OPERATING INSTRUCTIONS

CALFLO™ CFVF
THERMAL MASS LIQUID FLOW METER

Dimensions (In) mm

CFVF-1

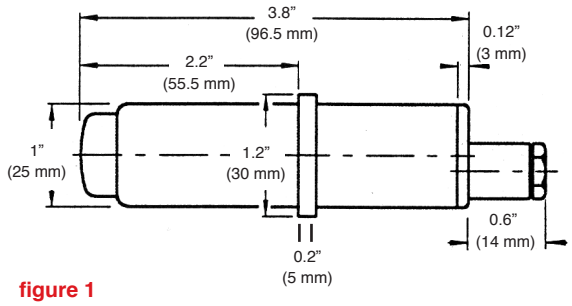


figure 1

Connection Diagram

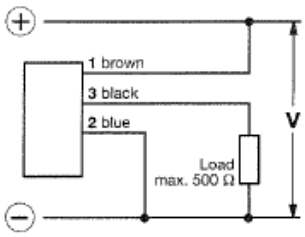


figure 2

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™ CFVF Thermal Mass Liquid Flow Meter (CFVF-1). Please refer to the part number to verify the exact model which you have purchased.

User's Responsibility for Safety:
FLO-CORP 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

The CalFlo™ CFVF Thermal Mass Liquid Flow Meter is an industrial purpose flow meter that is used for a variety of measurement and control applications. Completely encapsulated in epoxy resin, the CFVF features solid-state sensing with proven reliability and long-term stability, even under the harshest environmental conditions. VFlo has an adjustable measuring range, LED indication of flow, and is well-suited for pipes up to 16" in diameter.

Specifications

Service	Compatible Liquids
Measuring Range	Continually adjustable from min. 0.25 to .65 fps to max. 0.25 to 6.5 fps
Pressure	435 psi (30 bar)
Accuracy	< 3%
Repeatability	< 1%
Temperature Drift	< 0.3% / K
Supply Voltage	24 VDC ± 10%
Consumption	Approx. 100-200 mA (max. flow)
Output	4-20 mA
Resistive Load	0-600 Ohm
Measurement Range Adjustment	The two potentiometers at the rear end of housing allow zero balancing and adjustment of the measuring range by means of a small screwdriver. A color changing LED signalizing flow within the adjusted measuring range (green) or above (red).
Process Temperature	F: 14° to 176° C: -10° to 80°
Ambient Temperature	F: 14° to 140° C: -10° to 60°
Enclosure Rating	NEMA 4X (IP65)
Enclosure Material	Stainless Steel
Union Nut	1" NPT
Weight	5.64 oz (160 g)
Cable	
Cable Jacket Material	Oilflex
Cable Length	6.5' (2m)

Note: Please Consult Factory for Special Requirements

Installation and Instructions

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

1.0 Installation

1.1 Installation depth: 1/7 x ID, min. 0.5 cm

1.2 Orientation to flow: See Figure 4

1.3 Fitting position: Preferably in vertical pipes with ascending flow or in horizontal pipes with the unit in horizontal position. For optimal flow, pipe should be 0.5 - 0.7cm x ID before, and 0.3 - 0.5cm x ID behind the unit.

1.4 **Mounting**: Push O-ring over the sensing surface and housing to the flange. Insert the flow meter into the fitting which is welded onto the pipe and hold in place with the union nut. Ideal sealing is achieved by a fitting of a 0.4 - 0.5 cm wall (fittings available).

1.5 **Initial operation**: Connect the flow meter to 24 VDC according to connection diagram and wait approx. 2 minutes before starting adjustment. The flow meter has been preset under test pipe conditions to a flow range of 0-200 cm/s (related to water). At customer's plant signal may vary dependant on individual mounting and medium conditions. Output current is 4-20 mA. If re-adjustment is required, please refer to point 3.

2.0 **Adjustment Procedure**

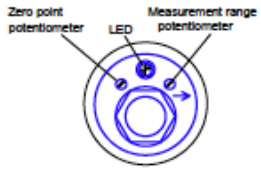
2.1 Zero point adjustment in stationary medium (roughly):
Adjust zero point potentiometer after 2 min. so, that
Ia ≈ 4 mA, i.e. at Ia > 4 mA turn pot. to the left,
at Ia < 4 mA turn pot. to the right.

2.2 Measuring range adjustment at max. flow: Measuring range adjustable from 0.25 to 0.65 fps to 0.25 to 6.5 fps (medium 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 Ia = 20 mA (to the left Ia will be greater, to the right Ia will be smaller). The color of the LED will change from green (Ia ≤ 20 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 Ia is just 4 mA (Turning direction as in 2.1).

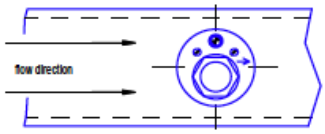
2.4 Repeat adjustment according to 2.2 and 2.3 until the zero point (4 mA) or max. range setting (20 mA) remains constant.

Installation
Union Nut/O-ring: 1" NPT (Std.)/1" BSP
Spanner Gauge: 3.7 cm (37 mm)



Potentiometer, 18 turn, endless
figure 3

Positioning
figure 4



Rear view of flow meter

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: CFVF-1-W *CalFlo™ CFVF Thermal Mass Liquid Flow Meter, 1" Sensor Diameter with Weldolet Fitting*

CFVF1 – ☐

CFVF1

Mounting Type (1)(2)
N) None
W) Weldolet Fitting

CFVF shown with insertion mount welded on fitting.
(Accessory p/n: CFVF-1-W)

Ordering Notes
1) This unit comes standard with a NPT (US) threaded union nut for installation. To special order a BSP (Metric) threaded union nut, place BSP at the end of the P/N (ie: CFVF-1-BSP)
2) Comes complete with 6.5' (2 m) pre-wired cable and manual

Specifications are subject to change without notice.