

# ECONOMAG

## Technical Specifications

### FM618 Electromagnetic Flowmeter



#### DESCRIPTION

The Model FM618 Economag is a low-cost electromagnetic flowmeter designed to provide high order of performance, accuracy and reliability for most of the liquid flow applications in water, wastewater, chemical and other industries. It is available in diameters of 1/2" to 4".

It's low price makes it an ideal alternate to mechanical turbine and paddle wheel flowmeters with no moving parts and lower pressure loss.

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

#### PRINCIPLE OF OPERATION

The Model FM618 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.

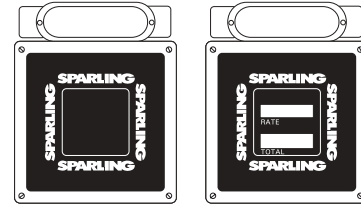
#### APPLICATIONS

Water, wastewater, process water, potable water and additive chemicals (chemically compatible with Tefzel liner and 316SST or Hastelloy C electrodes).

#### STANDARD FEATURES

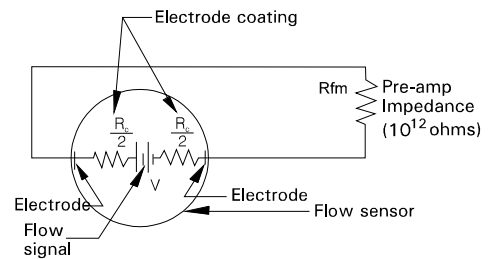
- Tefzel lined
- Stainless Steel Electrodes
- NEMA-4X transmitter with 4-20mA output
- $\pm .75\%$  Accuracy
- Low Flow Cutoff
- Positive Zero Return
- Adjustable Damping
- No moving parts
- Two Year Warranty

#### TWO DIFFERENT CONFIGURATIONS



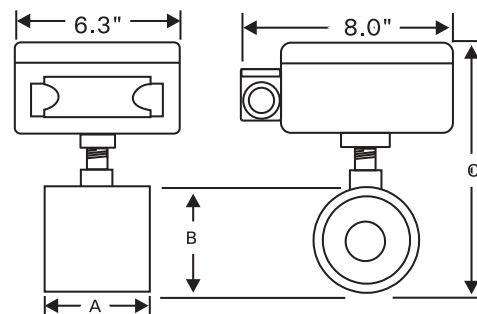
1. As a blind transmitter, the FM618 provides an isolated 4-20 mA output proportional to flow.
2. As a flow rate indicator and flow totalizer combined for complete local readout with 24 Vdc pulse or 15V frequency output. (Rotatable display for vertical mounting.)

#### HI-Z CIRCUITRY ELIMINATES ELECTRODE CLEANING



The Sparling Model FM618 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 ( $10^{12}$  ohms). This design makes the meter resistant to the effects of nearly all nonconductive coatings.

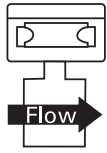
#### FLOW RATES & DIMENSIONS



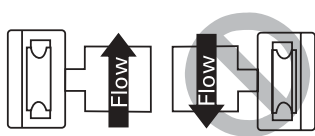
Meter Size		Dimensions			Flow Rates GPM - Full Scale		
Inches	mm	A	B	C*	1 fps	3 fps	33 fps
0.5"	15	4.00	2.31	7.75	0.50	1.5	16
1"	25	4.00	2.92	8.9	1.6	4.8	53
1.5"	40	4.00	3.62	9.5	4	13	145
2"	50	4.00	4.25	10.1	7	21	231
3"	80	6.00	5.40	11.3	20	60	660
4"	100	6.00	6.60	12.5	35	105	1155

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

**INSTALLATION**



**Horizontal Flow**



**Vertical Flow**  
(up-flow preferred to guarantee full-pipe condition)

The Model 618 *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 with liquid flowing up is ideal in that 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 ECONOMAG MODEL 618**

Base Model Number FM618 – ECONOMAG (Wafer-style Tefzel Lined Magnetic Flowmeter)	
Size OD=.5", OF=1", OG=1.5", O2=2", O3=3", O4=4"	
Table 3 - Electrode Material 1 316SS 2 Hastelloy C (Lead time varies)	
Table 4 - Transmitter Options 0 4-20 mA 1 4-digit flow rate indicator, 8-digit totalizer, 4-20 mA & 24 Vdc scaled pulse output	
Table 5 - End Connections 0 .50" - 4" flangeless	
Table 6 - Transmitter Mounting 0 Sensor mounted horizontal	
Table 7 - Power Options 0 117 Vac 50/60 Hz	
Table 8 - Special Options 0 None 1 Carbon Steel mounting hardware & 304SST grounding rings	

FM618-\_\_ \_\_ \_\_ 0 0 0 \_\_

**STANDARD SPECIFICATIONS**

Accuracy:	±.75% of rate 1–33 fps (0.3–10 mps)
Repeatability:	±0.2% of full scale
Full Scale Ranges:	From 0–3 to 0–33 fps (0–10 mps)
Electrodes:	316 Stainless Steel – Optional Hastelloy C
Liner:	Tefzel
Display:	· None · Optional: 4-digit flow rate indicator, 8-digit totalizer with 4-20mA & 24 Vdc scaled pulse output
Outputs:	· Isolated analog 4-20 mA dc into 800 Ω · 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 cast aluminum epoxy coated
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 300 psi at 180°F
Low Flow Cutoff:	Fixed at 0.2 fps
Accessories:	Carbon Steel mounting hardware & 304SST grounding rings (required for lined or non-conductive pipes)

*"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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