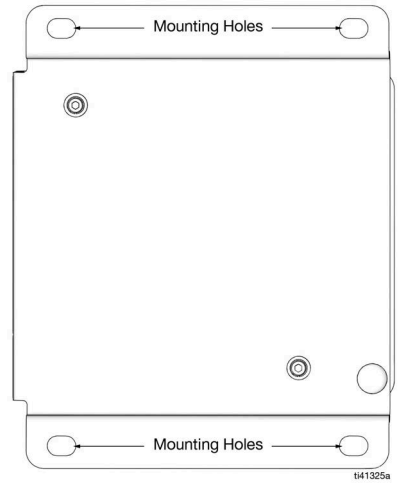


FIG. 5

Recycling and Disposal

End of Product Life

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

- Remove batteries, circuit boards, and other electronic components. Recycle according to applicable regulations.
- Do not dispose of batteries or electronic components with household or commercial waste.



- Deliver remaining product to a recycling facility.

Operation

Once the Pulse HUB is installed, verify that the power button light (A) (FIG. 1) is ON and the HUB is functioning correctly.

When the power light is illuminated, the unit is receiving power.

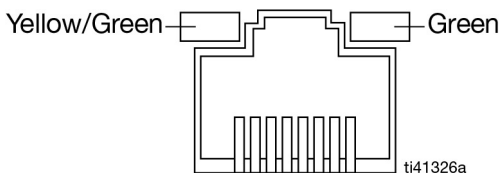


FIG. 6

HUB LAN Lights

| Indicator | HUB State | HUB Status |
|----------------|---------------|--|
| Green (Status) | Off | LAN link in not established |
| | On (steady) | LAN Link in established |
| | On (blinking) | The system is communicating on the LAN |
| Green (Rate) | Off | Data rate selected: 10 Mbit/sec |
| | On | Data rate selected: 100 Mbit/sec |
| Yellow (Rate) | On | Data rate selected: 1000Mbit/sec |

Software

Main Dashboard

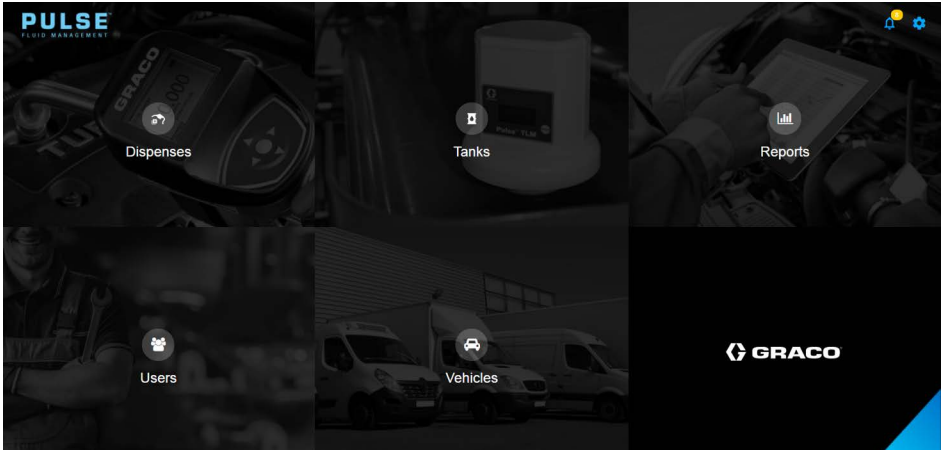


FIG. 7

Dispenses: Based on user's selections, displays as a list of pending, active, completed, and canceled dispenses.

Tanks: Displays as a percentage, reports the amount of fluid remaining in the tank. The fluid is measured from the bottom of the tank to the full level.

Reports: The Pulse Fluid Management System generates a variety of reports related to the data it collects while the system is operating. Available Reports include:

- Dispense History
- Volumetric History
- Fluid Usage
- Authorization History
- My Reports

Users: There are four User Authorization Levels available in the Pulse Fluid Management System.

- Administrator (system owner or IT professional) - An Administrator has full access to the system. they can perform system updates, change device settings, and add new devices to the system.
- Advanced (parts room/service managers) - An Advanced user can view all system information. They can update virtual tanks and edit and create work orders. They can also authorize dispenses.
- Coordinator (service writers/technicians) - A Coordinator can create and edit work orders.
- Basic (technicians) - A Basic user has the most restricted access to the system. They can log in to the system and interact with the work orders queue.

Vehicles: The Vehicles Group identifies the vehicles in a service fleet.

Software Setup

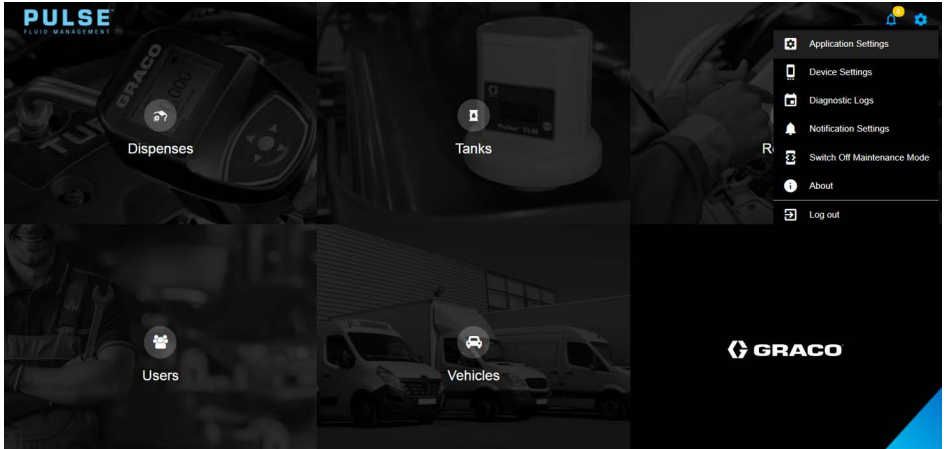


FIG. 8

Application Settings: General system settings

- General System Settings: Language, Units of Measurement, PIN size, Inactivity Duration
- Time Settings
- Business Schedule
- E-mail Settings
- Network Settings

Device Settings: Device configuration and firmware settings

- Fluids
- Tanks
- Level Monitors
- Pump Control
- Locations
- Meters
- Device Network

Notification Settings: Configures alerts to be displayed on software or e-mail.

- Pump Control
- Meter
- Network Events
- Tank
- Level Monitor

System Setup

Refer to the Setup Your Network, Register Your Devices, and Configure Your Software Settings Quick Start Manuals.

Frequently Asked Questions

1. **Q.** What does the meter do if the batteries are removed when you are dispensing?

A. When not using work orders, the accumulated dispense amount is saved. When fresh batteries are installed, the meter powers up. The next time a dispense ends, two entries are entered into the dispense complete log; the accumulated amount from the first dispense and the dispense just completed.

If the meter is in work order mode, when batteries are reinstalled the meter returns to an end dispense screen, the trigger is disengaged, and the dispensed amount is displayed. The dispense must be ended before another can be started.

2. **Q.** What does the meter do if a low battery condition occurs during a dispense?

A. The trigger is disengaged and the low battery symbol appears on the meter display. If the meter is allowed to fall asleep in this low battery mode, an attempt will be made to end the dispense. If the attempt is not successful, when fresh batteries are installed, the meter returns to an end dispense screen and an end must occur before another dispense can happen.

If the meter is not using work orders, the accumulated dispense value is saved and entered into the dispense complete log at the next successful end of a dispense.

3. **Q.** Unplugging the HUB will cause communication over the device to stop immediately. How is this communication reestablished?

A. Make sure the power is disconnect for at least 5 to 10 seconds. Reconnect the power supply and allow 6 to 8 minutes for the system to reboot.

4. **Q.** Why did my work order disappear from the work order queue?

A. The meter might have received a new profile. After the meter receives a new profile the work order queue is cleaned out.

5. **Q.** How do I set up a printer?

A. In the Pulse Fluid Management Software, Enable Automatic Print Reports under the General section of Application Settings. Then, open the Pulse Utility Application. On the Settings of the Pulse Utility Application select the printer(s) where the automatic print reports will be printed. Once the printers are selected, navigate back to the home screen of the Pulse Utility Application and click on Start Service. Dispense information will now automatically print to the desired locations.

Troubleshooting

| Problem | Cause | Solution |
|---|---|---|
| HUB will not communicate with devices (meters, PAC's, and TLMs) | HUB is not powered up | Verify HUB is powered up |
| | HUB is out of RF range of meters or TLMs | Ensure HUB is located within RF range of meters and TLMs |
| Weak or no RF signal | Changes/obstructions in RF pathway (i.e., vehicles, overhead doors, etc.) | Add Graco Extender to Pulse system. Order Graco Part No. 17F885 - US, 17F776 - EU, 17F887 - UK, 17F888 - ANZ. |

Diagnostic Logs

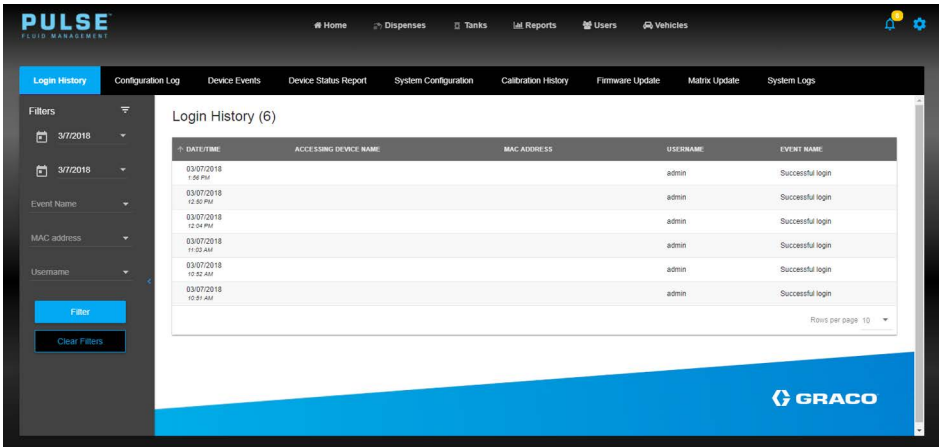


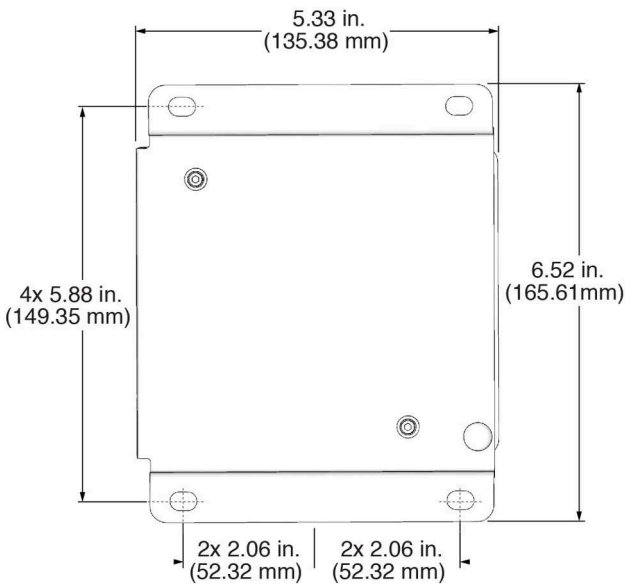
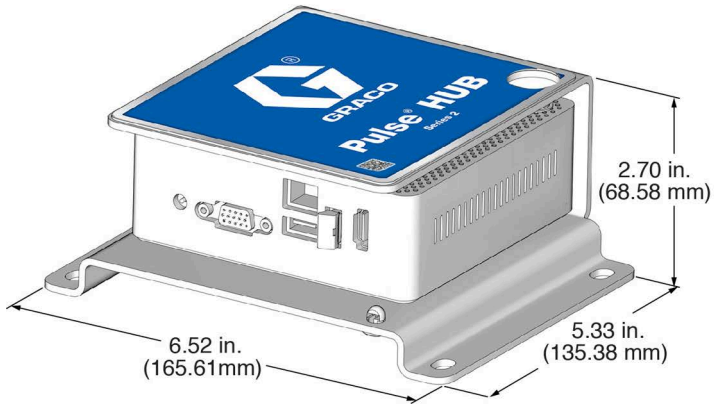
FIG. 9

- Login History
- Configuration Log
- Device Events
- Device Status Report
- System Configuration
- Calibration History
- Firmware Update

Parts

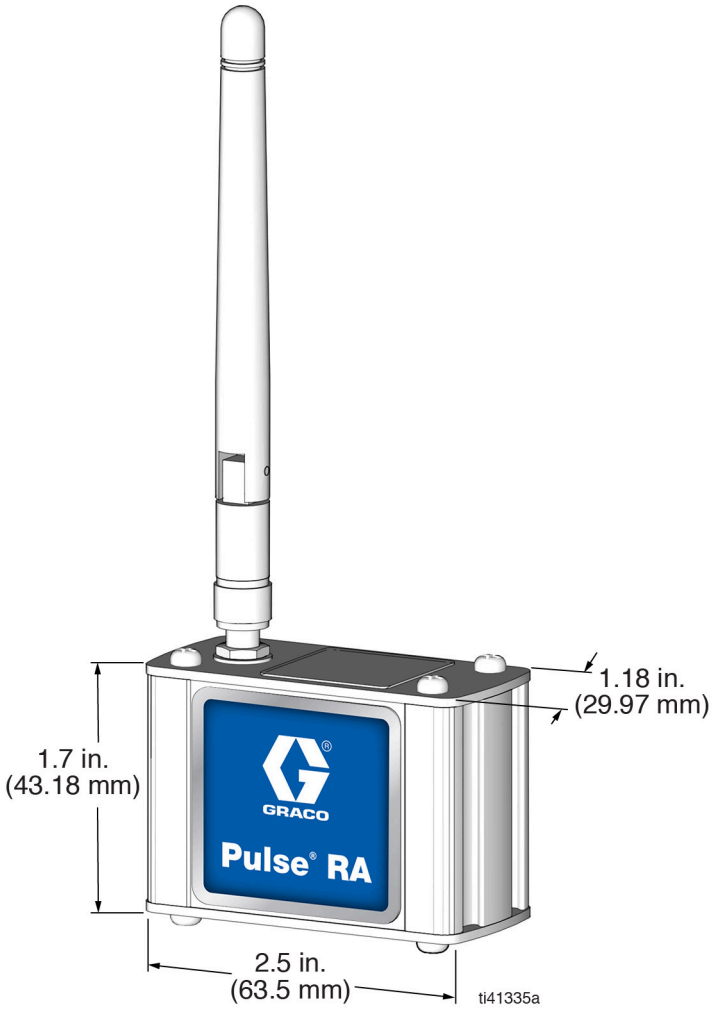
| Part No. | Description | Qty |
|----------|---------------|-----|
| 25U970 | HUB Series 2 | 1 |
| 25U969 | PULSE RA | 1 |
| 25U971 | Power Adapter | 1 |

HUB Series 2 Dimensions



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Pulse Remote Radio Antenna Dimensions



Technical Specifications

| Pulse HUB Series 2 | | |
|-----------------------------|---------------------------|---------------|
| | US | Metric |
| Weight | 1.45 lbs | 0.66 kg |
| Operating Temperature Range | 32F to 95°F | 0°C to 35°C |
| Operating Humidity | 0 - 85%, non-condensing | |
| Power Supply | | |
| To Power Supply | 100 - 240 VAC 50-60 Hz | |
| To HUB | 19 V, 2.37A | |
| WiFi | | |
| Protocol | 802.11 a/b/g/n/ac | |
| Frequency Range | 2.4 GHz, 5 GHz | |
| Radio Modulation | FSS, DSS, OFDM | |

| Pulse Remote Radio Antenna | | |
|-------------------------------------|-------------------------|------------------------|
| | US | Metric |
| Weight | 0.5 lb | 0.25 kg |
| Operating/Storage Temperature Range | -40F to 185°F | -40°C to 85°C |
| Maximum Operating Altitude | 6560 ft above sea level | 2000 m above sea level |
| Operating Humidity | 0 - 80%, non-condensing | |
| Voltage | 5 VDC | |
| Current | 45 mA | |
| Ingress Protection | IPX0 | |
| RF Frequency Band | 2400 - 2483.5 MHz | |
| Maximum RF Transmit Power | | |
| Model - NA | +19.9 dB | |
| Model - INT | +8.0 db | |

Compliance

Device contains IC: 1000M-9462NG

Device contains FCC ID PD99462NG


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

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

California Proposition 65

California Proposition 65

CALIFORNIA RESIDENTS

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

Graco Extended HUB Warranty

Graco warrants all equipment 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 twenty four 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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Graco Information

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

Phone: 612-623-6928 **or Toll Free:** 1-800-533-9655, **Fax:** 612-378-3590

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