

# INSERTION ELECTROMAGNETIC FLOWMETER

## FMG980 Series



- ✓ No Moving Parts
- ✓ Durable
- ✓ Easy to Install
- ✓ Easy to Maintain

FMG980 Series insertion electromagnetic flowmeters are designed for use with conductive liquids in 25 to 305 mm (1 to 12") pipe. A choice of materials (stainless steel, brass, and PVC) allows the meter to adapt to a range of temperature, pressure, and corrosive environments.

The FMG980 is highly suitable for difficult applications with changing viscosities and pulsating flows, such as air-driven diaphragm pumps. With no moving parts, these meters can be used in "dirty" applications where debris would foul a mechanical meter. Like all magmeters, when used in chemical injection applications, these meters should be installed upstream of the chemical line (or far enough downstream to allow complete mixing of fluids before the meter).

Designed for modularity and versatility, the FMG980 Series has a current-sinking pulse output that can be combined with a transmitter or indicator. For analog output and display of rate and total, an FMG980 display can be used. Blind analog output is provided by the FMG-1000-MAW.

FMG980 Series fixed depth insertion meters require special fittings for installation.



FMG981-B



FMG981-P



FMG981-S

All models shown smaller than actual size.

## SPECIFICATIONS

**Pipe Sizes:** 25 to 305 mm (1 to 12")

**Materials Mechanical:** 316 SS/ Brass/PVC

**Electrodes:** Hastelloy®

**Housing:** Cast powder-coated aluminum

**Electrode Cap:** PVDF

**O-Ring:** EPDM (FKM optional)

**Power Full Power:** 12 to 25 Vdc, 250 mA

**Low Power:** 12 to 25 Vdc, 40 mA average with 250 mA peaks

**Flow Rate:** 0.28 to 20 ft/sec (0.08 to 6.09 m/sec)

**Temperature Ambient:** -17 to 72°C (0 to 160°F)

### Fluid Temperature:

**Brass/SS:** 0 to 93°C (32 to 200°F)

**PVC:** 0 to 55°C (32 to 130°F) @ 0 psi

### Pressure:

**Brass/SS:** 13.8 bar (200 psi)

**PVC:** 10 bar (150 psi) @ 75°F

### Minimum Conductivity:

20 microSiemens/cm

**Calibration Accuracy:** ±1% of full scale

**Output:** Square wave pulse, opto isolated, 550 Hz @ 20 ft/sec

**Empty Pipe Detection:** Defaults to zero flow

**Regulatory:** CE mark (stainless steel, brass and standard power only)

# RATE AND TOTAL DISPLAY FOR THE FMG980 SERIES

## FMG980 Display

- ✓ Simple Setup
- ✓ Loop Powered
- ✓ Remote or Flow Sensor Mounted Indicator
- ✓ Rugged Metallic Housing
- ✓ Non-Volatile Memory

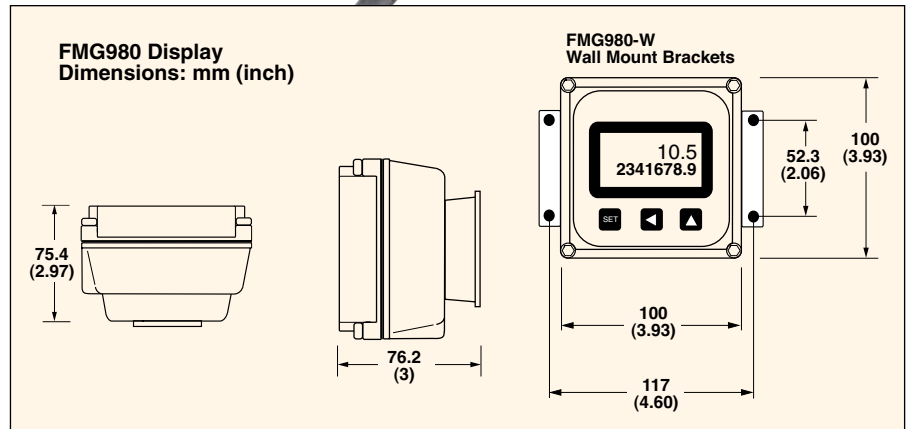


FMG980 with FMG980-W display. To order see accessory chart on last page, shown smaller than actual size.

The FMG980 Series flow displays are microcontroller-based indicator/transmitters that display flow rate and total and provide output signals. The FMG980 is powered by external DC voltage and has both pulse and 4 to 20 mA analog outputs. When the FMG980 is being used in the 4 to 20 mA mode, it is a "two-wire" or "loop-powered" device, meaning that the 4 to 20 mA output signal doubles as its power supply.

The addition of a dual-relay output board (-R2) allows for certain applications requiring contact output isolation (e.g., certain metering pumps and water treatment controls). Dual solid state relays provide exactly the same pulse output as the standard unit, and each can signal one external device.

The FMG980 can be mounted on the meter (-M) or remotely wall mounted with the brackets provided (FMG980-W). Housings for the "-W" and "-M" models are rugged cast aluminum, potted and gasketed for maximum environmental protection. A membrane keypad allows settings to be changed without removing the cover. (Password protection, a standard feature, can be used to prevent settings from being changed).



## SPECIFICATIONS

**Power:** 12 to 30 Vdc (4 to 20 mA)

**Display Rate:** 6-digit autorange, 1/2" character height

**Total:** 8-digit, 5/16" character height

**Outputs Current Sinking Pulse:** Scaled pulse output (0.1 second duration 6.1 Hz maximum) (or high alarm output or low alarm output). Sensor pass-through pulse output (unscaled)

**Analog:** 4 to 20 mA

**Pulse Output Range:**

0.1 to 9999999.9 units/pulse

**Input:** 5V pulse or contact closure  
**Input Range:** 1.0 to 1500 pulses/second

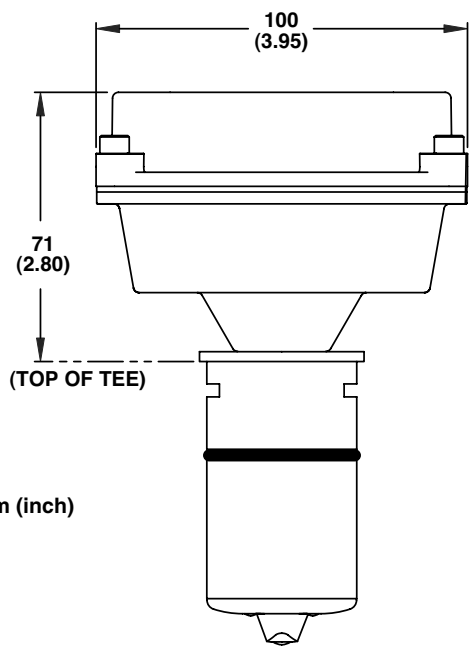
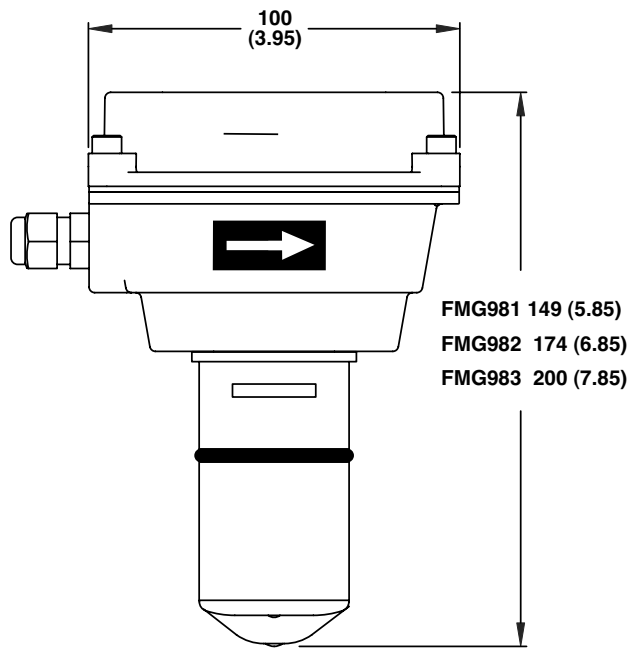
**K-Factor Range:** 0.001 to 99999.999

**Flow Alarm Output Range:** 0.01 to 999999.99

**Operating Temperature:** -30 to 65°C (-22 to 148°F)

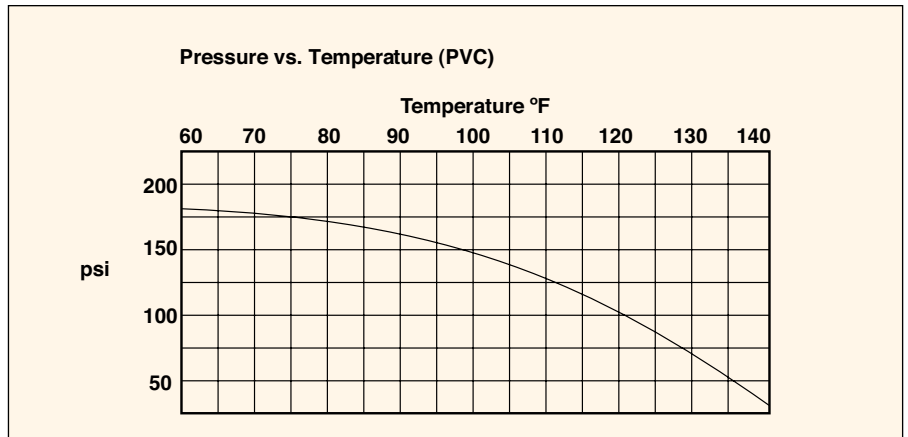
**Environmental:** NEMA 4X (IP66)

**Regulatory:** CE

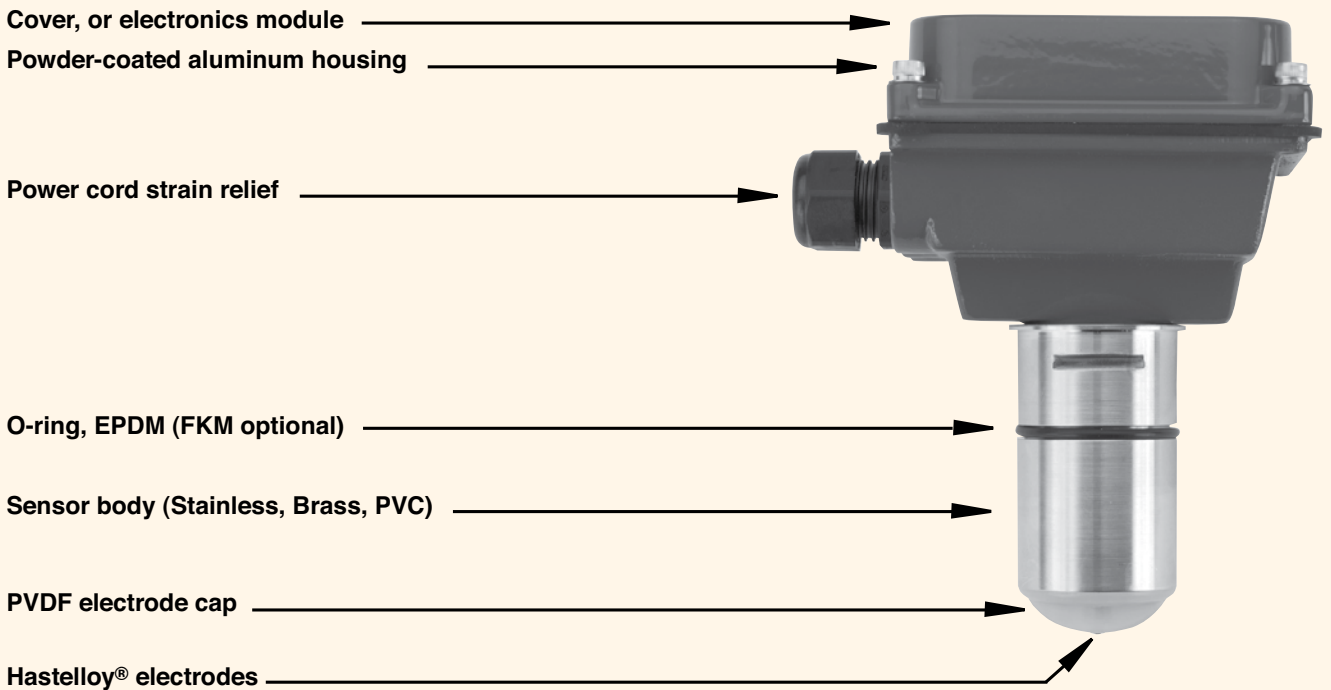


Dimensions: mm (inch)

Flow Range LPM (GPM)		
Pipe Size	Minimum Flow	Maximum Flow
1	2.6 (0.69)	185 (49)
1.5	5.7 (1.5)	416 (110)
2	10 (2.7)	742 (196)
3	23 (6.2)	1666 (440)
4	42 (11)	2964 (783)
6	95 (25)	6662 (1760)
8	163 (43)	11,848 (3130)
10	251 (68)	18,549 (4900)
12	375 (99)	26,687 (7050)



### FMG980 Features



## Installation Fittings (Required)

Size inch	Bronze Sweat	Bronze NPT	Bronze Saddle	Bronze Weld/ Braze	PVC Tee	PVC Saddle
1	FP981-1BRS	FP981-1BRT	N/A	N/A	FP981-1PVC	N/A
1.5	FP981-15BRS	FP981-15BRT	N/A	N/A	FP981-15PVC	N/A
2	FP981-2BRS	FP981-2BRT	N/A	N/A	FP981-2PVC	N/A
3	FP981-3BRS	FP981-3BRT	FP981-3BRSF	FP981-3BRW	N/A	FP981-3PVCS
4	FP981-4BRS	FP981-4BRT	N/A	N/A	N/A	N/A
4	FP982-4BRS	FP982-4BRT	FP982-4BRSF	FP982-4BRW	N/A	FP982-4PVCS
6	N/A	N/A	N/A	FP982-6BRW	N/A	FP982-6PVCS
8	N/A	N/A	N/A	FP982-8BRW	N/A	FP982-8PVCS
10	N/A	N/A	N/A	FP982-10BRW	N/A	N/A
12	N/A	N/A	N/A	FP983-12BRW	N/A	N/A

Size inch	Stainless Tee	Stainless Weld	Carbon Steel Tee	Carbon Steel Weld	Ductile Iron Saddle
1	FP981-1S	N/A	FP981-1C	N/A	N/A
1.5	FP981-15S	N/A	FP981-15C	N/A	N/A
2	FP981-2S	N/A	FP981-2C	N/A	N/A
3	N/A	FP981-3SW	N/A	FP981-3CW	FP981-3DS
4	N/A	FP982-4SW	N/A	FP982-4CW	FP982-4DS
6	N/A	FP982-6SW	N/A	FP982-6CW	FP982-6DS
8	N/A	FP982-8SW	N/A	FP982-8CW	FP982-8DS
10	N/A	FP982-10SW	N/A	FP982-10CW	FP982-10DS
12	N/A	FP983-12SW	N/A	FP983-12CW	FP983-12DS

## To Order Installation fittings sold separately

Model No.	Description
FMG981-B	Brass electromagnetic insertion sensor, for 1 to 3" fittings
FMG981-P	PVC electromagnetic insertion sensor, for 1 to 3" fittings
FMG981-S	316 SS electromagnetic insertion sensor, for 1 to 3" fittings
FMG982-B	Brass electromagnetic insertion sensor, for 4 to 10" fittings
FMG982-P	PVC electromagnetic insertion sensor, for 4 to 10" fittings
FMG982-S	316 SS electromagnetic insertion sensor, for 4 to 10" fittings
FMG983-B	Brass electromagnetic insertion sensor, for 12" fittings
FMG983-P	PVC electromagnetic insertion sensor, for 12" fittings
FMG983-S	316 SS electromagnetic insertion sensor, for 12" fittings
FMG980-M	Rate and total indicator for meter mounting
FMG980-W	Rate and total indicator for wall mounting

## Accessories

Model No.	Description
FTB700D-WMB	Wall mounting bracket for the FMG980-M display
FMG980-BCAP	Brass fitting cap
FMG980-PCAP	PVC fitting cap
FMG980-SCAP	316 SS fitting cap

Comes complete with operator's manual.

Ordering Examples: **FMG981-P**, PVC magmeter for 1 to 3" pipe.

**FP981-2PVC**, 2" PVC fitting and **FMG980-M**, rate and total display for meter mounting.