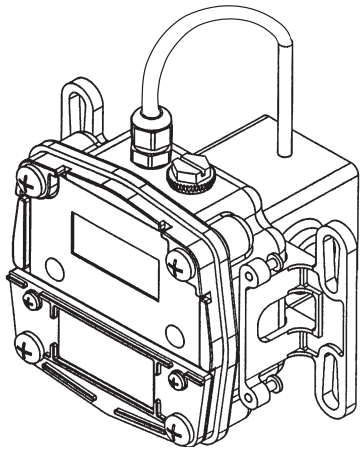
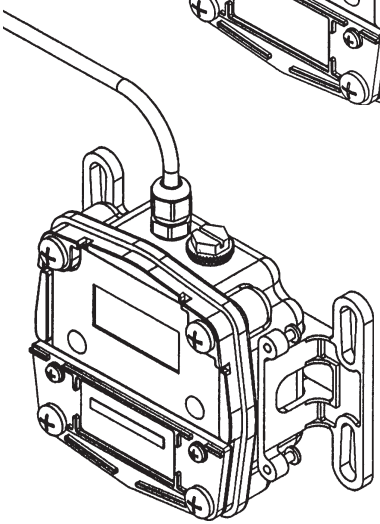
User's Guide

Local Model





Remote Model

FPD1000D-BAT
Battery Powered Display
Local and Remote Models

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GENERAL INFORMATION

Use the OMEGA Standard Display in indoor or outdoor applications where occasional exposure to moisture is common. This manual covers two models:

- Standard Display – **Local** (mounted to the meter)
- Standard Display – **Remote** (where remote monitoring is required)

Product differences in this manual are identified by either, **Local** or **Remote** as necessary.

Both models are battery powered; no external power source is required.

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.

Remote Installation

Choose a mounting location suitable for the Standard Display. The ideal mounting location is where the:

- FPD Series meter is as close as possible.
- mounting surface has minimal vibration.
- ambient temperature is 0°F to 140°F (-18°C to 60°C) when using remote display.
- cable lengths are minimal.

Avoid mounting locations where the Standard Display is:

- subject to constant exposure to water or other liquids (occasional low-pressure splashing will not harm unit).
- subject to > 5g shock loading.
- facing the sun directly for long periods of time.

Mount the OMEGA Standard Display Remote using standard U-bolts. Mounting options include:

- Wall
- Pipe

This product comes with 20 feet of shielded cable. OMEGA offers an optional cable kit with 100 feet of cable (see spare parts list).

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.

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 (see below), 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.

NOTE: Totalization counts total units without differentiating between gallons, liters or field calibrated units.

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 liters are available ("GL" or "LT" will be displayed). While holding the CALIBRATE button, briefly press DISPLAY to toggle between gallons and liters. 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 liters (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.

CONFIGURATION

Configuration determines what information is displayed on the screen. The configuration string is a 6-digit number that programs the computer electronics to a specific configuration. Using the information below, the end user can change the information displayed on the screen by changing the configuration string.

Local Mount Display

The factory calibration and display configuration features are preprogrammed and further user programming is not required. When replacing electronic displays, they must be configured and calibration information entered before use. If desired, the calibration or features can be changed in the field using the procedures described below.

Remote Mount Display

The default calibration and display configuration features may not be appropriate for the user installation.

ATTENTION

ALL remote mount and replacement displays must be configured AND calibrated before use!

Factory Default Configuration

The configuration strings below are the default configurations for the local mounted display and can be used for the final configuration for replacement displays or remote mounted displays purchased separately.

NOTE: For replacement and remote electronics, this configuration does NOT determine the K-factor for your specific meter. That information must still be entered using the calibration procedure. For replacement and remote configurations, please see Calibration Section for more information.

FACTORY CONFIGURATION STRINGS

MODEL	CONFIGURATION STRINGS
FPD1001B FPD1002B FPD1003B FPD1102B FPD1103B FPD1201B FPD1202B FPD1203B	**B 2 2 0 1 3**
FPD1004 FPD1204 FPD1105 FPD1005 FPD1205 FPD1006 FPD1007	**B 1 2 0 1 3**

User Configuration

The flow computer has been programmed with many features, most of which can be enabled by the end user through the configuration process. By disabling unnecessary features, day-to-day flowmeter operation can be greatly simplified, making the unit easier to use. Alternately, there are several features available not found in the default configuration.

User configuration features include:

- 0 to 3 totals, either resettable (batch) or non-resettable (cumulative).
- Flowrate or no flowrate. Available in units per minute, hour or day.
- Three different field calibration methods: K-factor entry, Dispense/Display or % Correction Factor.
- Various units of measure (some or all): GL (gallon), LT (liter), IGL (imperial gallon), QT (quart), CF (cubic feet), CM (cubic meter), BL (42 gal. barrel), CC (cubic centimeter) or OZ (ounce).

Changing Configuration Settings

Access to the configuration process requires entering the 6-digit pin code **"020748"**. Configurations are entered and stored as 6-digit codes where each digit represents a setting for one of the configuration options. New configuration settings are stored in the computers long-term memory and will not be lost either in OFF mode or during battery change.

Since there are security timeouts associated with the configuration changing process, you should determine ahead of time what your new 6-digit configuration code will be. Using the information below, create the new code and write it down so that you can refer to it during configuration.

NEW CODE CONFIGURATIONS

DIGIT 1	ENABLES
0	No Totalizing Registers
1	TOTAL 1 (Accumulative)
2	TOTAL 2 BATCH
3	TOTAL 1 & TOTAL 2 BATCH
7	TOTAL 1, TOTAL 2 BATCH & TOTAL 3 BATCH
8	Enables U.S. Gallons, No Totalization Registers
9	TOTAL 1 (Accumulative) & U.S. Gallons
A	TOTAL 2 BATCH & U.S. Gallons
b	TOTAL 1 & TOTAL 2 BATCH & U.S. Gallons
F	TOTAL 1, TOTAL 2 BATCH & TOTAL 3 BATCH & U.S. Gallons
DIGIT 2	**ENABLES**
0	No Flowrate Mode
1	Flowrate in Units Per Minute
2	Flowrate in Units Per Hour
4	Flowrate in Units Per Day
8	Enables Imperial Gallons (IGL), No Flowrate Mode
9	Flowrate in Units Per Minute & Imperial Gallons Enabled
A	Flowrate in Units Per Hour & Imperial Gallons Enabled
C	Flowrate in Units Per Day & Imperial Gallons Enabled

DIGIT 3	ENABLES
0	No Units of Measure from the below items
1	Enables Quarts (QT)
2	Enables Liters (LT)
3	Enables Quarts (QT) and Liters (LT)
4	Enables Cubic Feet (CF)
5	Enables Cubic Feet (CF) & Quarts (QT)
6	Enables Cubic Feet (CF) & Liters (LT)
7	Enables Cubic Feet (CF), Quarts (QT) & Liters (LT)
8	Enables Cubic Meters (CM)
9	Enables Cubic Meters (CM) & Quarts (QT)
A	Enables Cubic Meters (CM) & Liters (LT)
b	Enables Cubic Meters (CM), Quarts (QT) & Liters (LT)
C	Enables Cubic Meters (CM) & Cubic Feet (QF)
d	Enables Cubic Meters (CM), Cubic Feet (QF) & Quarts (QT)
E	Enables Cubic Meters (CM), Cubic Feet (QF) & Liters (LT)
F	Enables Cubic Meters (CM), Cubic Feet (QF), Liters (LT) & Quarts (QT)
DIGIT 4	**ENABLES**
0	No Units of Measure from the below items
1	Enables Barrels, 42 gallon (BL)
2	Enables Cubic Centimeter (CC)
3	Enables Barrels (BL) & Cubic Centimeters (CC)
4	Enables Ounces (OZ)
5	Enables Ounces (OZ) & Barrels (BL)
6	Enables Ounces (OZ) & Cubic Centimeters (CC)
7	Enables Ounces (OZ), Cubic Centimeters (CC) & Barrels (BL)
DIGIT 5	**ENABLES**
0	None of the below options enabled
1	Restore TOTAL 2 BATCH value after power loss, no filter
2	Restore TOTAL 3 BATCH value after power loss, no filter
3	Restore TOTAL 2 BATCH & TOTAL 3 BATCH values after power loss, no filter
8	Enable 8 Hertz input filter (recommended)
9	Restore TOTAL 2 BATCH value after power loss, with 8 Hz filter
A	Restore TOTAL 3 BATCH value after power loss, with 8 Hz filter
b	Restore TOTAL 2 BATCH & TOTAL 3 BATCH values after power loss, with 8 Hz filter
DIGIT 6	**ENABLES**
0	No Field Calibration allowed
1	Correction Factor method
3	K-Factor Entry method
7	Dispense/Display Entry method

CONFIGURATION SETUP

Since there are security timeouts associated with the configuration changing process, you should determine ahead of time what your new 6-digit configuration code will be. Create the new code and write it down so that you can refer to it before beginning this procedure.

1. Temporarily disconnect power to the display at any convenient point.
2. Allow at least 30 seconds before proceeding to allow all internal capacitance to discharge.
3. While the unit is still unpowered, press and hold CAL. While holding the CAL button, reapply power. Keep CAL button pressed for about a second after applying power, then release.
4. While holding button, the display will show “FLdCFG”.
5. The display should show “000000” with the left-hand digit blinking. If you do not see this, go back to Step 1.
6. Enter the Pin No. **020748**.
   a. To enter, use the CALIBRATE button to change the blinking digit and/or use the DISPLAY button to shift the blink to the next digit.

      NOTE: You can use the buttons as often as necessary. There is a long timeout (about 4 minutes).

   b. As an added security precaution, if a valid password is NOT sensed, within about 4 minutes, the computer will revert to normal operation, and you will have to repeat the process from Step 1.
7. Briefly press and release BOTH buttons. If you have entered a valid Pin number, the computer will immediately display the current configuration code. (For example: 922948). Display will show “FLdCFG”.

   NOTE: Once in configuration mode, the computer will automatically revert to normal operation if no button operation is sensed for about 4 minutes.

   If this happens, you have not completed the process. You will have to repeat the entire process from Step 2.
8. Enter the 6-digit configuration code number for your new configuration using the same method as used in Step 6a above.
9. When correctly entered, briefly press and release BOTH buttons. The display will briefly show “FLdCFG”, and then the unit will return to normal operation. Configuration is now complete.

CALIBRATION

Local Mount Display

The factory calibration and display configuration features are programmed and further user programming is not required. When replacing electronic displays, they must be configured and calibration information entered before use. If desired, the calibration or features can be changed in the field using the procedures described below.

Remote Mount Display

The default calibration and display configuration features may not be appropriate for the user installation.

ATTENTION

ALL remote mount and replacement displays must be configured AND calibrated before use!

Field Calibration

Presently all computer electronics are programmed with two different calibration methods, only one of which is active at a time. **K-Factor Entry** calibration is the default method. This allows a calibration point to be entered using numerical entry of meter K-factors.

The alternate method is **Dispense/Display** which requires that a specific volume of fluid pass through the meter to determine the correct K-factor. **Dispense/Display** calibration can be selected using computer electronics configuration.

The specific K-factor (ppg or pulses per gallon) of your oval gear meter is shown in the chart below, or refer to the nameplate on the meter.

Field Calibration Procedure (K-Factor Entry Method)

Because the oval gear meter is positive displacement, it requires only one K-factor and a single point calibration is sufficient.

1. To field calibrate, press and hold the CALIBRATE and DISPLAY buttons for about 3 seconds until you see FLdCAL. Release both buttons and you will see Kxxxx.x (where "x" represents the current field-cal k-factor value). You are now in the field calibration mode.
2. The far left digit will be blinking. The DISPLAY button can then be pressed to select the digit location and the CALIBRATE button can be pressed to scroll the desired value at the blinking position. Edit the K-factor shown to the desired value. Acceptable K-factor range is 0000.1 to 9999.9.
3. After the new value has been entered, momentarily press and release both buttons. "CALEND" will be momentarily displayed. Unit is now ready for use.
4. Notice that the upper display line, the "FAC" icon and all the units of measure have disappeared.

Alternate units of measure are not selectable when meter is operating with field calibration. This calibration is a unique single point calibration for the meter and/or application.

MODEL	K-FACTOR (ppg)	MINIMUM FLOWRATE FOR DISPENSE/DISPLAY CALIBRATION
FPD1001B FPD1201B	5855.4	0.132 GPH (0.5 LPH)
FPD1002B FPD1202B FPD1102B	3785.4	0.53 GPH (2.0 LPH)
FPD1003B FPD1203B FPD1103B	1514.2	4.0 GPH (15.0 LPH)
FPD1004 FPD1204	424	0.25 GPM (1.0 LPM)
FPD1105	197	0.8 GPM (3.0 LPM)
FPD1005 FPD1205	136.3	1.6 GPM (6.0 LPM)
FPD1006	54.9	2.6 GPM (10.0 LPM)
FPD1007	25.3	4.0 GPM (15.0 LPM)

NOTE: To return to factory calibration (FAC), press and hold both CALIBRATION and DISPLAY buttons for about 3 seconds, until FAcCAL is displayed. Then release buttons. Unit should return to normal operation and FAC icon visible.

NOTE: If the field calibration mode is entered and NO fluid is dispensed, then upon leaving, the computer will use data from the last successful field calibration.

NOTE: A Field Calibration below the minimum flowrate can adversely effect accuracy.

The use of a uniformly dependable, accurate calibration container is highly recommended for the most accurate results. For the most accurate results, dispense at a flowrate which best simulates your actual operating conditions. Avoid "dribbling" more fluid or repeatedly starting and stopping the flow – these actions will result in less accurate calibrations.

Make sure you meet the meter's minimum flowrate requirements.

For best results, the meter should be installed and purged of air prior to Field Calibration.

Field Calibration Procedures (Dispense/Display Method)

1. To field calibrate, press and hold the CALIBRATE and DISPLAY buttons for about 3 seconds until you see FLdCAL. Release both buttons and you will see dd000.0. You are now in the field calibration mode.
2. Dispense a known amount of fluid at a flowrate representative of the application. Any amount between .1 and 999.9 units can be used. Display will count up while fluid is flowing through the meter.
3. The DISPLAY button can then be pushed to select the digit location and the CALIBRATE button can be pushed to scroll the desired value at the blinking position. Edit the amount shown with the value that was dispensed above. Values from 000.1 to 999.9 can be entered.
4. 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.
5. The meter will now be operating with a custom calibration number unique to the above dispense procedure. No unit of measure (gallon, liter, etc.) icon will be highlighted.

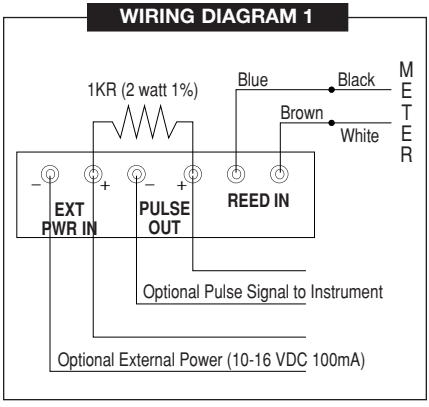
NOTE: To return to factory calibration (FAC), press and hold both CALIBRATE and DISPLAY buttons for about 3 seconds, until FAcCAL is displayed. Then release buttons. Unit should return to normal operation and FAC icon visible.

NOTE: If the field calibration mode is entered and NO fluid is dispensed, then upon leaving, the computer will use data from the last successful field calibration.

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.

WIRING DIAGRAM 1



Connecting an External Power Supply

An external power supply can be used with or without the supplied 9-volt battery. Power supply must be 10-12 VDC; 100 mA if using the 9-volt battery as a backup, or 5-12 VDC; 100 mA 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

Replacing the Battery

Replace the battery when the readout becomes dim, blank or "LobAtt" appears. Replace the battery with a 9-volt lithium battery.

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.

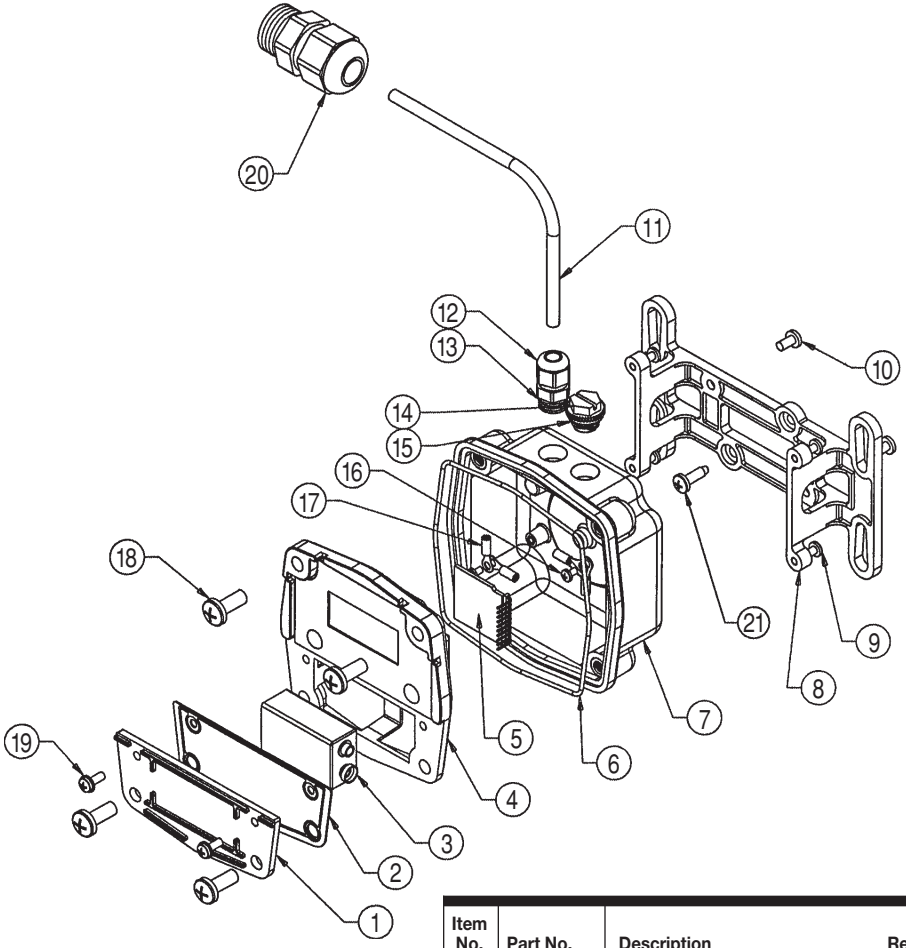
NOTE: Batch and Cumulative Total values as well as the factory calibration is retained in the computer permanently and will display when the battery is replaced.

Store at temperatures between 0° F to +140° F (–18° C to +60° C).

TROUBLESHOOTING

Symptom	Probable Cause	Corrective Action
LCD REGISTER NOT WORKING	1. Battery not connected properly	Check battery connections.
	2. Battery flat	Replace battery.
	3. Faulty wiring connections	Check wiring for loose or faulty connections.
	4. Faulty LCD	Replace computer assembly.
	5. Faulty connection from computer to Pulse PCB	Check wiring connections.

DISPLAY PARTS LISTING



Item No.	Part No.	Description	No. Req'd.
1	120009-2	Battery Cover	1
2	120028-1	Battery Gasket	1
3	FPD-BATT	Battery, 9-volt Lithium	1
4	120569-01	Computer Assembly	1
5	120035-1	PCB Assembly	1
6	901002-82	O-Ring	1
7	120509-01	Adapter Kit	1
8	120058-01	Bracket	1
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
20	902007-07	Strain Relief for FPD1000 Series High Flow (sold separately)	1
21	904006-94	Screw, 10-16 x 5/8 in. (Local Model)	2

LOCAL MODEL SPECIFICATIONS

Materials:
Acetal, Amorphous Nylon, PET Polyester, Polyester (decals), FKM (gasket & seals), Stainless Steel (fasteners)

Power Source:
On-board, field-replaceable, 9-volt Lithium battery

Battery Life:
Approximately 4 years

Configuration:
2-Totals (1 cumulative and 1 batch), Rate, 2 Cals (Factory calibration in gallons or liters; 2 field calibrations), K-factor to match published K-factor for each size meter

Input Signal:
Hall Effect or Reed Switch

Time Base:
Hours for FPD1000 Series Low Flow
Minutes for FPD1000 Series High Flow

Unit of Measure:
U.S. gallons or liters

Accuracy:
No additional error over coupled flow meter's accuracy

Frequency Range:
0 to 1000 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. Grip range: .11 to .26 inches
One threaded port plugged (1/2-20)

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)

REMOTE MODEL SPECIFICATIONS

Materials:
Acetal, Amorphous Nylon, PET Polyester, Polyester (decals), FKM (gasket & seals), Stainless Steel (fasteners), PVC (cable jacket)

Power Source:
On-board, field-replaceable, 9-volt Lithium battery

Battery Life:
Approximately 4 years

Configuration:
2-Totals (1 cumulative and 1 batch), Rate, 2 Cals (Factory calibration in gallons or liters; 2 field calibrations), K-factor must be programmed for each size meter.

Input Signal:
NPN Open-collector, Hall Effect or Reed Switch

Time Base:
Hours for FPD1000 Series Low Flow
Minutes for FPD1000 Series High Flow

Unit of Measure:
U.S. gallons or liters

Accuracy:
No additional error over coupled flow meter's accuracy

Frequency Range:
0 to 750 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:
20 ft., 3-conductor (red, black & white), tinned drain wire, 22 AWG, PVC jacket .212 dia., (Reference Belden 9363 or equivalent cable)

Mechanical Connections:
Wall or pipe mountable with standard U-bolts

Electrical Connections:
One strain relief port: PG7 (1/2-20) thread. Grip range: .11 to .26 inches
One threaded port plugged (1/2-20)
1 additional strain relief required on the flow meter.

Dimensions:
Width: 4.5 in. (11.4 cm)
Height: 6 in. (15.2 cm)
Depth: 2.5 in. (6.4 cm)

Shipping Weight:
1 lb. (.45 kg)

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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