

Fluid Defender™ Level Sensor

3A7279B

EN

For monitoring lubrication fluid tank levels in above ground, stationary tanks. Not for use with tanks containing gasoline or any other Class I NFPA 30 flammable fluids. Not for use with tanks without required overfill containment protection, not a replacement for overfill containment protection. For professional use only.

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

Models:

25V475 - Sensor, Single, High Level, 3 ft

25V476 - Sensor, Single, Low Level, 10 ft

25V577 - Sensor, Single, Low Level, 30 ft

25V478 - Sensor, Dual Level, 10 ft

25V479 - Sensor, Dual Level, 30 ft



Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Save these instructions.

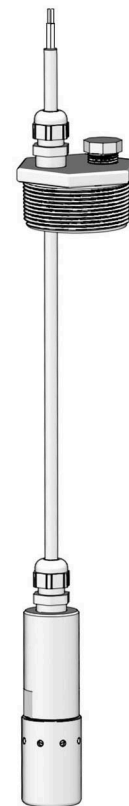
Related Manuals

Manual in English	Description
130641	Pulse® Fluid Management, Register Your Devices quick guide
3A9335	Fluid Defender
3A7280	Air Control Solenoid Valve for Fluid Defender

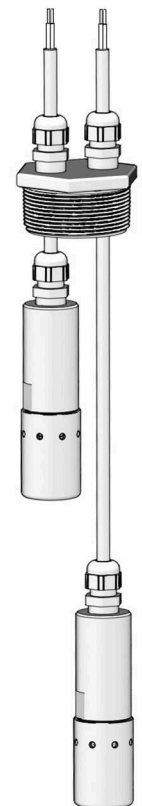
High Level



Low Level



Dual Level








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Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

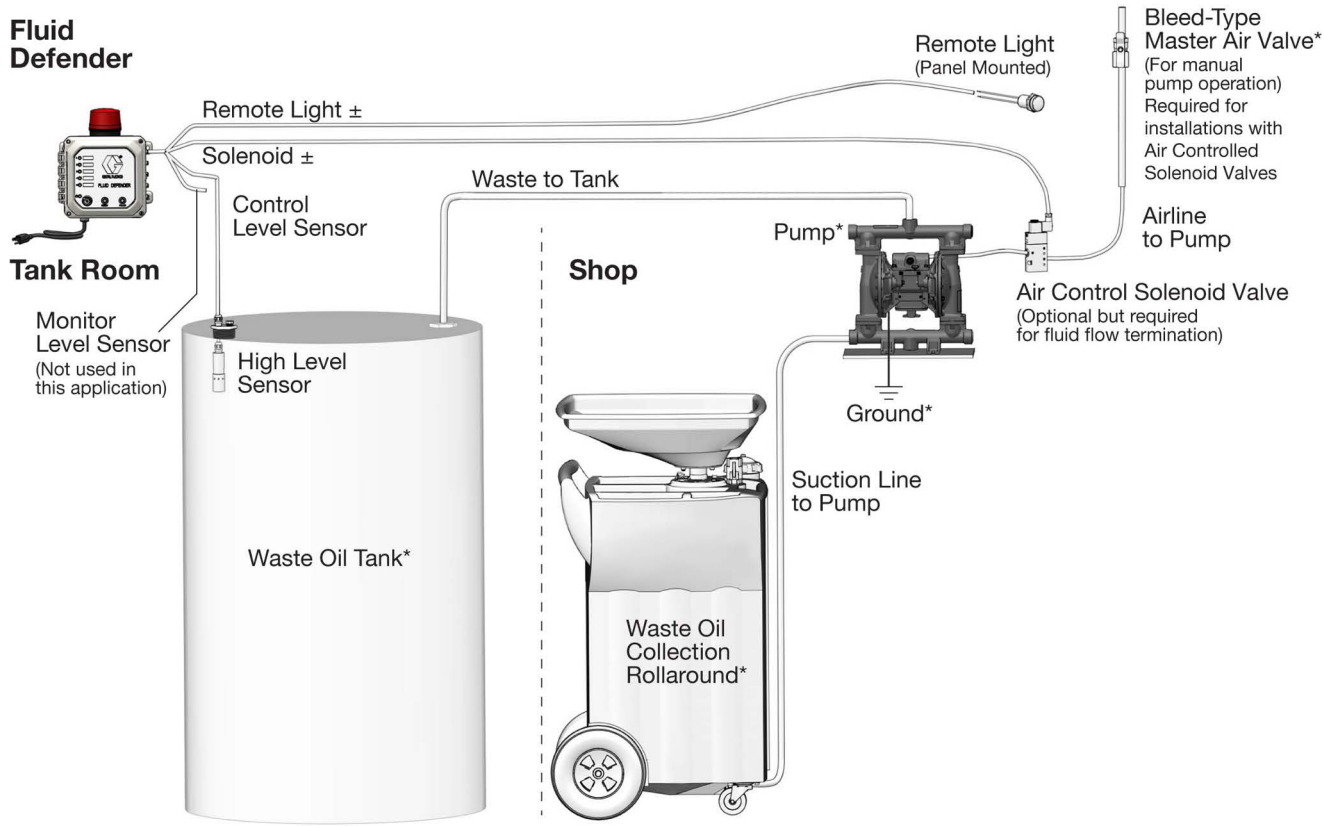
WARNING

 	<p>FIRE AND EXPLOSION HAZARD</p> <p>When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well-ventilated area. • Eliminate all ignition sources, such as cigarettes and portable electric lamps. • Ground all equipment in the work area. • Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline. • Do not plug or unplug power cords or turn lights on or off when flammable fumes are present. • Use only grounded hoses. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
 	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Specifications in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer. • Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards. • Make sure all equipment is rated and approved for the environment in which you are using it. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Typical Installation

There are multiple system configurations possible. The typical installations shown in FIG. 1 - FIG. 3 are the three targeted applications for the Fluid Defender. Each typical installation shown is configurable as a single separate channel. Follow all local codes and regulations for tank installations. Consult your local Graco representative or distributor for system design assistance.

Waste Oil High Level Shut Off

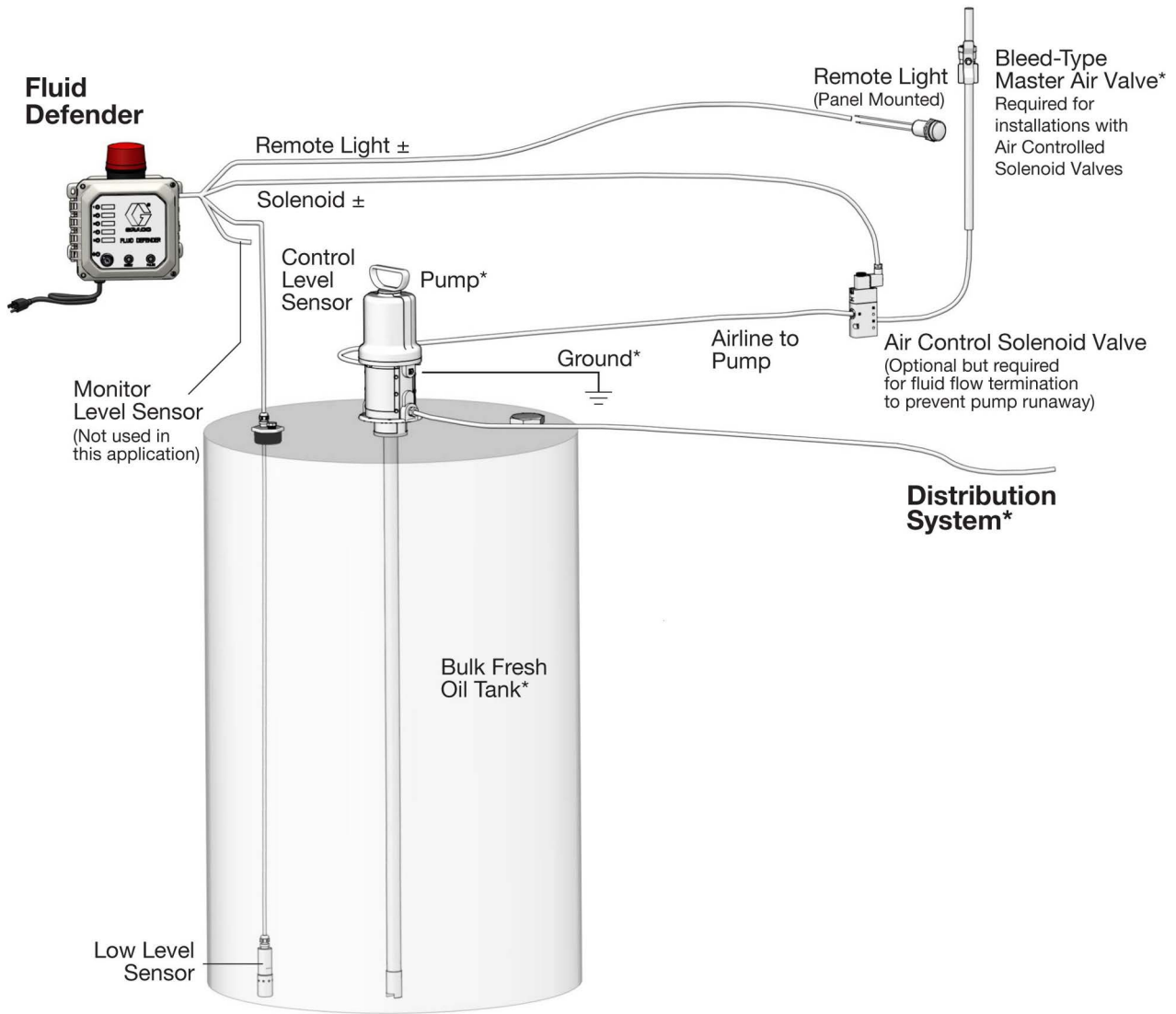


*User supplied

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FIG. 1

Fresh Oil Low Level

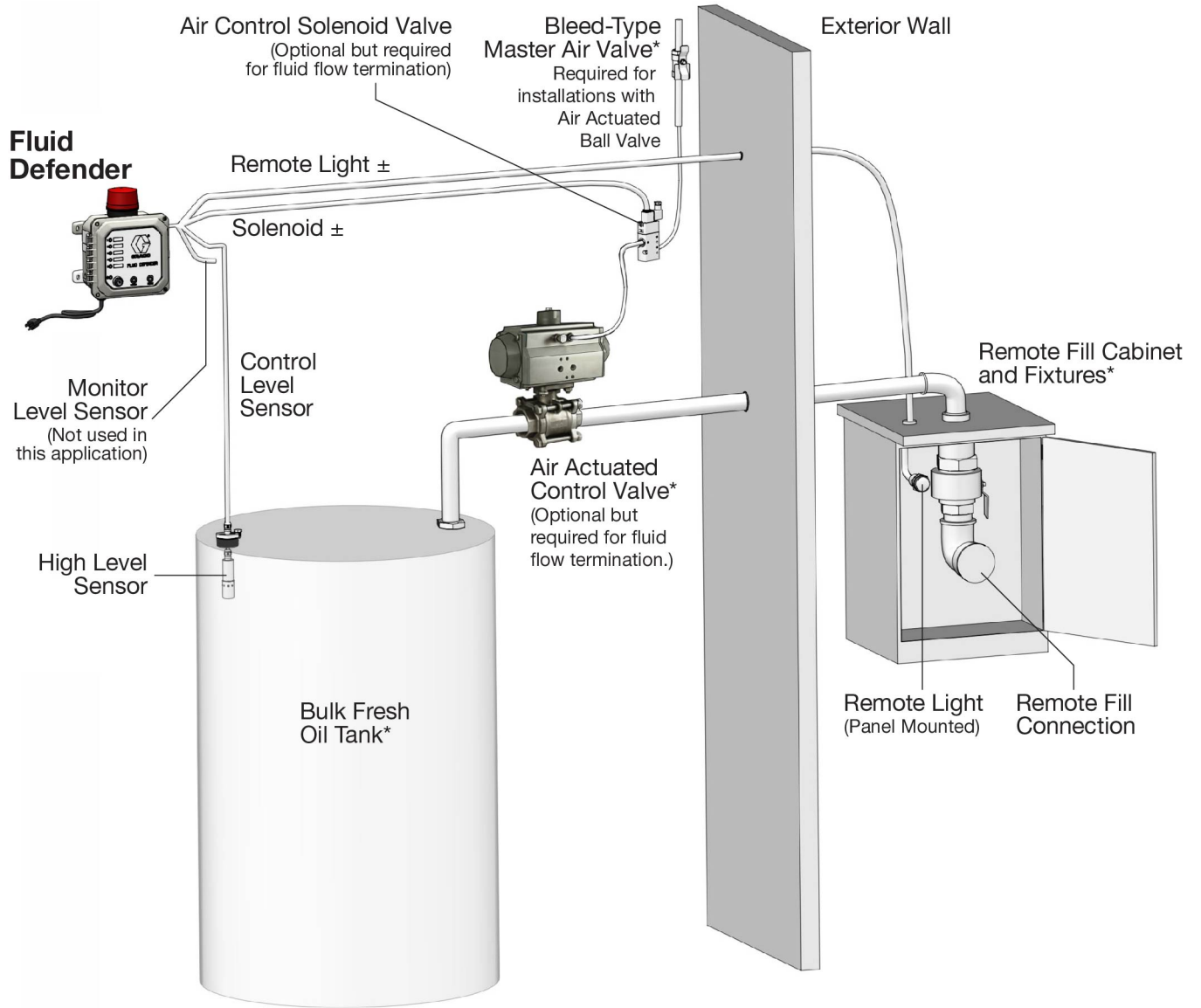


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FIG. 2

Remote Bulk Fill Stop



*User supplied

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FIG. 3

Overview

Fluid Level Sensors

The fluid level sensors detect the tank fluid level and signals the Fluid Defender to activate the alarm and deactivate the air control solenoid valve (if configured on the specific channel).

Control level sensor: A level sensor connected as a control level sensor to the Fluid Defender that controls the output of an air control solenoid valve. Either a high level or low level sensor may be connected as a control level sensor

Monitor level sensor: A level sensor connected to the Fluid Defender as a monitor level sensor that monitors a tank fluid level. Either a high level or a low level sensor may be connected as a monitor level sensor.

NOTE: Level sensors are preconfigured at the factory. Do not attempt to reconfigure a level sensor by changing the float orientation. High level sensors are unable to be configured into low level sensors, and low level sensors are unable to be configured into high level sensors.

High Level Sensors

A sensor that is used to detect a full tank. The float is in the down position and the sensor contacts are closed during normal operation (FIG. 4, illustration a).

The float moves to the up position and the sensor contacts are open during a high level condition, triggering the Fluid Defender alarm (FIG. 4, illustration b).

Low Level Sensors

A sensor that is used to detect an empty tank. The float is in the up position and the sensor contacts are closed during normal operation (FIG. 4, illustration c).

The float moves to the down position and the sensor contacts are open during a low level condition, triggering the Fluid Defender alarm (FIG. 4, illustration d).

NOTE: For clarity, FIG. 4 does not show the splash guard.

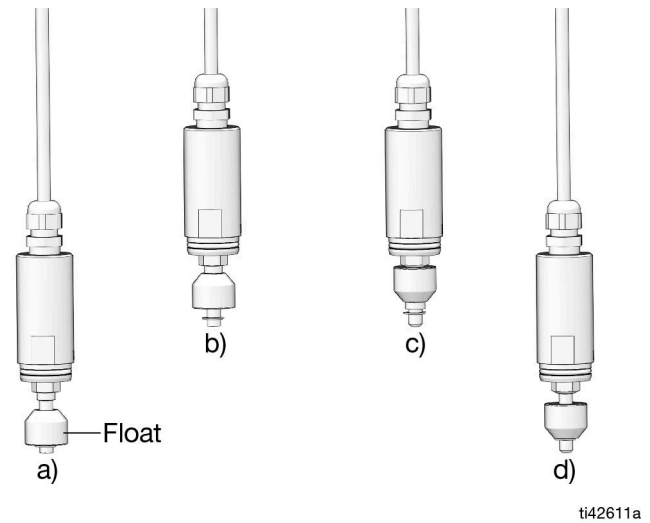


FIG. 4

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Installation

Installation of Level Sensors

NOTE: Install level sensors in stationary tanks. The sensors are not designed to monitor mobile tanks.

1. Apply thread sealant to the threads of a 2 npt bung adapter to seal the tank.
2. Install level sensors away from inlet ports or pumps to minimize inaccurate readings.
3. Ensure that the sensor body is free hanging from the bung adapter housing.

NOTE: Level sensors are for vertical mounting only.

4. Set level sensor height by loosening the cord grip on the bung adapter housing and adjust the length of the suspended wire to set the desired activation height.

NOTE: For guidance on calculation of installation height of overfill devices, refer to Petroleum Equipment Institute (PEI) RP600 Recommended Practices for Overfill Prevention for Shop-Fabricated Above Ground Tanks, Appendix A (www.pei.org).

- a. The activation height is indicated on the splash guard of the sensor.
- b. High level sensors monitor the high tank fluid level to prevent overfill.

NOTE: The level sensor height should be set to activate following all local codes and regulations.

- c. Low level sensors monitor the low tank fluid level to prevent pump runaway conditions.

NOTE: The level sensor height should be set at least 2 in. - 3 in. above the pump inlet.

- d. Tighten the cord grip on the cable to finger tight, plus one-half of a turn.

NOTE: Failure to properly tighten the cord grip may cause the level sensor to move from the fixed position.

5. Connect the level sensor wires following the instructions in Fluid Defender manual, see **Related Manuals**, page 1.

NOTE: Attach all accessory wires to the Fluid Defender control box following all local codes and regulations.

Reference the **Technical Specifications**, page 12, for information on maximum wire runs and shielded cable requirements.

All accessory circuits are low voltage (less than 48 VDC).

Operation

High Level Sensors

When the tank level is not at full, the float is in the down position, normal condition, the contact is closed: no alarm (FIG. 5, illustration a).

As the tank level rises and reaches the level sensor, the float moves to the up position and opens the contacts (FIG. 5, illustration b).

Low Level Sensors

When the tank is not empty, the float is in the up position, normal condition, the contact is closed: no alarm (FIG. 5, illustration c).

As the tank level falls and reaches the level sensor, the float moves to the down position and opens the contacts (FIG. 5, illustration d).

NOTE: For clarity, FIG. 5 does not show the splash guard.

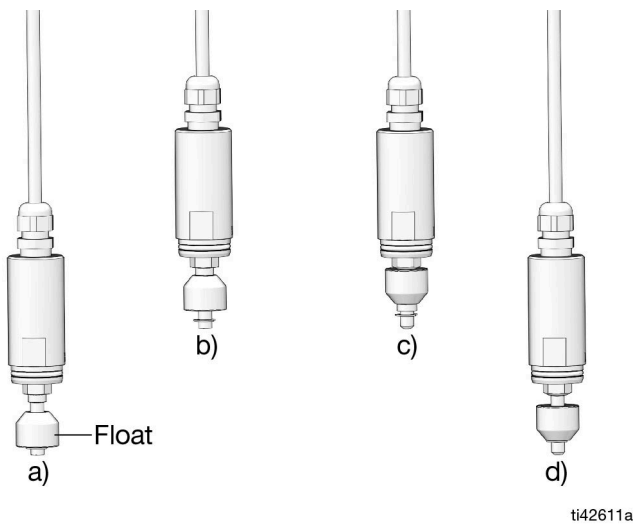


FIG. 5

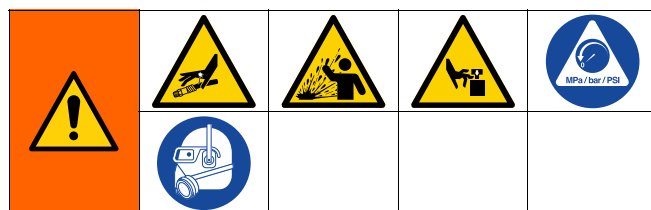
Maintenance

Periodic Testing

Weekly (and before every remote bulk fill)

1. Press and hold the RESET button to test the siren, rotating beacon, remote lights, and Fluid Defender alarm lights.
2. Press the RESET button to reset the alarm.

Monthly



AUTOMATIC SYSTEM ACTIVATION HAZARD

Unexpected activation of the air control solenoid valves could result in serious injury from connected equipment. The Fluid Defender manages the connected air control solenoid valves that open the air supply to connected equipment when the Fluid Defender is powered,

Before installing, testing, or removing the Fluid Defender, or any of its components, relieve pressure following the pressure relief instructions in your pump manual.

1. Relieve pressure following the pressure relief instructions in your pump manual.
2. Remove the level sensors from the tanks and manually raise or lower the float to verify that the system goes into alarm mode.
3. Inspect the level sensors and remove magnetic particles from fluid contamination that may interfere with operation.

4. Manually test all of the accessories to verify they are functioning properly.
5. Confirm that all wires are properly connected to the Fluid Defender and accessories.

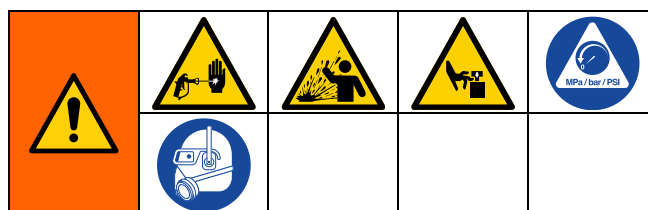
NOTICE
<p>Disable the Fluid Defender or immediately replace failed equipment upon any and all test failures. Equipment failures will not allow the Fluid Defender to monitor tank conditions and may result in a tank overfill.</p>

Recycling and Disposal

End of Product Life

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

Troubleshooting



Follow the pressure relief instructions in your pump manual, before checking or repairing the system.

See Fluid Defender manual, **Related Manuals**, page 1 for Troubleshooting information.

Kit

Kit

Part No. 25V592

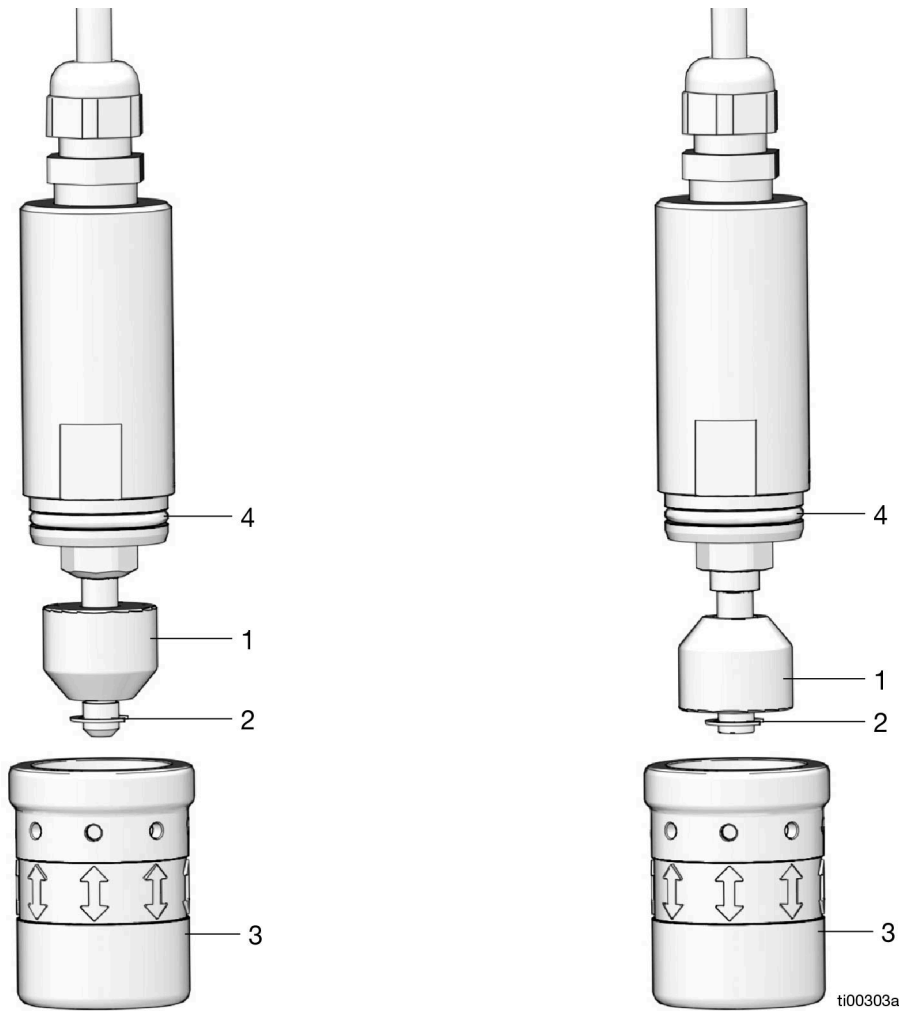


FIG. 6

Ref.	Description
1	Float
2	Retaining clip
3	Splash guard
4	O-ring

Dimensions

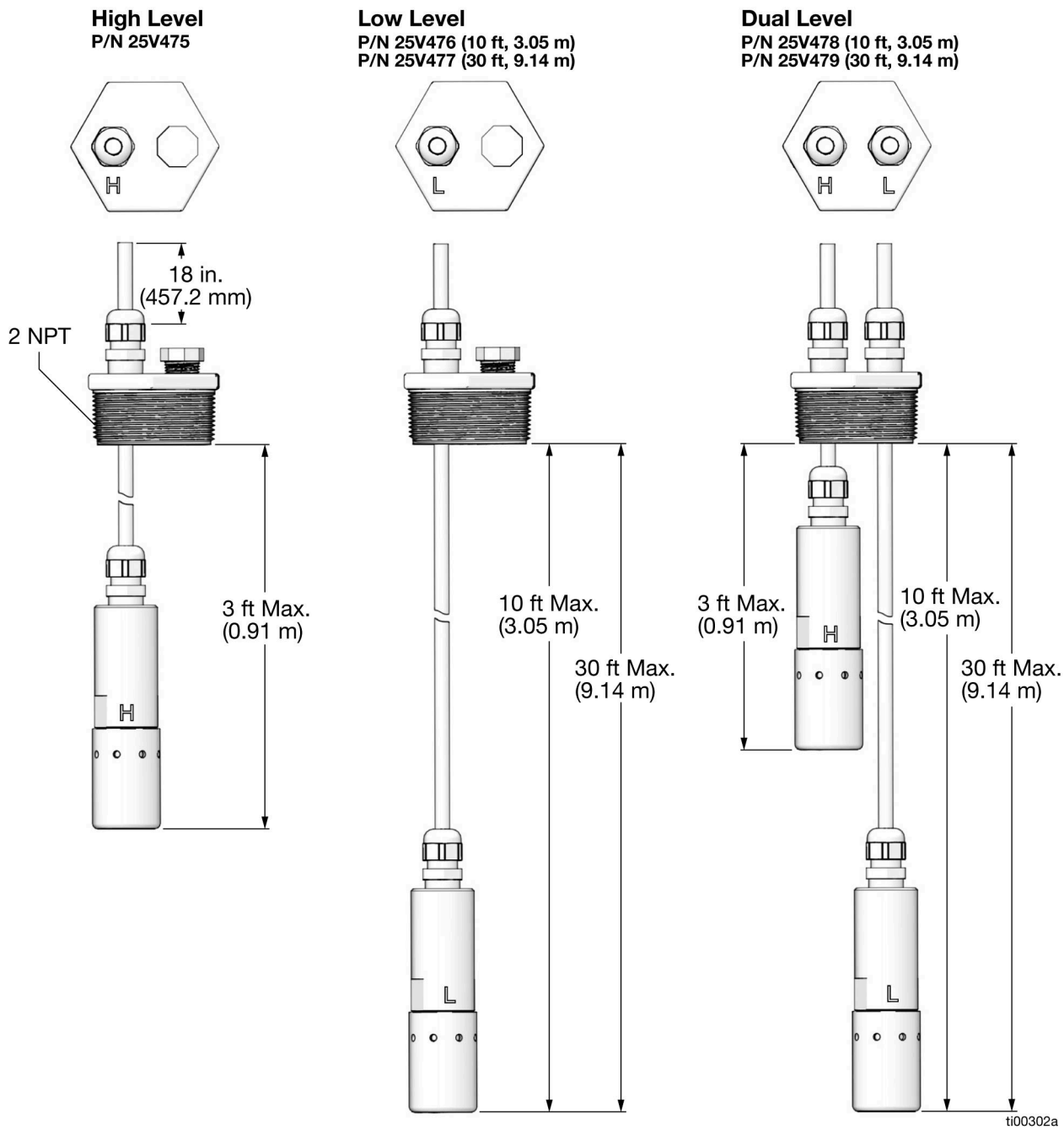


FIG. 7

Technical Specifications

Fluid Defender Level Sensor		
	US	Metric
Type	Single/Dual Point Magnetic Level Sensor/Reed Switch	
High Level	Normally closed - open on the rise	
Low Level	Normally closed - open on the fall	
Mounting Configuration	Vertical static applications (not designed for mobile applications)	
Mounting	2 npt	2 npt
Minimum Head Space	5.5 in.	14.0 cm
Minimum Detectable Tank Level	2.0 in.	5.1 cm
Operational Tank Height	Adjustable - 10 ft (3.0 m) and 30 ft (9.1 m) tank height options	
Maximum Fluid Viscosity	2000 centipoise	
Minimum Specific Gravity	0.75	
Maximum Voltage	24 VDC	
Maximum Current	0.01 A	
Termination Style	SJOOW Wire Leads (18 gauge)	
Maximum Line Length (18 gauge) to Fluid Defender*	1000 ft	304.8 m
Maximum Line Length (20 gauge) to Fluid Defender*	600 ft	182.9 m
Maximum Line Length (22 gauge) to Fluid Defender*	375 ft	114.3 m
Maximum Line Length (24 gauge) to Fluid Defender*	230 ft	70.1 m
Temperature Range	14°F to 122°F	-10°C to 50°C
Storage Temperature Range	-40°F to 185°F	-40°C to 85°C
Ingress Protection	IP65	
Wetted Components	Brass, Polyamide (Nylon), Fluoroelastomer, Chlorinated Polyethylene, Chloroprene Rubber, Beryllium Copper	

*Shielded cable is required for runs over 100 ft (30.5 m)

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.

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In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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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

All written and visual data contained in this document reflects the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 3A7279

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