

CPM manual

Vortex Shedding Water Add Flowmeter

PROPRIETARY NOTICE

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QUICK SETUP

PIPING

Install in pipe making sure to orient IN port to flow supply.

10 pipe diameters distance is required upstream and 5 down for best accuracy.

Use proportional spacing if this much space is not available.

50 pipe diameters are required upstream as distance from a valve.

No use of Teflon tape please. (See detailed piping instructions.)

Attach cable assembly using grease (included) for added sealing around pins.

STARTUP FOR UNITS WITHOUT DISPLAY (PART NUMBER 73702)

There are no additional steps beyond piping and wiring.

STARTUP WITH DISPLAY UNITS (PART NUMBER 78223)

Setup

At startup, digital display of 8.8.8 to show that all segments are present	8.8.8.
Display shows that it is a totalizing unit.	Tot
Firmware version displayed.	4.66
Gallons/liters are the engineering units.	G-L
Total is shown at zero (unless the total was saved).	00.0

Resetting total

Push "Set" button to reset the total to zero.	00.0
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Changing from Gallons to Liters

There are two buttons. "Menu" and "Set".	
Menu changes the readings from Gallons to liters and back again.	
If set to liters, there is an added decimal at the end	32.3.
If set for gallons, no added decimal point.	8.53

Retaining the total at power off

Press "Menu" button and the "Set" button simultaneously until the LED blinks and release. Total will be retained.

When power is turned on, the total will display as it was left.

You must press "Set" to re-zero the display.

GENERAL SPECIFICATIONS

Maximum Operating Pressure:	200 PSIG (13.6 Bar)
Minimum Operating Pressure:	10 PSI of back pressure is required for the formation of vortices.
Operating Temperature:	35 °F (2°C) to 210°F (99°C)
Capacities:	1" = 50 GPM (190 LPM)
Turndown Ratio:	10:1 standard
Process Connections:	Female NPT
Wetted Parts:	Polysulfone, PEEK and Viton
Display:	Blind or 3 digits.
Enclosure Rating:	Type 1, 3, 4, 12, 13, IP65
Power:	10 - 30 VDC @ 80 mA



Caution: The unit shall be supplied by a SELV (separated extra-low voltage) source in accordance with CSA Standard C22.2 No.1010.1-92 Annex H.

Environmental conditions: This device has been designed for use in Installation Category I, pollution degree 4, at altitudes up to 2000 meters (6560 ft.), either indoors or outdoors as defined in CSA Standard C22.2 No.1010.1-92.

*Viton® is a registered trademark for DuPont Performance Elastomers.

FCC statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Features

Engineering units LPM or GPM. It retains this setting when powered off.

How to tell the setting? Toggle back and forth using B "Menu" button. Higher value is Liters. Also, liters display has added decimal e.g. "32.3." as opposed to the gallons display which has no added decimal point e.g. "8.53".

Digital display 3 digits with one decimal. When 99.9 is reached, no decimal is used. When 999 is reached, display rolls over to 00.0

Electrical Service:	General Purpose
Electrical Classification:	Non-hazardous Type 1, 2, 3, 4 (equal to IP 65), 12, and 13
Power Requirements:	24 VDC (10-30 VDC) @ 80 mA
Cabling:	Male DC Weather pack Connector.
Accuracy:	1.5% of full-scale
Response Time:	Instantaneous pulse output
Repeatability:	0.25% of actual flow
Pulse Output:	100 pulses per gallon. This is unaffected by units of measure selection. 3 msec minimum pulse width 30 VDC maximum pulse amplitude (based on the relay rating)
Grounding:	Note that DC and Chassis Grounds are internally connected to eliminate electrical noise.

OPERATION

This flowmeter utilizes the vortex shedding principle. The fluid strikes a bluff body, generating vortices (eddies) that move downstream. The vortices form alternately, from one side to the other. A piezoelectric sensor housed in a sensor tube directly downstream of the bluff senses the pressure zones created by the vortices. The sensor generates a frequency directly proportional to the vortices (flow). The pulses are then amplified by the circuit board.

INSTALLATION

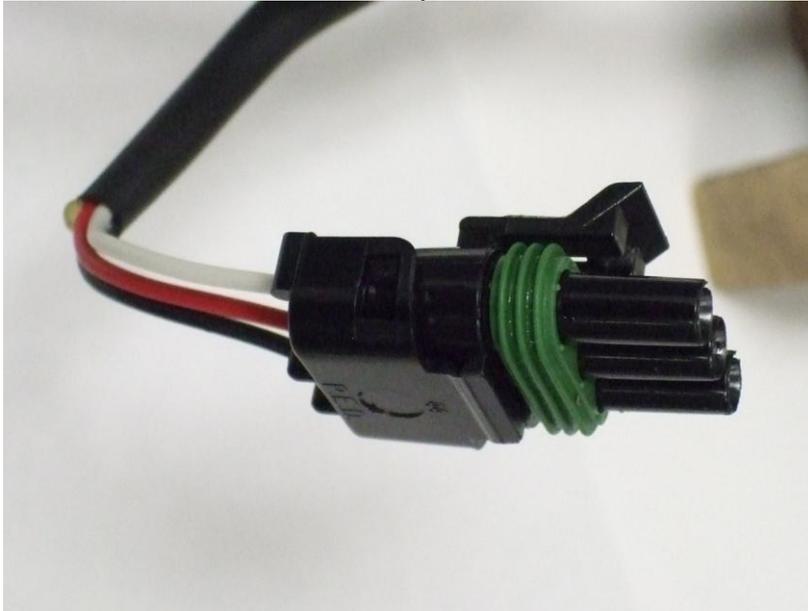
For best results, the meters may be installed in any position as long as proper piping installation requirements are observed. This includes sufficient support of adjacent piping to minimize the system's inherent vibration. Unions of the same pipe size and full port isolation ball valves may be installed for ease of removal and servicing of equipment, if necessary.

If Teflon® tape or pipe sealant is used; the user must ensure that no loose parts become wrapped around the bluff or the flow sensor when flow starts.

The piping system must create some backpressure on the meter to allow vortex formation and to prevent cavitation, especially at full flow. Minimum required backpressure is 10 PSIG at maximum flow and at 70 °F (21 °C). Higher backpressures are required at elevated temperatures and occasional surges to 125% of maximum flow.

The basic installation is mounting the unit with at least 2 bolts and connecting the weather pack connector to the Trimble system. The wiring is as follows:

- Red 12/18/24 Vdc +
- Black DC Ground
- White Pulse output 200 PPG



Weather pack pin connector



Complete unit as shipped including flowmeter and cabling.