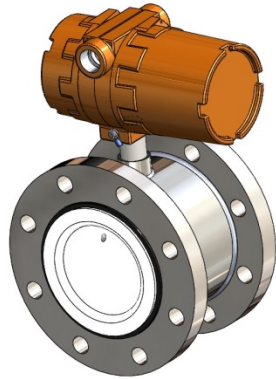


# Technical Specifications

## FM658 Electromagnetic Flowmeter



### DESCRIPTION

The Model FM658 is a low-cost electromagnetic flowmeter designed to provide high order of performance, accuracy and reliability for most of the liquid flow applications in a wide variety of industries including water, wastewater, chemical and energy. It is available in diameters of 1/2" to 4".

The FM658 now has the same robust electronics package and sensor as the TigermagEP, but comes with a blind transmitter, that provides an isolated 4-20 mA output proportional to flow.

The economical price and the lack of moving parts and lower pressure loss makes this meter an ideal alternative to mechanical turbine and paddle wheel flowmeters.

The flow sensor, constructed of stainless steel tube with FEP or polyurethane liner provides excellent chemical resistance and temperature rating for tough applications. 316SST electrodes are standard.

### PRINCIPLE OF OPERATION

The Model FM658 operates in accordance with Faraday's law where a small voltage is created as a conductive liquid flows through the sensor's magnetic field. This voltage is proportional to the flow and is detected by electrodes mounted on either side of the sensor body.

Accuracy is minimally affected by changes in temperature, pressure, viscosity or conductivity.

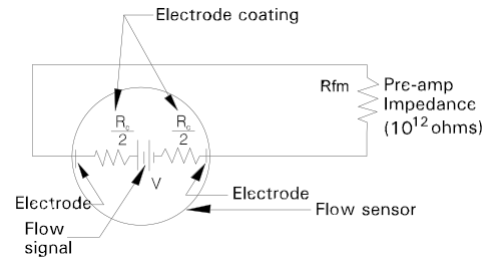
### APPLICATIONS

Water, wastewater, process water, potable water and additive chemicals.

### STANDARD FEATURES

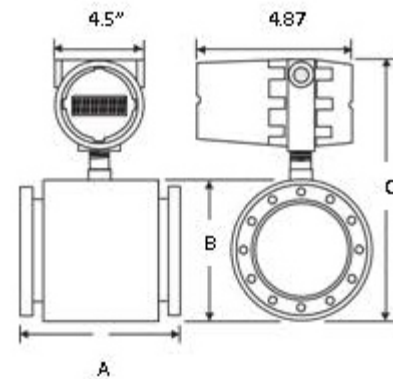
- FEP or Polyurethane lined
- Stainless Steel Electrodes
- NEMA-4X transmitter with 4-20mA output
- ±.75% Accuracy
- Low Flow Cutoff
- Positive Zero Return
- Adjustable Damping
- No moving parts
- Two Year Warranty

### HI-Z CIRCUITRY ELIMINATES ELECTRODE CLEANING



The Sparling Model FM658 provides superior performance in liquids such as wellwater, wastewater, and cooling water which tend to deposit nonconductive scales and coatings. The meter utilizes Hi-Z circuitry which produces a high input impedance to the transmitter's preamplifier (10<sup>12</sup> ohms). This design makes the meter resistant to the effects of nearly all nonconductive coatings.

### FLOW RATES & DIMENSIONS

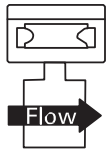


Meter Size		Dimensions			Flow Rates		
Inches	mm	A*	B	C	GPM – Full Scale		
					1 fps	3 fps	33 fps
0.5"	15	4.00	3.50	9.50	0.6	1.7	18
1"	25	4.00	4.25	10.2	2	6	66
1.5"	40	4.00	5.00	10.9	5	15	174
2"	50	4.00	6.00	11.7	9	27	303
2.5" **	65	6.00	7.00	11.7	14	41	456
3"	80	6.00	7.50	13.0	20	60	664
4"	100	6.00	9.00	14.4	35	107	1182

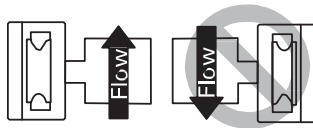
\* Add 3/16" to 1/4" if grounding rings option is selected (required for lined or non-conductive pipe)

\*\* Not available in FEP

## INSTALLATION



Horizontal Flow



Vertical Flow

(up-flow preferred to guarantee fu--pipe condition)

The Model 658 flow sensor can be installed in any orientation from vertical to horizontal. The meter must be mounted such that it is always full of process liquid under flowing conditions. A vertical installation, however, with liquid flowing up, is ideal as it assures a full pipe.

The standard wafer style meter can be installed between the following flanges: ANSI 150 or 300 lb., AWWA, DIN PN 10 or 16, JIS or British Standard. A minimum of three diameters of straight pipe length are required from the center of the meter to normal obstructions to obtain specified accuracies.

## HOW TO ORDER A MODEL 658

Base Model Number  
FM658 – (Wafer-style Tefzel Lined Magnetic Flowmeter)

Size  
OD=.5", OF=1", OG=1.5", O2=2", OH = 2.5", O3=3", O4=4"

Liner Material  
5 - Polyurethane  
8 - FEP

Electrode Material  
1 316SS  
2 Hastelloy C (Lead time varies)

Transmitter Options  
0 4-20 mA  
1 4-digit flow rate indicator, 8-digit totalizer,  
4-20 mA & 24 VDC scaled pulse output

Flange Rating  
1 150 lb. flanges

Transmitter Mounting  
0 Sensor mounted horizontal

Power Options  
0 117 VAC 50/60 Hz

## STANDARD SPECIFICATIONS

Accuracy:	±.75% of rate 1–33 fps (0.3–10 mps)
Repeatability:	±0.1% of full scale
Full Scale Ranges:	From 0–3 to 0–33 fps (0–10 mps)
Electrodes:	316 Stainless Steel – Optional Hastelloy C
Liner:	FEP, Polyurethane
Display:	• None  scaled pulse output
Outputs:	• Isolated analog 4–20 mA dc into 800 W  • 24 VDC scaled pulse, 4W max, or 15V frequency (optional with rate/totalizer option only).
Minimum Velocity:	0.3 fps (0.1 mps)
Conductivity:	Minimum 20 micromhos/cm
Power Requirements:	117 VAC ±10% 50/60 Hz
Power Consumption:	Less than 15 W
Transmitter enclosure:	NEMA-4X
Electrical Rating:	General purpose
Environmental Rating:	NEMA-4X hose-down proof. Dust-proof. Corrosion-resistant.
Ambient Temp:	-20° to 140°F (-34° to 60° C)
Process Temp:	-40° to 180° F (-40° to 80°C)
Pressure Rating:	Full Vacuum to 150 psi at 180°F
Low Flow Cutoff:	Fixed at 0.2 fps

"Check out our state-of-the-art Magmeter choices with ±0.5% accuracy meters"



**TigermagEP-FM626**

- Sizes: 1/10" to 4" wafer
- Tefzel or Ceramic lined
- Integral or remote transmitter
- Explosion proof rating



**TigermagEP-FM626 Sanitary**

- Sizes: 1" to 4"
- Tefzel lined
- 3A approved



**TigermagEP-FM656**

- Sizes: 1/2" to 72" flanged
- Various liners
- Integral or remote transmitter
- Explosion proof rating

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