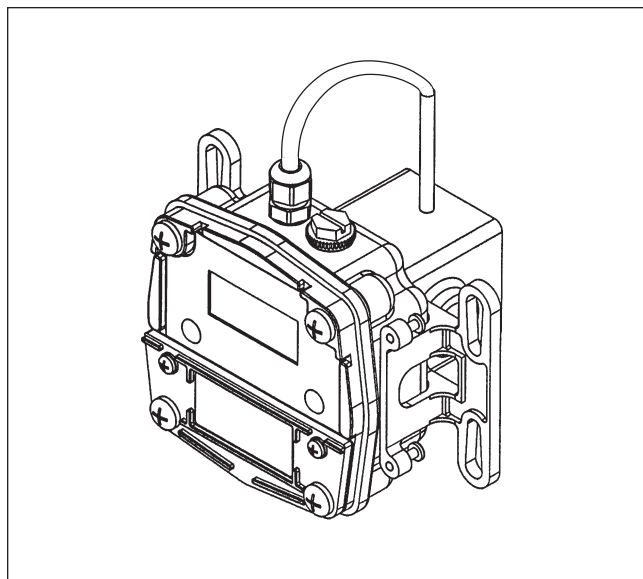


GPI Standard Display - Local Model

Owner's Manual



To the owner...

Congratulations on receiving your GPI Standard Display. We are pleased to provide you with a product designed to give you maximum reliability and efficiency.

Our business is the design, manufacture, and marketing of liquid handling, agricultural, and recreational products. We succeed because we provide customers with innovative, reliable, safe, timely, and competitively-priced products. We pride ourselves in conducting our business with integrity and professionalism.

We are proud to provide you with a quality product and the support you need to obtain years of safe, dependable service.



President
Great Plains Industries, Inc.

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SAFETY INSTRUCTIONS

- When measuring flammable liquids, observe precautions against fire or explosion.
- When working in hazardous environments, always exercise appropriate safety precautions.
- Be sure O-rings and seals are kept in good repair.

INSTALLATION

⚠ CAUTION

Installation should be performed only by qualified personnel, and in accordance with local governing regulations.

GENERAL INFORMATION

Use the GPI Standard Display in indoor or outdoor applications where occasional exposure to moisture is common. The Standard Display is battery powered; no external power source is required.

OPERATION

Computer Display

All operations are reflected in the LCD readout. The large center digits indicate amounts, where smaller words or “icons” located above and below indicate specific information regarding totals, flow, calibration and units of measure.

Activate the Meter

Computer is on continuously and always ready to perform. The computer is powered by a field replaceable battery. When display becomes dim, faded or the low battery message appears, the battery needs to be replaced. Reference the Maintenance Section for details.

Batch and Cumulative Totals

The computer maintains two totals. The Cumulative Total provides continuous measurement and cannot be manually reset. The Batch Total can be reset to measure flow during a single use. The Cumulative Total is labeled TOTAL 1, Batch Total is labeled TOTAL 2 BATCH.

When the Cumulative Total reaches a display reading of 999,999 the computer will highlight an X10 icon. This indicates to the operator that a zero must be added to the 6 digits shown. When the next rollover occurs, the computer will highlight an X100 icon. This indicates to the operator that two zeros must be added to the 6 digits shown.

Press the DISPLAY button briefly to switch between the TOTAL 1, TOTAL 2 BATCH and FLOWRATE. Press DISPLAY briefly to display the TOTAL 2 BATCH. Hold the DISPLAY button for 3 seconds to reset the Batch Total to zero.

When fluid is flowing through the meter, a small propeller icon is highlighted.

Flowrate Feature

To use this feature, press and release DISPLAY until FLOWRATE icon appears. The factory set time base will be highlighted to the right of FLOWRATE (M = minutes, H = hours, D = days). When FLOWRATE is invoked, the display will be indicating rate of flow.

Factory and Field Calibration

All calibration information is visible to the user as icons on the top line of the display, above the numeric digits.

All units are configured with a “factory” calibration. Both gallons and litres are available (“GL” or “LT” will be displayed). While holding the CALIBRATE button, briefly press DISPLAY to toggle between gallons and litres. This factory calibration (indicated with FAC) is permanently programmed into the computer and is not user adjustable.

NOTE: Your computer may have other units of measure programmed into it. If so, holding the CALIBRATE button and momentarily pressing the DISPLAY button will toggle through all factory set units. Other possible units are: IGL (imperial gallon), QT (quart), CF (cubic feet), CM (cubic meter), BL (42 gal. barrel), CC (cubic centimeter) or OZ (ounce).

Switching between different units will not corrupt the Total's contents. For example, in GL mode, the computer totalizes 10.00 gallons, if the user switches to LT mode, the display will read 37.85 litres (the same volume, different unit).

The “field” calibration may be set by the user, and can be changed or modified at any time using the calibration procedure described in the Calibration Section. Totals or flowrate derived from the field calibration are invoked when the FAC icon is no longer visible on the top line of the display.

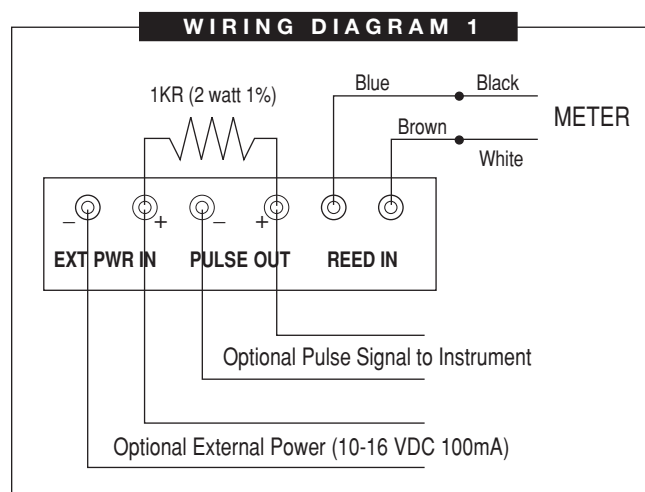
CALIBRATION

Field Calibration Procedures (Correction Factor Method)

1. To calibrate, press and hold the CALIBRATE and DISPLAY buttons for about 3 seconds until you see FLdCAL. Release both buttons and you will see CF-00.0. You are now in the field calibration mode and values from -99.9% to +99.9% can be entered.
2. The +/- position appears either as an “underscore” character for plus, or as a “hyphen” character for minus. The DISPLAY button selects the position and the CALIBRATE button toggles this character.
3. The DISPLAY button can then be pushed to select the numeric positions. Press the CALIBRATE button to scroll from 0 to 9. Enter the percentage of change you want the display to correct. When satisfied with the value, press both CALIBRATE and DISPLAY buttons simultaneously. CALend will be displayed and unit will go back to normal operation, less the FAC (factory calibration) icon.
4. All enabled units-of-measure remain visible and selectable – the entered correction will be applied to all enabled units.
5. To return to factory calibration (FAC), press and hold both CALIBRATE and DISPLAY buttons for about 3 seconds until FAcCAL is displayed. Then release buttons. Unit should return to normal operation and FAC icon is visible.

Connecting the Standard Display

Pulse output and external power are the connections located on the interface PCB. Solder a 1K resistor between the (+) voltage of the external power input and the (+) of the pulse output to use this output. (Wiring Diagram 1) Pulse signal represents the output cabling to the receiving instrument.



Connecting an External Power Supply

An external power supply can be used with or without the supplied 9-volt battery. Power supply must be 10-16 VDC; 100mA if using the 9-volt battery as a backup, or 5-16 VDC; 100mA if removing battery (e.g., if using both external power and optional pulse out).

Follow the steps below to connect an external power supply.

1. Remove the four large screws from the front of the coverplate.
2. Disconnect the battery.
3. Solder the external power leads to the terminal marked "EXT PWR IN" on the registers printed circuit board. Make note of the voltage polarity "+" and "-".
4. Reassemble register onto the coverplate, replace the four screws and tighten firmly.

MAINTENANCE / STORAGE

Replacing the Battery

Replace the battery when the readout becomes dim or blank. Replace the battery with a 9-volt lithium battery. Order GPI part number 902006-44.

To replace the battery:

1. Remove the two large screws and two small screws from the battery coverplate.
2. Remove the battery coverplate and gasket.
3. Remove the battery and clean any corrosion from the terminals.

NOTE: Coat the terminals with petroleum jelly to protect against corrosion.

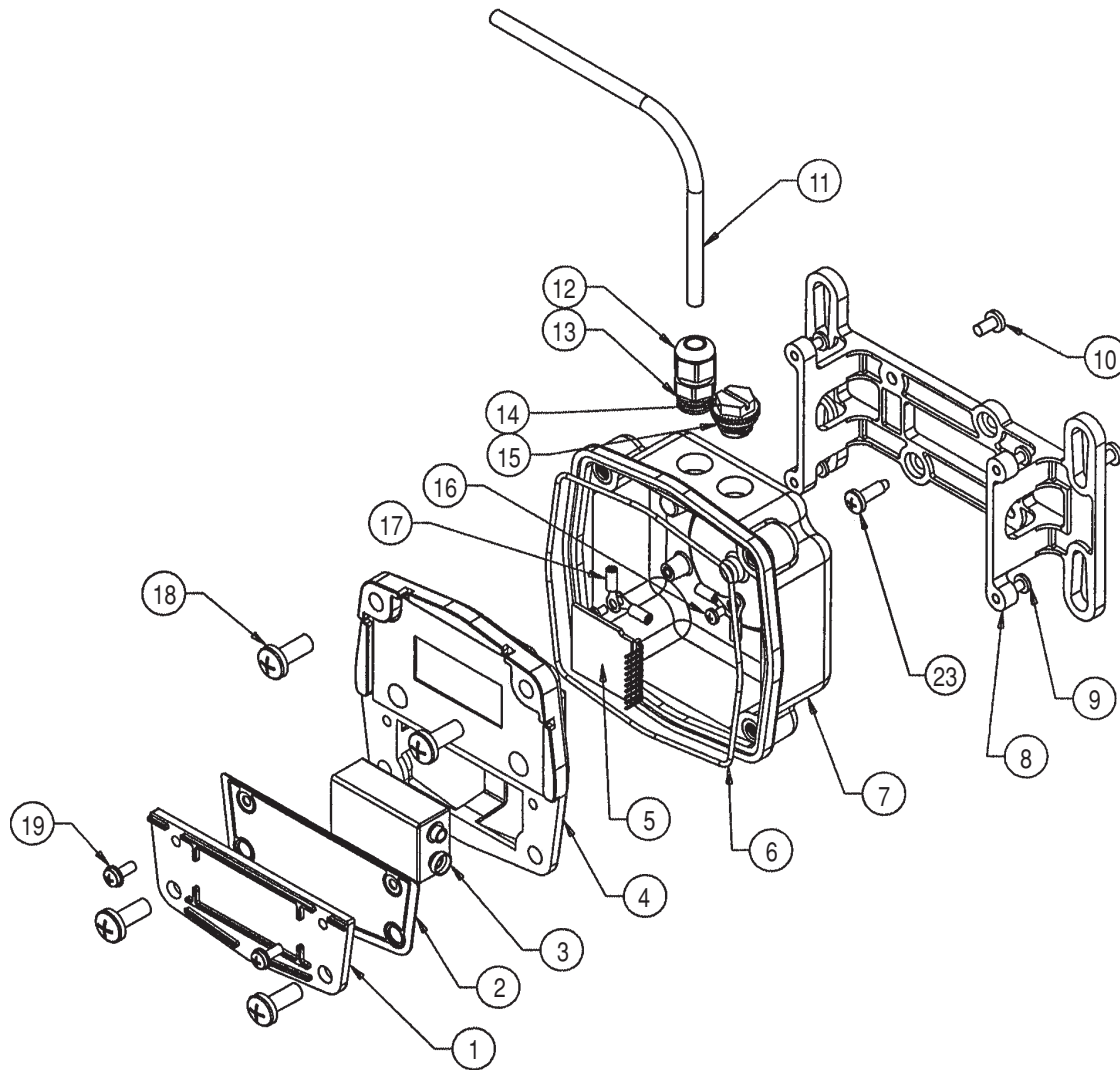
4. Install the new battery.
5. Check the gasket for damage and replace as needed. Position gasket and coverplate to align, insert screws and tighten.

NOTE: Batch and Cumulative Total return to zero when the battery fails or is disconnected. The factory calibration is retained in the computer permanently and will display when the battery is replaced.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
A. LCD REGISTER NOT WORKING	<ol style="list-style-type: none"> 1. Battery not connected properly 2. Battery flat 3. Faulty wiring connections 4. Faulty LCD 5. Faulty connection from computer to Pulse PCB 	<p>Check battery connections.</p> <p>Replace battery.</p> <p>Check wiring for loose or faulty connections.</p> <p>Replace computer assembly.</p> <p>Check wiring connections.</p>

ILLUSTRATED PARTS DRAWING



Item No.	Part No.	Description	No. Req'd.
1	120009-2	Battery Cover	1
2	120028-1	Battery Gasket.....	1
3	902006-44	Battery, 9-volt Lithium	1
4	12051801	Computer Kit (used with GM001, GM002 & GM003).....	1
	12051802	Computer Kit (used with GM005, GM006, GM007, GM010, GM015 & GM020).....	1
5	120035-1	PCB Assembly.....	1
6	901002-82	O-Ring.....	1
7	120509-01	Adapter Kit (used with GM001, GM002, GM003) ..	1
	120509-02	Adapter Kit (used with GM005, GM006, GM007) ..	1
	120509-03	Adapter Kit (used with GM010, GM015, GM020) ..	1
8	120058-01	Bracket	1

Item No.	Part No.	Description	No. Req'd.
9	904005-13	Screw, 6-32 x 1/2 in. (Remote Model)	4
10	904002-44	Screw, 8-32 x 5/16 in.	2
11	125066-20	Cable, 20 ft. (Remote Model)	1
	125066-3	Cable, 100 ft. (Remote Model)	1
12	902005-9	Strain Relief.....	1
13	901002-87	O-Ring	1
14	906005-47	Threaded Plug	1
15	906005-48	Seal.....	1
16	904005-63	Screw, 4-40 x 3/16 in.	2
17	902004-51	Terminal	4
18	904005-28	Sealing Screw, 1/4-20 x 5/8 in.	4
19	904005-27	Sems Screw, 6-32 x 3/8 in.	2
23	904006-94	Screw, 10-16 x 5/8 in. (Local Model).....	2

SPECIFICATIONS – LOCAL MODEL

Materials:

Acetal, Amorphous Nylon, PET Polyester, Polyester (decals), Viton (gasket & seals), Stainless Steel (fasteners)

Power Source:

On-board, field-replaceable, 9-volt Lithium battery

Battery Life:

5 years

Configuration:

“09” 2-Totals (1 cumulative and 1 batch), Rate, 2 Cals
(Factory calibration in gallons or litres; 1 field calibration),
K-factor to match published K-factor for each size meter

Input Signal:

Hall Effect* or Reed Switch

Time Base:

Hours for GM001, GM002 and GM003
Minutes for GM005, GM006, GM007, GM010, GM015
and GM020

Unit of Measure:

U.S. gallons or litres

Accuracy:

No additional error over coupled flow meter's accuracy

Frequency Range:

0 to 1,000 hertz

Batch Total:

Up to 999,999 (x100)

Cumulative Total:

Up to 999,999 (x100)

Temperature:

0° F to +140° F (–18° C to +60° C)

Cable:

N/A

Mechanical Connections:

Display is mounted directly to flow meter body

Electrical Connections:

One strain relief port: PG7 (1/2-20) thread (only on
GM001, GM002 and GM003)
Grip range: .11 to .26 inches
One threaded port plugged (1/2-14 FNPT)

Dimensions (In addition to meter body size):

Width: 4.5 in. (11.4 cm)
Height: 6 in. (15.2 cm)
Depth: 4.5 in. (11.4 cm)

Shipping Weight:

1 lb. (.45 kg)

* Note: Hall Effect required dedicated power supply.

SERVICE

For warranty consideration, parts, or other service information, please contact your local distributor. If you need further assistance, contact the GPI Customer Service Department in Wichita, Kansas, during normal business hours.

Tel: 316-686-7361

Fax: 316-686-6746

Toll free: 1-888-996-3837

To obtain prompt, efficient service, always be prepared with the manufacturing date code, found behind the coverplate.

For warranty work, always be prepared with your original sales slip or other evidence of purchase date.

Please contact GPI before returning any part. It may be possible to diagnose the trouble and find a solution with a telephone call. GPI can also inform you of any special requirements you will need to follow for shipping.

Limited Warranty Policy

Great Plains Industries, Inc. 5252 E. 36th Street North, Wichita, KS USA 67220-3205, hereby provides a limited warranty against defects in material and workmanship on all products manufactured by Great Plains Industries, Inc. This product includes a 1 year warranty. Manufacturer's sole obligation under the foregoing warranties will be limited to either, at Manufacturer's option, replacing or repairing defective Goods (subject to limitations hereinafter provided) or refunding the purchase price for such Goods theretofore paid by the Buyer, and Buyer's exclusive remedy for breach of any such warranties will be enforcement of such obligations of Manufacturer. The warranty shall extend to the purchaser of this product and to any person to whom such product is transferred during the warranty period.

The warranty period shall begin on the date of manufacture or on the date of purchase with an original sales receipt. This warranty shall not apply if:

- A. the product has been altered or modified outside the warrantor's duly appointed representative;
- B. the product has been subjected to neglect, misuse, abuse or damage or has been installed or operated other than in accordance with the manufacturer's operating instructions.

To make a claim against this warranty, contact the GPI Customer Service Department at 316-686-7361 or 888-996-3837. Or by mail at:

Great Plains Industries, Inc.
5252 E. 36th St. North
Wichita, KS, USA 67220-3205

The company shall, notify the customer to either send the product, transportation prepaid, to the company at its office in Wichita, Kansas, or to a duly authorized service center. The company shall perform all obligations imposed on it by the terms of this warranty within 60 days of receipt of the defective product.

GREAT PLAINS INDUSTRIES, INC., EXCLUDES LIABILITY UNDER THIS WARRANTY FOR DIRECT, INDIRECT, INCIDENTAL AND CONSEQUENTIAL DAMAGES INCURRED IN THE USE OR LOSS OF USE OF THE PRODUCT WARRANTED HEREUNDER.

The company herewith expressly disclaims any warranty of merchantability or fitness for any particular purpose other than for which it was designed.

This warranty gives you specific rights and you may also have other rights which vary from U.S. state to U.S. state.

Note: In compliance with MAGNUSON MOSS CONSUMER WARRANTY ACT – Part 702 (governs the resale availability of the warranty terms).



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