



All Plastic Variable Area Flowmeter DFM

INSTALLATION AND OPERATION

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INSTALLATION

1. Flowmeters are shipped assembled and ready for use, but loose packing may be contained within the tube to prevent transit damage through heavyweight floats hammering within the tube. Carefully inspect and remove the internal packing.
2. Install as near to vertical as possible. For best accuracy operation within 2 ½% of vertical is desirable.
3. The units have positive 'O' ring sealing, requiring only hand tightening to withstand normal low pressure operation. For higher pressures, careful use of pipe grips will prevent leakage. Maximum torque 0.25 kg-metres should suffice.
4. If possible pipe bends should be avoided immediately before of after meter inlet. Whilst accuracy is not directly affected, asymmetrical flow profiles generated by bends can affect the stability of the float causing difficulty in reading a horizontal metering edge. These same comments also apply to partially open gate valves.
5. On liquid applications, valves may be installed either upstream or downstream but on gas application valves must be sited downstream of the meter.
6. End fittings are normally supplied to imperial (inch) systems. Both BSP and Adhesive Socket fittings are intended for the UK market. Metric couplings are available on request. For PVC BSP couplings use PTFE sealing tape for best results.

OPERATION

1. Float top is used for reading Flowrate. Where larger float have a collar, the top edge of the collar is the correct metering edge.
 2. After lengthy periods of use, float and tube may be coated with algae or lime deposits. Dismantling and cleaning in warm water with a little detergent will usually remove deposits, restoring maximum clarity. Soft nylon brush may be used, but on no account use wire brushes or any abrasives which may damage the critical metering edge.
 3. When used to measure liquids other than water, the change in density and viscosity will cause an error in calibration of the scale. Special scales can be produced to restore accuracy.
 4. When used to measure gases other than air, or air at higher pressures than 1 Bar A, the change in density and viscosity will cause an error in calibration of the scale. Special scales can be produced to restore accuracy.
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Dimensions and parts list

Series DFM 335-350

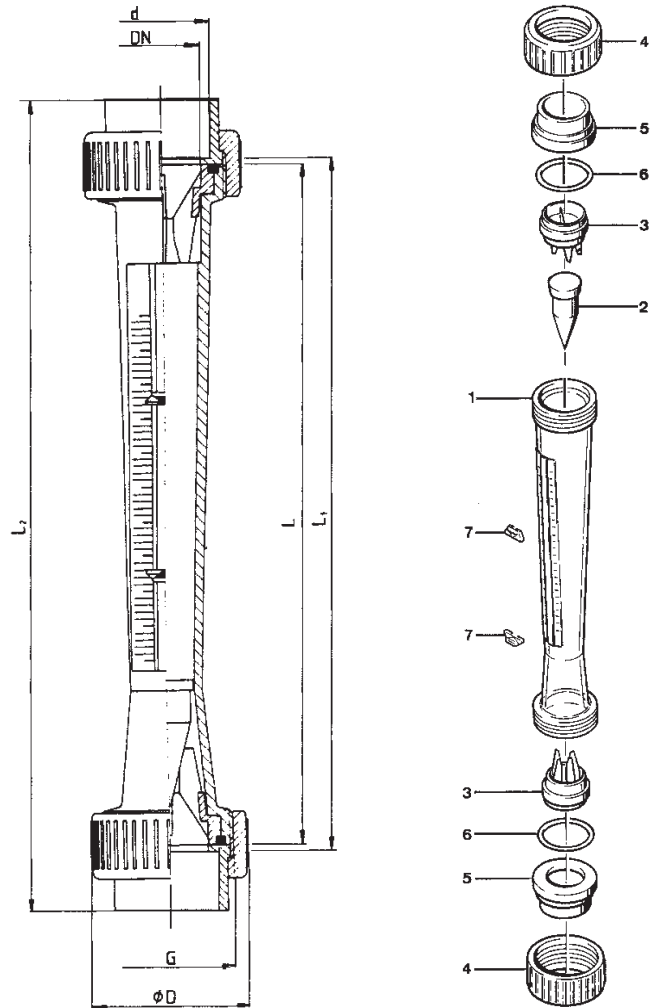
Part	No.	Description
1	1	Measuring tube
2	1	Float
3	2	Float trap
4	2	Union nut
5	2	Insert
6	2	O-rings
7	2	Set-point indicator

Series DFM 165-170-185-200

Part	No.	Description
1	1	Measuring tube
2	1	Float
3	1	Float trap
4	2	Union nut
5	2	Insert
6	2	O-rings
7	2	Set-point indicator

Materials of Construction

	Standard	Options
Tube	PVC	Polyamide, Polysulphon
Float	PVDF	
Float trap	PVDF	
Union nut	PVC	Cast Iron, St/steel
Insert	PVC	St/steel
O-Rings	EPDM	Viton Teflon



Series	Dimensional mm		BSPF					p(1)	Weight	
DFM	DN	d	DN inches	G	D	L	L1	L2	m bar	in grams (2)
165	10	16	3/8"	3/4"	35	165	171	199	4.6	78
170	15	20	1/2"	1"	43	170	176	208	4.5	96
185	20	25	3/4"	1 1/4"	53	185	191	229	6.1	125
200	25	32	1"	1 1/2"	60	200	206	250	8.3	250
335	25	32	1"	1 1/2"	60	335	341	385	16.2	435
335	40	50	1 1/2"	2 1/4"	83	335	341	403	16.2	1.005
335	50	63	2"	2 3/4"	103	335	341	417	27.6	1.470
335	65	75	2 1/2"	3 1/2"	122	335	341	329	40.7	1.900
350	25	32	1"	1 1/2"	60	350	356	400	16.2	475
350	32	40	1 1/4"	2"	72	350	356	408	16.2	710
350	40	50	1 1/2"	2 1/4"	83	350	356	418	16.2	1.050
350	50	63	2"	2 3/4"	103	350	356	432	27.6	1.530
350	65	75	2 1/2"	3 1/2"	122	350	356	444	40.7	2.100

(1) Pressure loss with water at 20°C

(2) PVDF version approx. +40%

OPTIONAL EXTRAS

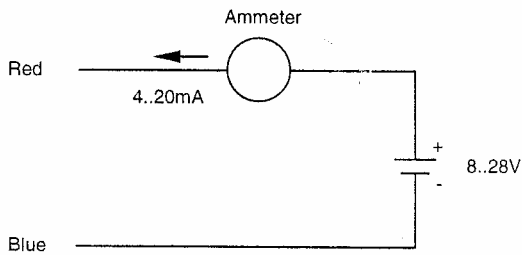
4-20 MA LOOP POWERED TRANSMITTER

The unit senses the position of the magnet inside the float and computes the appropriate output. The units are individually calibrated when fitted to the instrument via the dovetail fitting on the rear of the flowmeter tube. Care must be taken to install the meters at least 30 cm away from any ferretic items that could influence the operation of the transmitter.

ELECTRICAL INSTALLATION

The unit is powered by a 2 wire 4-20 mA loop wire requiring the connections shown below

Red Wire: Positive power supply voltage
Blue wire: Negative power supply voltage
Green wire: Used for communication, factory calibration and retro fitting



The maximum allowable loop resistance is a function of the supply voltage. Use the equation below to determine the maximum resistance for your application.

$$R_{\max} = \frac{\text{Supply Voltage} - 8V}{0.02A}$$

ADJUSTMENT

The transmitter can be adjusted / calibrated with the help of a PC program and a small interface plugged in any RS232 serial PC port. The calibration data is stored into non volatile memory in the transmitter. After calibration the unit is a standalone functioning device.

OPTIONAL EXTRAS

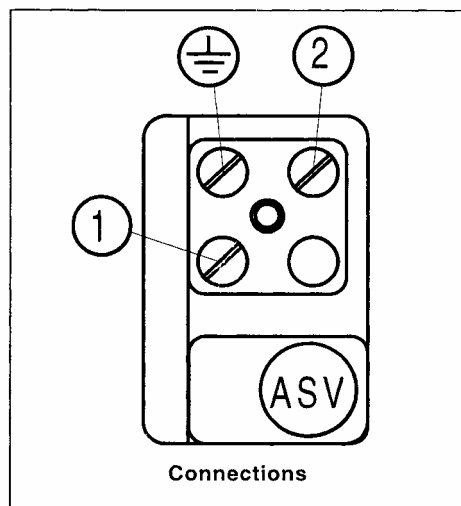
HIGH/LOW FLOW ALARM

High and low alarms where fitted may be moved up or down the dovetail fitting on the back of the flowmeter tube. The switches sense the position of a magnet in the float. The units are available in three different types-

BISTABLE Normally open, close on rising flow

BISTABLE Normally closed, open on rising flow

MONOSTABLE Normally open, closed only when in close proximity of Float.



Operating voltage max:	470V AC
Operating current max:	0.5 A
Constant current when switched	1A max.
Rupturing capacity	10W/ 10VA max.

Do not exceed the current data or the rupturing capacity. For this reason always fit a limit value switch or a contact protection relay if a power circuit is required.