



FLO-CORP.com

CALFLO™ CFVF2

VFlo Plus Flow Meter

OPERATING INSTRUCTIONS



Table of Contents

Dimensions.....	1
Safety Precautions.....	1
Specification.....	1
Description.....	1
Installation and Instructions.....	2
Ordering Info and Warranty.....	4

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Dimensions (In) mm

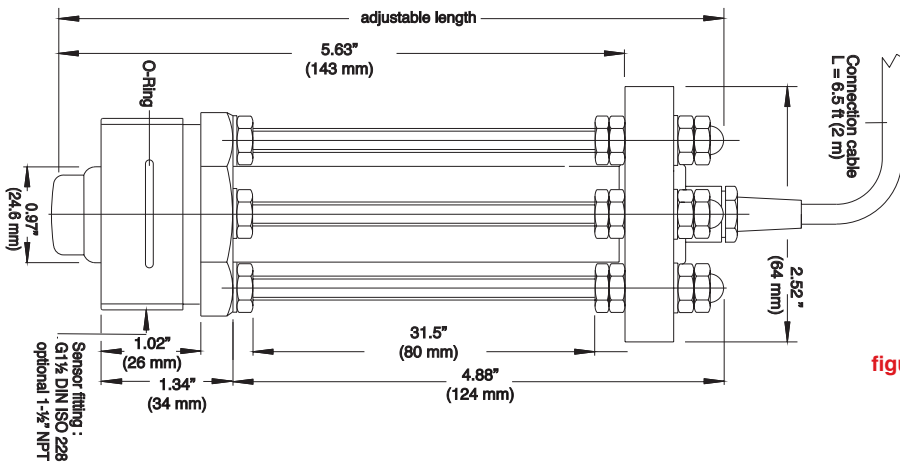


figure 1

Safety Precautions

About This Manual:

PLEASE READ THE ENTIRE MANUAL AND SPECIFICATIONS PRIOR TO INSTALLING OR USING THIS PRODUCT.

This manual includes information on all models of CalFlo VFlo Plus™ Variable Depth Insertion Flow Meter (CFVF2). Please refer to the part number to verify the exact model which you have purchased.

User's Responsibility for Safety:

Flow Line Options provides a wide range of flow and level technologies. While this device is designed to operate in a wide variety of applications, it is the user's responsibility to select a model that is appropriate for the application, install it properly, perform tests of the installed system, and maintain all components. The failure to do so could result in property damage or serious injury.

Wiring and Electrical:

The supply voltage used to power the device should never exceed a maximum of 24 volts DC. Electrical wiring of the device should be performed in accordance with all applicable national, state, and local codes.

Flammable, Explosive and Hazardous Applications:

Flow Meters should not be used with explosive or flammable liquids, which require an intrinsically safe or classified area rating!

Description

VFlo Plus is an industrial purpose flow meter that will monitor a wide range of liquid applications. The VFlo Plus provides high accuracy measurement of flow, including very low flow rates, using a solid state design with NO moving parts. VFlo Plus features an adjustable measuring range, easily adjusts to variable insertion depths, and fit pipes up to 24" in diameter.

Specifications



Service	Compatible Liquids
Measuring Range	CFVF2-02: 0 to 1.5 fps (0.5 mps)
	CFVF2-03: 0 to 3 fps (1 mps)
	CFVF2-04: 0 to 6.5 fps (2 mps)
	CFVF2-05: 0 to 10 fps (3 mps)
Pressure	261 psi (18 bar)
Accuracy	< 3%
Repeatability	< 1% / Response time to flow rate change 10 sec. typ.
Supply Voltage	24 VDC ± 10%
Consumption	Approx. 100-200 mA
Output	4-20 mA
Resistive Load	0-600 Ohm
Process Temperature	F: 32° to 176°
	C: 0 to 80°
Ambient Temperature	F: -4° to 160°
	C: -20° to 70°
Enclosure Rating	NEMA 4X (IP65)
Enclosure Material	Stainless Steel
Sensor Fitting	1½" NPT
Cable	
Cable Jacket Material	Oilflex
Cable Length	6.5' (2m)

Note: Please Consult Factory for Special Requirements

Connection Diagram

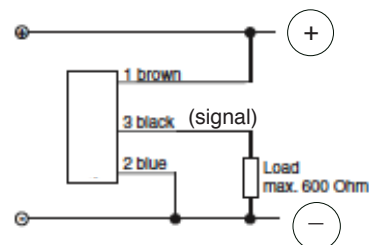


figure 2



Installation and Instructions

Please read carefully! No liability can be accepted for damage caused by improper use of the VFlo Plus Flow Meter.

1.0 Installation Instructions

1.1 Installation depth: 1/7x ID pipe sizes from 1.5" to 24"

1.2 Orientation to flow: See Figure 5

1.3 **Fitting position:** Preferably in ascending pipes or in horizontal pipes with flow meter in horizontal position.
For optimal flow, straight pipe should be min. 0.7cm x ID before, and 0.5cm x ID behind the flow meter.

1.4 **Mounting:** Screw in flow meter into the fitting on the pipe side and fix it at the correct insertion depth of 1/7 x ID (See Figure 6)

1.5 **Initial operation:** Connect flow meter to 24 VDC according to connection diagram and wait approx. 2 min. before starting any measurement. The flow meter has been calibrated to the specified type related flow rate(related to water):

CFVF2-02: 0 to 1.5 fps (0.5 mps)

CFVF2-03: 0 to 3 fps (1.0 mps)

CFVF2-04: 0 to 6.5 fps (2.0 mps)

CFVF2-05: 0 to 10 fps (3.0 mps)

At customers plant signal may vary dependent on individual mounting and medium conditions. If re-adjustment is required, please refer to point 3.

2.0 Adjustment Procedure

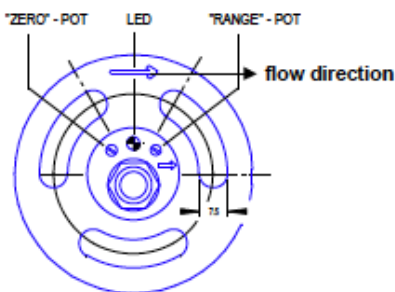
2.1 Zero point adjustment in stationary medium (roughly): Adjust zero point potentiometer after 2 min. so, that $I_a \approx 4 \text{ mA}$, i.e. at $I_a > 4 \text{ mA}$ turn pot. to the left, at $I_a < 4 \text{ mA}$ turn pot. to the right.

2.2 Measuring range adjustment at max. flow: Measuring range adjustable from 0 to 0.65 fps to 0 to 6.5 fps (related to water). Accelerate flow of the medium to a point, where the flow meter should give an output signal of 20 mA and wait min. 2 minutes. Turn range pot. until $I_a = 20 \text{ mA}$ (to the left I_a will be bigger, to the right I_a will be smaller). The color of the LED will change from green ($I_a \leq 20 \text{ mA}$) to red (exceeding measuring range).

2.3 Fine adjustment of zero point: After at least 3 minutes standstill of flow turn zero point slightly so, that I_a is just 4 mA (turning direction as in 2.1) .

2.4 Repeat adjustment according to 2.2 and 2.3 until the zero point (4 mA) and max. range setting (20 mA) remain constant.

Installation

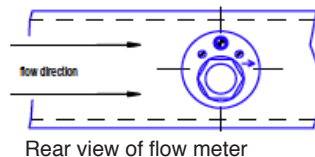


Potentiometer, 18 turn, endless

figure 3

Positioning

figure 4



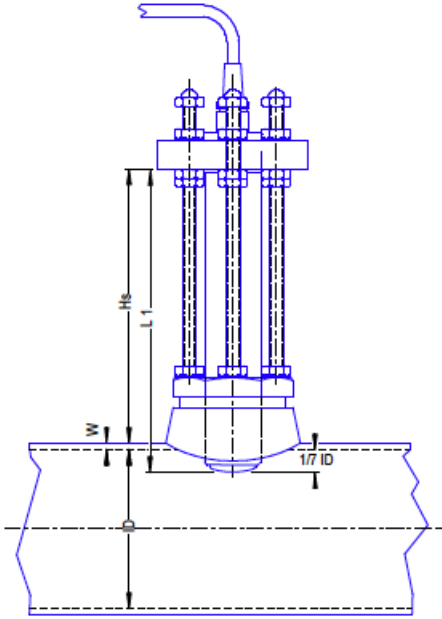
Calculation of the standard height for 1/7 ID (insertion depth)

$$H_s = L_1 - W - (1/7 \times ID)$$

H_s : standard height
 L_1 : unit length (see drawing)
 W : wall thickness of pipe
 ID : inner pipe diameter

For example:

$$\begin{aligned} L_1 &= 143 \text{ mm} \\ W &= 5 \text{ mm} \\ ID &= 50.4 \text{ (2") } \\ H_s &= 143 - 5 - (1/7 \times 50.4) \\ &= 143 - 5 - 7.0 \\ &\approx 131 \text{ mm} \end{aligned}$$



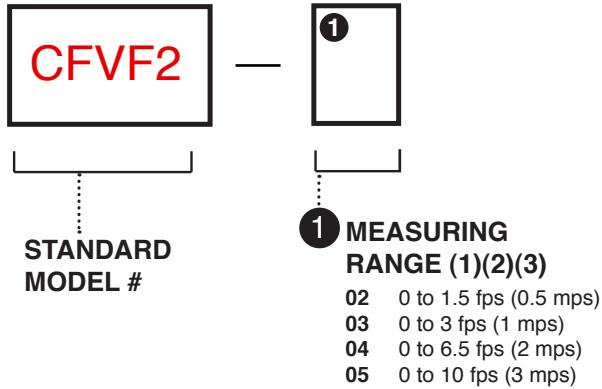
Ordering Information

FLO-CORP MODEL NUMBER BUILDER

For Assistance Call **877-356-5463**

Use the diagram below, working from left to right to construct your Flo-Corp Model Number.
Simply match the category number to the corresponding box number.

Example: CFVF2-02 VFlo Plus™ Variable Depth Liquid Flow Meter, 0 to 1.5 fps Measuring Range



Ordering Notes

- 1) Select the best configuration based on your requirements.
- 2) This unit comes standard with NPT (US) threaded fittings. To special order BSP (Metric) threaded fittings, place BSP at the end of the P/N (ie: CFVF2-02-BSP).
- 3) Comes complete with 6.5' (2 m) pre-wired cable and manual.

Specifications are subject to change without notice.

Warranty

Flow Line Options Corp. warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service for a period which is equal to the shorter of one year from the date of purchase of such products or two years from the date of manufacture of such products.

This warranty covers only those components of the products which are non-moving and not subject to normal wear. Moreover, products which are modified or altered, and electrical cables which are cut to length during installation are not covered by this warranty.

Flow Line Options obligation under this warranty is solely and exclusively limited to the repair or replacement, at Flow Line Options decision, of the products (or components thereof) which Flow Line Options' examination proves to its satisfaction to be defective. FLOW LINE OPTIONS SHALL HAVE NO OBLIGATION FOR CONSEQUENTIAL DAMAGES TO PERSONAL OR REAL PROPERTY, OR FOR INJURY TO ANY PERSON.

This warranty does not apply to products which have been subject to electrical or chemical damage due to improper use, accident, negligence, abuse or misuse. Abuse shall be assumed when indicated by electrical damage to relays, reed switches or other components. The warranty does not apply to products which are damaged during shipment back to Flow Line Options' factory or designated service center or are returned without the original casing on the products. Moreover, this warranty becomes immediately null and void if anyone other than service personnel authorized by Flow Line Options attempts to repair the defective products.

Products which are thought to be defective must be shipped prepaid and insured to Flow Line Options' factory or a designated service center (the identity and address of which will be provided upon request) within 30 days of the discovery of the defect. Such defective products must be accompanied by proof of the date of purchase.

Flow Line Options further reserves the right to unilaterally waive this warranty and to dispose of any product returned to Flow Line Options where: a. There is evidence of a potentially hazardous material present with product. b. The product has remained unclaimed at Flowline for longer than 30 days after dutifully requesting disposition of the product.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. This warranty and the obligations and liabilities of Flow Line Options under it are exclusive and instead of, and the original purchaser hereby waives, all other remedies, warranties, guarantees or liabilities, express or implied. EXCLUDED FROM THIS WARRANTY IS THE IMPLIED WARRANTY OF FITNESS OF THE PRODUCTS FOR A PARTICULAR PURPOSE OR USE AND THE IMPLIED WARRANTY OF MERCHANTABILITY OF THE PRODUCTS.

This warranty may not be extended, altered or varied except by a written instrument signed by a duly-authorized officer of Flow Line Options Corp.

If you have any questions or concerns, please contact Flow Line Options at (877) 356-5463.

