VORTEX SHEDDING FLOWMETER AND TEMPERATURE TRANSMITTER
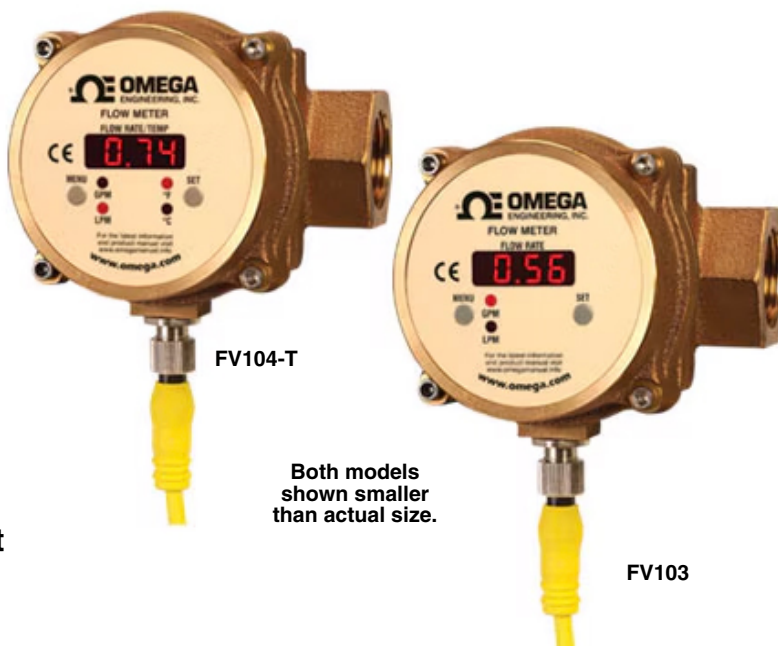## For Water and Coolant

FV101 Series

1 YEAR WARRANTY **CE** **RoHS**

- ✔ **No Moving Parts to Jam**
- ✔ **¼ FNPT to 4" Line Sizes**
- ✔ **LED Display**
- ✔ **4 to 20 mA Output**
- ✔ **SSR Alarm**
- ✔ **Temperature Measurement Units Feature Separate 4 to 20 mA Output and SSR Alarm**

FV104-T

Both models shown smaller than actual size.

FV103

The FV101 Series comprises in-line flowmeters that use the vortex shedding measuring principle. The fluid strikes a bluff body, imparting alternating vortices downstream of the bluff. This creates a pressure on a sensor body containing a piezoelectric crystal. The frequency of the sensor is proportional to the velocity of the fluid and is amplified and converted to a 4 to 20 mA output signal. Vortex technology yields a meter with no moving parts to hang up or wear. The meter has a bright 7.62 mm (0.3") high LED display of flow in either liters or gallons. It can measure flow in any direction, and the display can be rotated 180° for viewing convenience. The FV101 Series can be used with non-viscous, clean, or dirty waterlike liquids that are compatible with brass, PVDF, and FKM. Measured fluids should not contain long fibers or a high level of abrasive solids. These meters are ideal for cooling loops using water or 50% glycols, and for water-soluble machine coolant (up to 10%). These applications are found in most process industries, including rubber, steel, fabrication, manufacturing, refining, paper, chemical, food, petrochemical, and power. Do not use on flammable liquids or on gases such as air.

SPECIFICATIONS

Flow
 Accuracy: ±2% FS
 Repeatability: ±0.25% FS
 Alarm Deadband: 5% FS
 Response Time: User selectable from 0.9 to 7.5 seconds
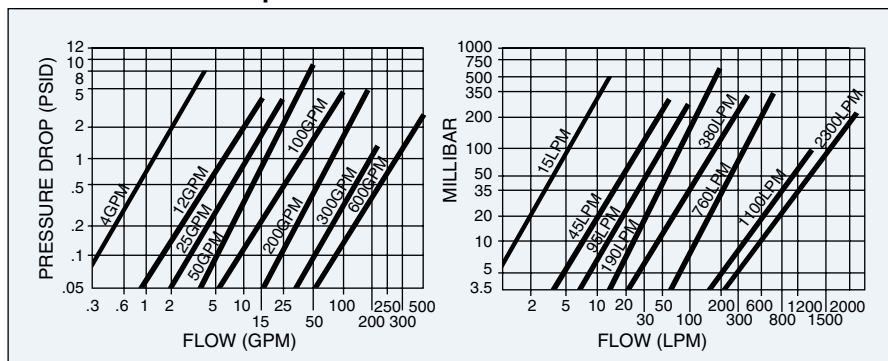 **Max Flow:** Over range occasionally up to 125% of capacity

Temperature
 Accuracy: ±1% FS
 Response Time: 1.8 s to 63% of flow
 Alarm Deadband: 2%
Display: 3-digit, 7.62 mm (0.3") high numeric LED that flashes below setpoint
Maximum Operating Pressure:
 2" and Smaller: 20 bar (300 psig)
 3 and 4": 13 bar (200 psig)
Operating Temperature:
2 to 99°C (35 to 210°F)
Enclosure Rating:
 IP65: Type 1, 3, 4, 12, and 13
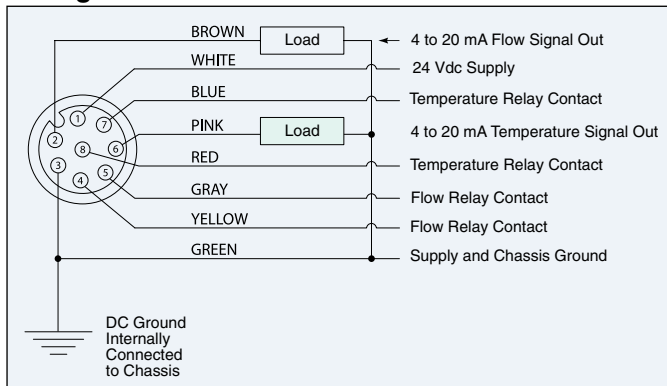**Analog Output:** 4 to 20 mA
(600 Ω @ 24 Vdc)

Electrical Connection:
 FV100 Units (Flow Only): 5-pin micro male connector,
 FV100-T Units (Flow/Temperature): 8-pin male micro connector
Alarm Output: SPST SSR, NO or NC operation, selectable; dual alarms for flow/temperature units
 FV101 and 102: 250 mA @ 30 Vdc up to 85°C (185°F)
 FV103 thru 108: 125 mA @ 30 Vdc up to 85°C (185°F) reduced current rating at higher temperatures
Power: 10 to 30 Vdc @ 80 mA
Wetted Parts: Brass, PVDF and FKM seals; 316 SS bodies available for special order on ¼ and ½" sizes, contact Flow Engineering for details.
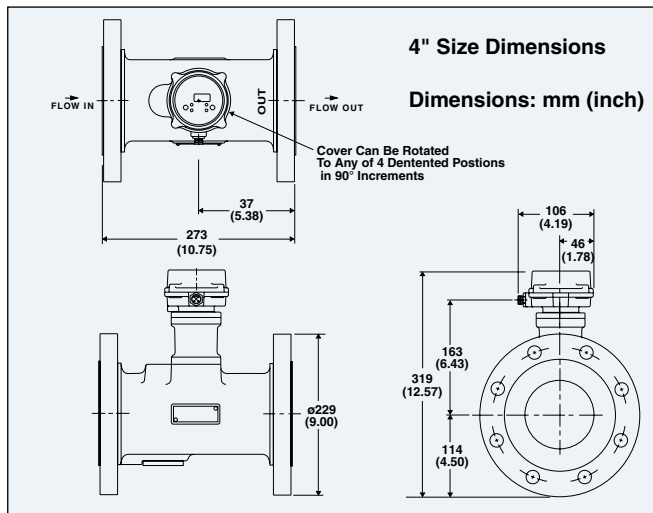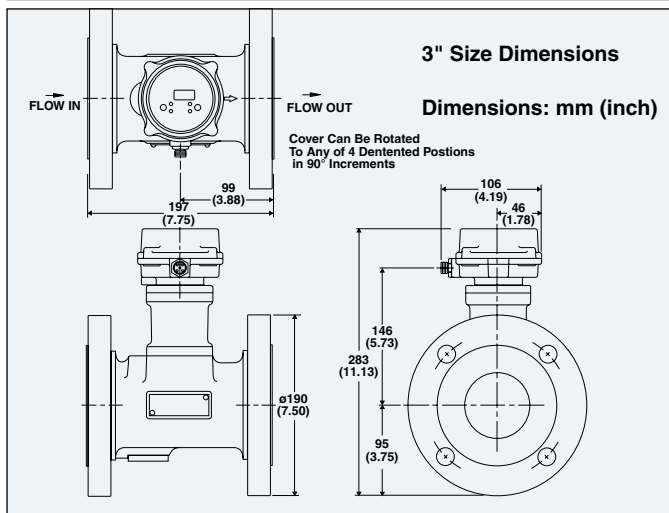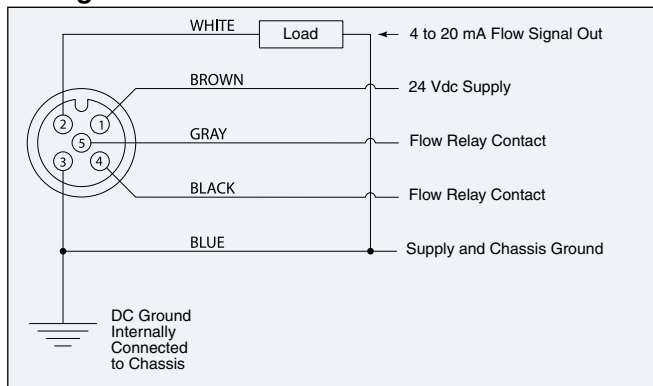**Installation:** 10 pipe diameters upstream and 5 downstream recommended

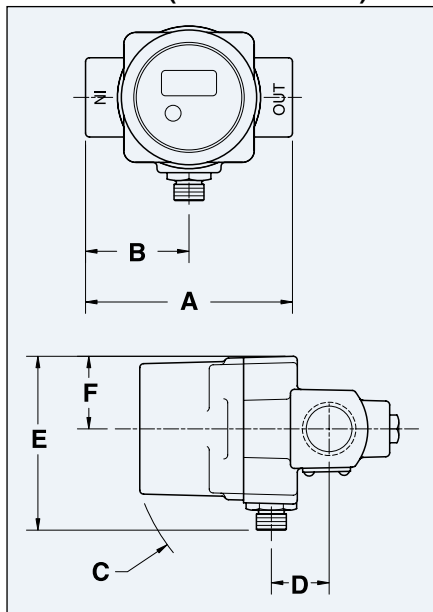### FV100 Pressure Drop Chart

Wiring for FV100-T Series

BROWN — Load — 4 to 20 mA Flow Signal Out
WHITE — 24 Vdc Supply
BLUE — Temperature Relay Contact
PINK — Load — 4 to 20 mA Temperature Signal Out
RED — Temperature Relay Contact
GRAY — Flow Relay Contact
YELLOW — Flow Relay Contact
GREEN — Supply and Chassis Ground

DC Ground Internally Connected to Chassis

Wiring for FV100 Series

WHITE — Load — 4 to 20 mA Flow Signal Out
BROWN — 24 Vdc Supply
GRAY — Flow Relay Contact
BLACK — Flow Relay Contact
BLUE — Supply and Chassis Ground

DC Ground Internally Connected to Chassis

3" Size Dimensions
Dimensions: mm (inch)

Cover Can Be Rotated To Any of 4 Dentented Postions in 90° Increments

FLOW IN — FLOW OUT

99 (3.88)
197 (7.75)
106 (4.19)
46 (1.78)
146 (5.73)
283 (11.13)
95 (3.75)
ø190 (7.50)

4" Size Dimensions
Dimensions: mm (inch)

Cover Can Be Rotated To Any of 4 Dentented Postions in 90° Increments

FLOW IN — OUT — FLOW OUT

37 (5.38)
273 (10.75)
106 (4.19)
46 (1.78)
163 (6.43)
319 (12.57)
114 (4.50)
ø229 (9.00)

Ø = diameter

Dimensions (¼ thru 2" sizes)

IN — OUT
B
A
F
E
C
D

Size (inch)	mm (inch)					
	A	B	C	D	E	F
¼, ½	82 (3.25)	41 (1.62)	80 (3.13)	23 (0.91)	69 (2.74)	29 (1.15)
¾, 1	115 (4.54)	58 (2.27)	103 (4.04)	53 (2.08)	106 (4.19)	45 (1.78)
1½, 2	173 (6.82)	87 (3.41)	120 (4.71)	71 (2.80)	106 (4.19)	45 (1.78)

To Order

Flowmeter Model No.	Flowmeter/ Temperature Transmitter Model No.	Connection	Flow Range (GPM)		Pressure Drop psid Max	Weight kg (lb)
			Min	Max		
FV101	—	¼ FNPT	0.4	4	9.2	1.3 (2.8)
FV102	—	½ FNPT	1.2	12	3.6	1.2 (2.6)
FV103	FV103-T	¾ FNPT	2.5	25	3.6	2.9 (6.3)
FV104	FV104-T	1 FNPT	5	50	9.5	2.7 (5.9)
FV105	FV105-T	1½ FNPT	10	100	4.8	5.9 (13)
FV106	FV106-T	2 FNPT	20	200	4.9	4.8 (10.5)
FV107	FV107-T	3" ANSI RF	30	300	1.3	19 (42)
FV108	FV108-T	4" ANSI RF	60	600	1.3	25 (55)

Accessories

Model No.	Description
FV100-C1	Replacement 1 m (3') cable for FV100 Series
FV100-C3	3 m (9.8') cable for FV100 Series
FV100-C10	10 m (32.8') cable for FV100 Series
FV100-CT2	Replacement 2 m (6.5') cable FV100-T Series
FV100-CT5	5 m (16.4') cable for FV100-T Series
FV100-CT10	10 m (32.8') cable for FV100-T Series
PSR-24L	24 Vdc regulated power supply

Comes complete with operator's manual and 1 m (3') cable.
***Ordering Examples: FV101,** ¼ FNPT vortex meter, 0.4 to 4 GPM.*
***FV104,** 1 FNPT 5 to 50 GPM meter.*

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