

# SDI15<sup>®</sup> Inline Electronic Meter

313048K  
EN

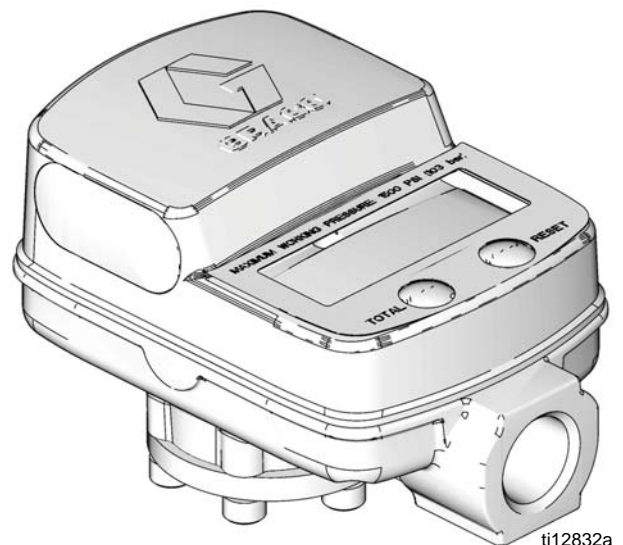
Used to measure the quantity of dispensed fluid. Not approved to European explosive atmosphere requirements or for use in hazardous locations. For indoor use only.

**Model: 247453: Use with petroleum-based and synthetic oils and antifreeze only.**

*1500 psi (10.3 MPa, 103 bar) Maximum Working Pressure  
15 gpm (57 lpm) Maximum Flow Rate*

**Model: 24G738: Use with diesel exhaust fluid only.**

*1500 psi (10.3 MPa, 103 bar) Maximum Working Pressure  
15 gpm (57 lpm) Maximum Flow Rate*



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Important Safety Instructions  
Read all warnings and instructions in this manual. Save these instructions.

# 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 symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

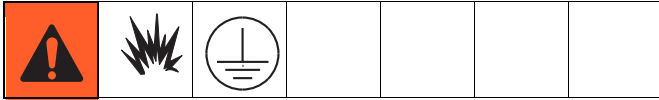
## WARNING

 	<p><b>FIRE AND EXPLOSION HAZARD</b></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"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources, such as cigarettes and portable electric lamps.</li> <li>• Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.</li> <li>• Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area.</li> <li>• Use only grounded hoses.</li> <li>• If there is static sparking or you feel a shock, <b>stop operation immediately</b>. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>
 	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.</li> <li>• Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>

	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"><li>• Engage trigger lock when not dispensing.</li><li>• Do not point dispensing device at anyone or at any part of the body.</li><li>• Do not put your hand over the fluid outlet.</li><li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li><li>• Follow the <b>Pressure Relief Procedure</b> when you stop dispensing and before cleaning, checking, or servicing equipment.</li><li>• Tighten all fluid connections before operating the equipment.</li><li>• Check hoses and couplings daily. Replace worn or damaged parts immediately.</li></ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"><li>• Protective eyewear, and hearing protection.</li><li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li></ul>

# Installation

## Grounding



The equipment must be grounded.

To reduce the risk of static sparking, ground all system components per local and national electrical codes. See the user manuals for the pump and other system components to ground the following:

**Pump:** Follow manufacturer's recommendations.

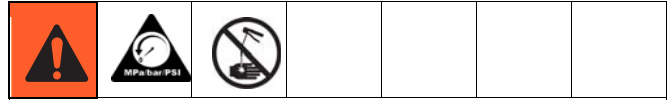
**Air and fluid hoses:** Only use grounded hoses.

**Air compressor:** Follow manufacturer's recommendations.

**Fluid supply container:** Follow local code.

**To maintain grounding continuity when flushing or relieving pressure:** hold metal part of the dispense valve firmly to the side of a grounded metal pail, then trigger the valve.

## Pressure Relief Procedure



The equipment stays pressurized until pressure is relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispenser or splashing fluid, follow the Pressure Relief Procedure whenever you:

- Are instructed to relieve pressure.
- Stop dispensing.
- Check, clean or service any system equipment.
- Install or clean fluid nozzles.

1. Turn off power supply to pump.
2. Trigger the valve into a waste container to relieve pressure.
3. Open any bleed-type master air valves and fluid drain valves in the system.
4. Leave drain valves open until you have completed repairs and are ready to pressurize system.

**NOTE:**

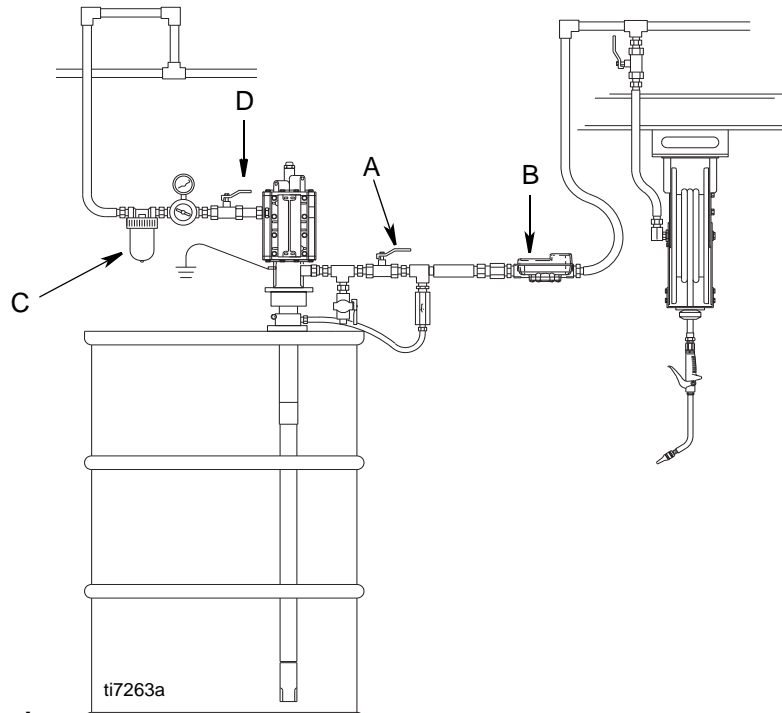
Before you check or repair the meter, be sure all other valves, controls and the pump are operating properly.

## Factory Settings

The meter is factory calibrated for water and the default unit of measurement is quarts. For other fluids and different units of measurements, see Changing Measurement Units on page 7 and Recalibrating the Meter on page 9.

## Typical Installation

The meter must be installed in-line as part of a dispense system as shown in FIG. 1. The typical installation shown is only a guide for selecting and installing an in-line meter; it is not an actual system design. Contact your Graco distributor for assistance in designing a system to suit your needs.



**FIG. 1: Typical Installation**

**Key:**

- A Shut-off Valve
- B SDI15 Inline Meter
- C Air Filter
- D Bleed-type Master Air Valve (required)

# Meter Setup and Operation

## Setup

### Terms

The following terms are shown on the display and/or used often in this instruction manual.

- **R-TOTAL:** Resettable Total  
Shows the cumulative amount that has been dispensed. Can be reset to zero.
- **TOTAL:** Non-Resettable Total  
Shows the cumulative amount that has been dispensed for the life of the unit. Cannot be reset.
- **Dispense Mode**  
Dispense mode in which display counts up from zero or from where it recently stopped.
- **ASLEEP / AWAKE Mode**  
*Asleep* is a battery-saving mode in which the display goes blank after 45 seconds of inactivity. The display comes *Awake* from sleep mode when you press any key on the keypad or fluid starts to flow.

### Activation Mode

There are two ways to activate display:

- Press any key on the keypad to wake up the digital display. The amount displayed is the value stored when the meter went into sleep mode.
- Dispense fluid through the meter to wake up the digital display. Dispensing fluid through the meter causes the meter to count up from the last displayed value (FIG. 2).



FIG. 2 Example of Total for Last Dispense Cycle

### Keypad Keys (FIG. 3)

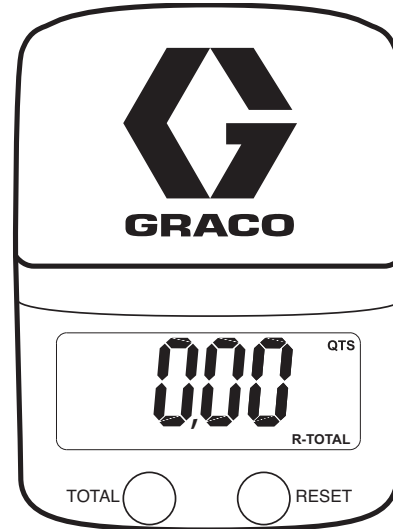


FIG. 3 Keypad

### TOTAL

In Dispense mode press the Total key once to display the Resettable Total. Pressing the Total key again displays the Non-resettable Total.

During meter setup, Total is used to reset the Resettable Total, scroll through available measurement units (see Changing Measurement Units, page 7) and sets the new calibration factor (See Recalibrating the Meter, page 9).

### R-TOTAL: Resettable Total

The **Resettable Total** (displayed when R-TOTAL is on the screen as shown in FIG. 4) is a running total of the amount dispensed since the last time the total was reset.



FIG. 4 R-TOTAL

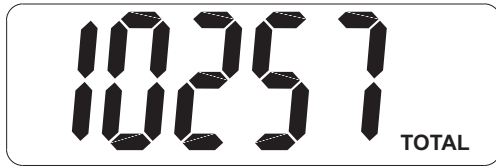
To display the Resettable Total, push and hold the TOTAL key for a few seconds until R-TOTAL displays on the screen as shown in FIG. 4.

The amount displayed can be reset to zero at any time from the setup menus.

### Non-resettable Total

The **Non-resettable Total** (displayed when TOTAL is on the screen as shown in FIG. 5) is the accumulated amount that has been dispensed by the meter over the life of the meter.

The meter continues to increase the amount displayed, up to 99,999.99 gallons (or liters) dispensed, before returning to zero. The user cannot reset this amount.



**FIG. 5 Example of Accumulated Total**

To display the Non-resettable Total push and hold the TOTAL key. The meter displays the R-TOTAL screen (FIG. 4) first. Continue to hold the Total key until TOTAL displays on the screen as shown in FIG. 5.

The non-resettable total is shown in gallons when the unit of measurement is set in gallons, quarts, or pints. The non-resettable total is shown in liters when the measurement is in liters.

### RESET\*

In Dispense mode, press and hold the **RESET** key to clear the digital display after each dispense cycle.

Always press the **RESET** key to clear the digital display before each new dispense.

During meter setup the RESET key is used to display the resettable totals and to display and set the units of measurement (See Changing Measurement Units, page 8) and for setting a new calibration factor when recalibrating the meter (See Recalibrating the Meter, page 9).

### For Maximum Dispense Accuracy

Set the meter to dispense in pints or quarts when dispensing 1 gallon (3.8 liters) or less.

## Displaying Setup Menus

\* Press and hold *Reset and Total* keys simultaneously to display meter setup menus.



## Changing Measurement Units

FIG. 6 shows the various measurement units (Liter, pints, quarts and gallons) as they appear on the display.



**FIG. 6 Examples of Measurement Units**

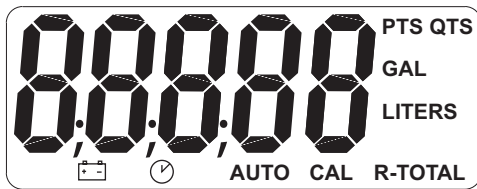
1. Press and hold both the TOTAL and RESET keys. The All Segments screen and then the Software Version screen shown in FIG. 7 display.

**NOTE:** The last two numeric digits of the number displayed on the Software Version screen reflect the version of software your meter is using.

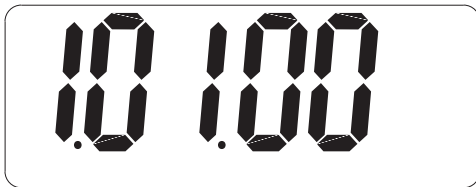
In the illustration shown in FIG. 7; the software version is represented as “00”. On your meter the “00” is replaced with a number which is the actual software version used by your meter.

For example, if you are running software version 5, the display will show: 1.01.05.

**All Segments Screen**

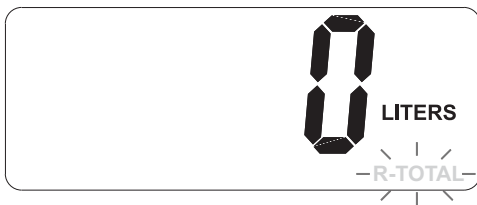


**Software Version**



**FIG. 7 Reset and Software Version Screens**

2. When the until R-TOTAL flashes (FIG. 8):
  - a. Press TOTAL again to clear the displayed resettable total and reset the Total to 0 . . . **OR**



**FIG. 8 Programmed Unit of Measurement**

- b. Continue with the meter setup by pressing the RESET key to display the current measurement unit (PTS, QTS, GAL, LITERS) programmed

into the meter (FIG. 9).

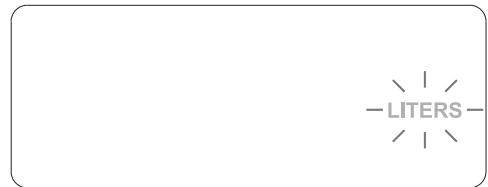


**FIG. 9**

3. Press the TOTAL key to display the other available measurement units.

**NOTE:**

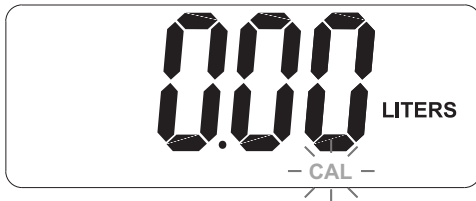
Each time you press the Total key a different measurement unit flashes on the screen (FIG. 10).



**FIG. 10 Unit of Measurement Flashes**

4. When the desired unit of measurement displays, push the RESET key to select it.
5. CAL flashes on the display as shown in FIG. 11. Do one of the following:





**FIG. 11 CAL Flashing; Meter Ready for Calibration**

- **Use the current calibration.**
  - a. Press and hold RESET key to lock in the current, unchanged, amount.
  - b. Display returns to the Dispense Mode.

**OR . . .**

- **Recalibrate the Meter**

**NOTE:**

**MODEL 247453:**

A one quart (US) or one liter (metric) Weights and Measures approved container is required for calibration.

This meter is factory calibrated to dispense 10W-30 motor oil at 70°F (21°C) at 2.0 gpm (7.6 lpm) and is acceptably accurate for most common fluids over a typical temperature range. If you will use the meter to dispense antifreeze or other approved fluids, you may have to recalibrate it for greater accuracy.

- a. If the unit of measurement is gallons, pints, or quarts, dispense exactly one quart of fluid into a calibrated 1–quart container.

If the unit of measurement is liters, dispense exactly one liter of fluid into a calibrated 1–liter container.

**For proper calibration, you must dispense the exact amount.**

**Continue calibration step b.**

**MODEL 24G738:**

A one quart (US) or one liter (metric) Weights and Measures approved container is required for calibration.

This meter is factory calibrated to dispense water at 70°F (21°C) at 2.5 gpm (9.5 lpm).

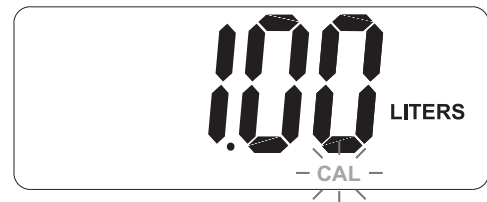
- a. If the unit of measurement is gallons, pints, or quarts, dispense exactly one quart of water into a calibrated 1–quart container.

If the unit of measurement is liters, dispense exactly one liter of water into a calibrated 1–liter container.

**For proper calibration, you must dispense the exact amount.**

**Continue calibration step b.**

- b. Hold down TOTAL key until display shows 1.00 (FIG. 12). The new calibration is complete.



**FIG. 12 Calibration Complete**

- c. Press the RESET key to store the new calibration factor and return to the dispense mode.

**NOTE:**

If an error was made during meter recalibration, repeat steps a - b of the recalibration procedure to recalibrate the meter again.

# Service

## Battery Replacement

Graco recommends using AA Alkaline batteries such as Duracell®, Energizer®, Eveready®, and En22®. Properly handle and dispose of the batteries.

Unless otherwise indicated, refer to FIG. 13 for reference numbers used in the following instructions.

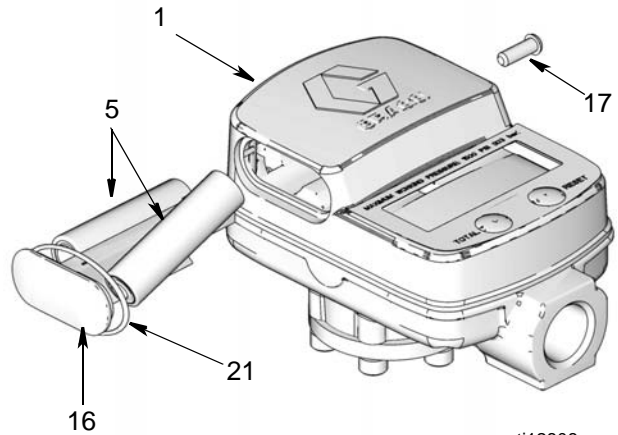
<p>Sparking can occur when changing the battery pack. Only replace the battery pack in a non-hazardous location, away from flammable fluids or fumes.</p>							

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1. **Relieve pressure**, page 6.
2. Loosen and remove screw, (17) holding battery cover (16) in meter housing (1).

**HINT:** To initially push the battery cover out of the housing, when screw (17) is loosened sufficiently [almost disconnected from the battery cover (16)], use the screwdriver to push the screw-head back into the meter housing as far as it will go. This will push the cover out of the housing enough to grasp it with your fingers to remove it from the housing.

3. Use your fingers to pull battery cover (16) out of meter housing (1). Be careful not to lose the gasket (21). Remove batteries (5).



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**FIG. 13 Removing Battery Cover**

4. Install new batteries (5) in battery cover (16). Note location of positive (+) and negative (-) polarity indicated on the cover (16) to ensure proper battery installation.

**NOTICE**

To ensure correct meter operation, always replace old batteries with two NEW AA batteries. Do not combine old and new batteries.



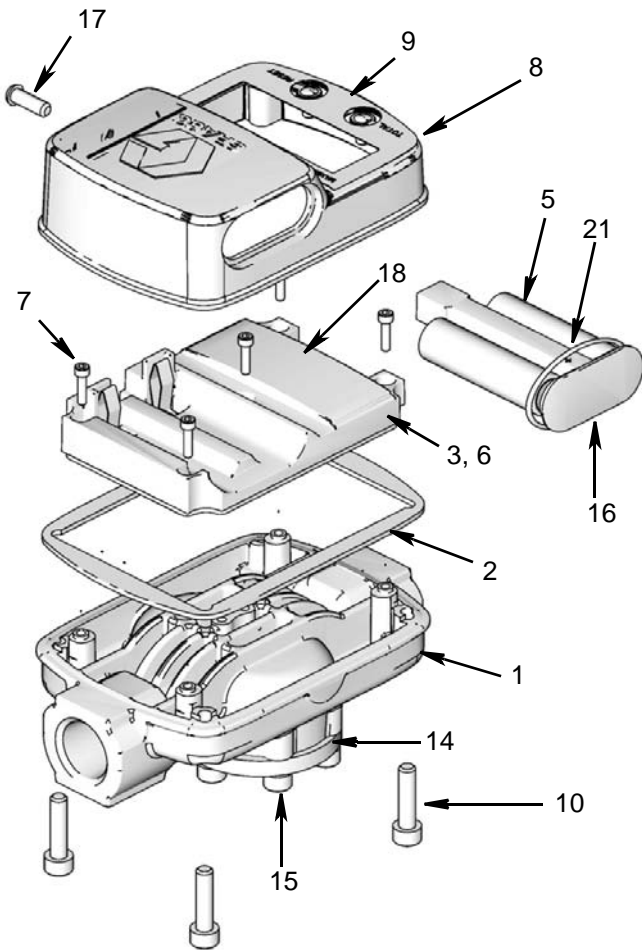
**FIG. 14**

5. Install battery cover (16) in meter housing (1). Replace screw (17). Make sure gasket (21) is in place between housing and cover (see FIG. 13). Use a screwdriver to hand tighten screw (17).

# Troubleshooting

Problem	Cause	Solution
Battery icon is shown on the display	Batteries are low	Replace batteries (5). See <b>Replacing Battery</b> , page 10. Replacement battery information is also provided in <b>Technical Data</b> , page 13.
Digital display does not activate	Batteries are low	Replace batteries (5). See <b>Replacing Battery</b> , page 10. Replacement battery information is also provided in <b>Technical Data</b> , page 13.
There is no fluid flow	Metering unit is malfunctioning	Replace the meter.
	Pump is not turned on	Turn on the pump.
Err 1 is displayed	Flow has exceeded 15 gpm (57 lpm)	Purge air from line. Adjust flow rate $\leq$ 15 gpm (57 lpm).
Accuracy is incorrect	Calibration is off	Recalibrate meter. See Recalibrate Meter instructions, page 9.

# Parts



Ref. No.	Part No.	Description	Qty.
1*		HOUSING, meter	1
2	15U247	GASLET, housing, seal	1
3*		BOARD, circuit assembly	1
5*		BATTERIES, AA, alkaline	2
6*		COVER, display	1
7*		SCREW, cap	5
8	15M434	BEZEL, cover	1
9	15M872	LABEL, overlay	1
10	113412	SCREW, mach, torx pan hd	4
14*		COVER, metering chamber	1
15*		SCREW, cap	8
16	15M432	COVER, battery	1
17	15M920	SCREW, seal, pan hd	1
18*		DISPLAY, LCD	1
21	109072	PACKING, o-ring	1

\* Only parts that include a part number are available from Graco. All others are provided for reference only.

# Technical Data

## Model 247453

Flow Range	0.5 to 15 gpm (1.9 to 57 lpm)
Maximum working pressure	1500 psi (10.3 MPa, 103 bar)
Minimum working pressure	5 psi (34kPa, 0.3 bar)
Weight	1.8 lb (0.82 kg)
◆ Units of measurement	Factory-set in quarts
† Accuracy	+/- 0.5 percent
‡ Repeatability	+/- 0.15 percent
❖ Inlet and outlet	1/2 npt
Operating temperature range	-4°F to 122°F (-20°C to 50°C)
Storage temperature range	-13°F to 122°F (-25°C to 50°C)
Wetted parts	Stainless steel, PBT (polybutylene terephthalate) nickel, nitrile rubber
*Batteries	2 AA alkaline
Expected battery life	6 to 12 months

## Model 24G738

Flow range	0.5 to 15 gpm (1.9 to 57 lpm)
Maximum working pressure	1500 psi (10.3 MPa, 103 bar)
Minimum working pressure	5 psi (34 MPa, 0.3 bar)
Weight	1.8 lb (0.82 kg)
◆ Unit of measurement	Factory-set in quarts
† Accuracy	+/- 2.5% after calibration
‡ Repeatability	+/- 0.15%
❖ Inlet and outlet	1/2 bspp
Operating temperature range	-4°F to 122°F (-25°C to 50°C)
Storage temperature range	-13°F to 122°F (-25°C to 50°C)
Wetted parts	Stainless steel, PBT (polybutylene terephthalate) nickel, fluoroelastomer
*Batteries	2 AA Alkaline
Expected battery life	6 to 12 months

◆ Display shows quantity in 0.01 increments up to 999.99 gallons, quarts, pints or liters. Totals in gallons or liters up to 99,999 units.

† At 2.5 gpm (9.5 lpm), at 70°F (21°C), with 10-weight oil, and 1 gallon dispensed. May require calibration; out-of-box accuracy is +/- 1.25 percent.

‡ At 2.5 gpm (9.5 lpm), at 70°F (21°C), with 10-weight oil, and 1 gallon dispensed.

❖ Meter can be installed with flow in either direction.

\* Recommended batteries: Duracell<sup>®</sup>, Energizer<sup>®</sup>, Eveready<sup>®</sup>, En22<sup>®</sup>.

Duracell<sup>®</sup> is a registered trademark of Duracell Inc.

Eveready<sup>®</sup> and Energizer<sup>®</sup> are registered trademarks of Eveready Battery Co., Inc.

# Graco 7-Year Meter and Valve 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 from the date of sale as defined in the table below, repair or replace equipment covered by this warranty and 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.

Graco 7-Year Meter and Valve Extended Warranty	
Components	Warranty Period
Structural Components	7 years
Electronics	3 years
Wear Parts - including but not limited to o-rings, seals and valves	1 year

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 one (1) year past the warranty period, or two (2) years for all other parts.

**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.

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.

## Graco Information

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

Patent information: [www.graco.com/patents](http://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 313048

For patents see: [www.graco.com/patents](http://www.graco.com/patents)

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