

# Electromagnetic Flowmeter

Compact, All-metal Design



measuring  
•  
monitoring  
•  
analyzing

MIM



- For Measurement and Monitoring of Conductive Liquids
- Flow and Temperature Measurement
- Switching, Transmitting, and Batching Functions
- Bi-directional Flow Measurement
- Rugged Stainless Steel Construction
- $p_{\max}$ : 230 PSI;  $t_{\max}$ : 158 °F
- Accuracy:  
<math>\pm (0.8\% \text{ of Reading} + 0.5\% \text{ of Full Scale})</math>



Order from: **C A Briggs Company**

622 Mary Street; Suite 101; Warminster, PA 18974

Phone: 267-673-8117 - 800-352-6265; Fax: 267-673-8118

[Sales@cabriggs.com](mailto:Sales@cabriggs.com) - [www.cabriggs.com](http://www.cabriggs.com)

KOBOLD Instruments, Inc.



Description

The new MIM electromagnetic flowmeter measures and monitors small to medium sized flow of conductive liquids in pipes. According to Faraday's Law of magnetic induction, a voltage is induced in a conductor moving through a magnetic field. The electrically conductive measured media acts as the conductor. The voltage induced in the measured media is proportional to the flow velocity and is therefore a value for the volumetric flow. The induced voltage is detected by two sensing electrodes which are in contact with the measuring media and sent to an integrated amplifier. The flow rate will be calculated based on the cross sectional area of the pipe. The measurement does not depend on the process liquid and its properties such as density, viscosity and temperature. The two outputs can be independently set to switch, or provide an analog or frequency output. A batching function can also be selected, where output 1 is set to switch as NPN/PNP/PP and output 2 is set as the control input.



Features

- Rugged Stainless Steel Construction
- Flow and Temperature Measurement
- Switching, Transmitting, and Batching Functions
- Bi-directional Flow Measurement
- Colored, Multi-parameter, Configurable TFT Display, Rotatable in 90° Increments
- Intuitive Setup Menu via 4 Optical Touch Keys
- 2 Configurable Outputs (Pulse/Frequency/Alarm/Analog Output)
- Grand and Resettable Totalizer

Technical Details

**Measurement Principle:** Electromagnetic  
**Ranges:** 0.011...2.64 to 0.11...26 GPM  
**Media:** Conductive Liquids  
**Min. Conductivity:** ≥ 20 µS/cm  
**Max. Media Viscosity:** 70 cSt  
**Max. Pressure:** 230 PSI  
**Accuracy<sup>1)</sup>:** < ± (0.8% of Reading +0.5% of Full Scale)  
**Repeatability:** ± 0.2% of Full Scale  
**Temperature Sensor:** PT1000<sup>2)</sup>  
**Response Time Flow t<sub>90</sub> (Alarm Output/ Pulse Output):** < 250 ms  
**Response Time Temperature t<sub>90</sub> (Signal Output):** < 20 s  
**Mounting Position:** Universal  
**Straight Piping Requirement:** 3x Upstream, 2x Downstream  
**Programming:** via 4 Optical Touch Fields, Can be used with Gloves  
**Housing:** 316L Stainless Steel, PMMA Display Screen

Wetted Parts

**Fitting/Housing:** 316L Stainless Steel  
**Insulation Parts:** PEEK  
**Electrodes:** 316L Stainless Steel  
**Seals:** FKM (Others Available upon Request)  
**Protection:** IP67  
**Media Temperature:** -4...158 °F  
**Ambient Temperature:** -4...140 °F

Electrical Data

**Supply Voltage:** 19-30 V<sub>DC</sub>, Internal Power Consumption max. 200 mA  
**Display:** TFT Display, 128x128 Pixels, 1.4" Display, Orientation Adjustable in 90° Increments  
**Display Repetition Rate:** 0.5...10 s, Adjustable  
**Pulse Output:** Push-Pull, Freely Scalable, Configurable for Partial and Accumulated Totalizer  
**Frequency Output:** Push-Pull, Fully Scalable, 2 kHz @ Overflow  
50...1000 Hz at f. s., User programmable  
**Alarm Output:** NPN, PNP, Push-Pull, Configurable max. 30 V<sub>DC</sub>, max. 200 mA Short-circuit Proof  
**Analog Output:** Active, 3-wire, 4-20 mA, Max. Load 500 Ω or 0-10 V<sub>DC</sub>, (R<sub>i</sub> = 500 Ω)  
**Control Input:** Active Low, Passive N/O Contact or Active Signal U<sub>high</sub> max. 30 V<sub>DC</sub>  
**Electrical Connection:** Plug M12x1, 4-pin

1) Reference conditions: media: 60...85 °F, 1 cSt, 500 µS/cm, 15 PSI ambient: 60...85 °F

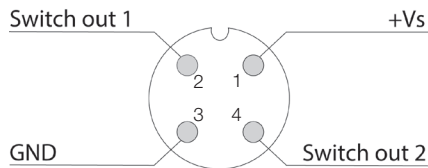
2) PT1000 range: -22...212 °F (not actual MIM media temperature range)

**Order Details** (Example: MIM-12 05G4 N C3T0)

Model	Measuring Range, Native Connection	Optional Fitting Type	Electronics
<b>MIM-12..</b> = SS Housing SS Electrodes, FKM Seals	<b>..05G4..</b> = 0.011...2.6 GPM, G 1/2	..A.. = Without <sup>1)</sup> ..N.. = PVC, 1/4" NPT Female ..P.. = PVC, 1/2" Hose Barb	<b>..C3T0</b> = Compact, TFT Display, 2 Outputs (Current/Voltage/ Pulse/Frequency/Alarm Output Configurable), M12x1 Plug
	<b>..10G5<sup>2)</sup>..</b> = 0.027...6.6 GPM, G 3/4	..A.. = Without <sup>1)</sup> ..M.. = PVC, 3/8" PVC Glue Socket ..N.. = PVC, 3/8" NPT Female ..P.. = PVC, 3/4" Hose Barb ..R.. = Polypropylene, 3/8" NPT Female	
	<b>..15G5..</b> = 0.053...13 GPM, G 3/4	..A.. = Without <sup>1)</sup> ..H.. = PVDF, 1/2" NPT Female ..M.. = PVC, 1/2" Glue Socket ..N.. = PVC, 1/2" NPT Female ..P.. = PVC, 1" Hose Barb ..R.. = Polypropylene, 1/2" NPT Female ..V.. = PVDF, Butt Weld 20 mm, O.D. Tube ..W.. = 316L SS, 1/2" NPT Female ..X.. = Brass, 1/2" NPT Female	
	<b>..15G6<sup>2)</sup>..</b> = 0.053...13 GPM, G 1	..A.. = Without <sup>1)</sup> ..H.. = PVDF, 1/2" NPT Female ..M.. = PVC, 1/2" Glue Socket ..N.. = PVC, 1/2" NPT Female ..P.. = PVC, 1" Hose Barb ..R.. = Polypropylene, 1/2" NPT Female ..V.. = PVDF, Butt Weld 20 mm, O.D. Tube ..W.. = 316L SS, 1/2" NPT Female ..X.. = Brass, 1/2" NPT Female	
<b>..20G6..</b> = 0.11...26 GPM, G 1	..A.. = Without <sup>1)</sup> ..H.. = PVDF, 1/2" NPT Female ..M.. = PVC, 1/2" Glue Socket ..N.. = PVC, 1/2" NPT Female ..P.. = PVC, 1" Hose Barb ..R.. = Polypropylene, 1/2" NPT Female ..V.. = PVDF, Butt Weld 20 mm, O.D. Tube ..W.. = 316L SS, 1/2" NPT Female ..X.. = Brass, 1/2" NPT Female		

1) Includes Frontal Gaskets (2 pcs. of O-Ring) 2) In Preparation

**Flow Meter Electrical Connection**



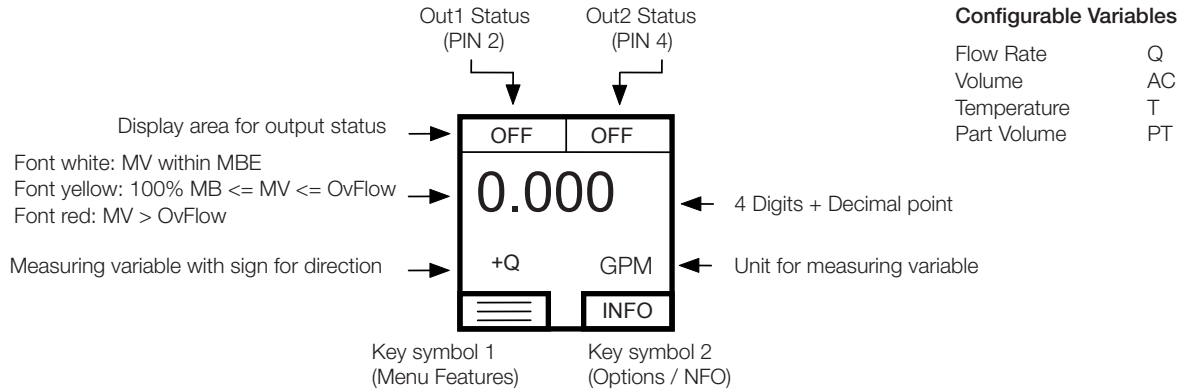
**Configuration of Outputs**

Output 1 (PIN 2)	Output 2 (PIN 4)
Analog Output 0-10 V <sub>DC</sub>	Analog Output 0-10 V <sub>DC</sub>
Analog Output 4-20 mA	Analog Output 4-20 mA
Switching Output NPN/PPN/PP	Switching Output NPN/PPN/PP
Pulse Output PP	Pulse Output PP
Frequency Output PP	Frequency Output PP
Batching Function Switch NPN/PPN/PP*	Control Input Start/Stop Batching Function*

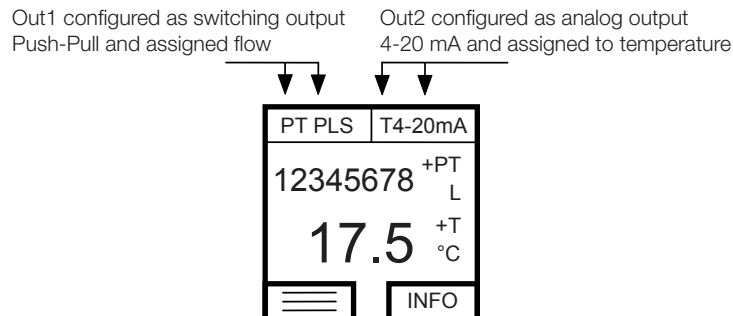
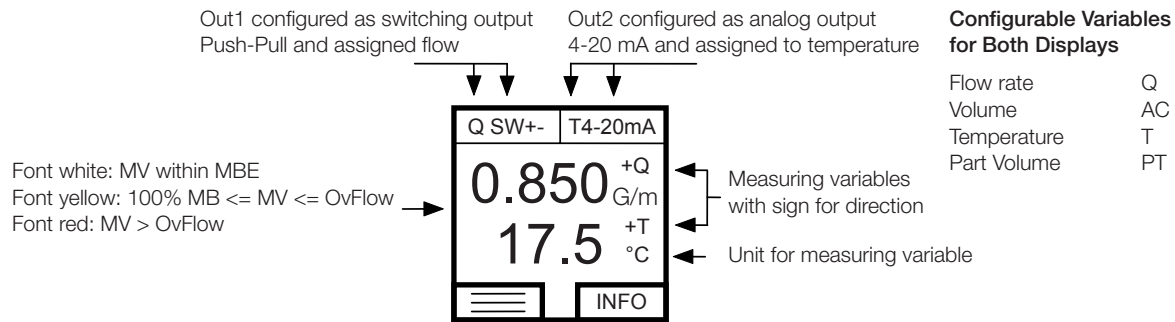
\* In preparation



**Measuring Mode: Display Layout "Single" Configurable**



**Measuring Mode: Display Layout "Dual" Configurable**



**Body Dimensions**

G	Inside Tube Dia.
1/2	5 mm
3/4	10 mm
1	15 mm

Table 1

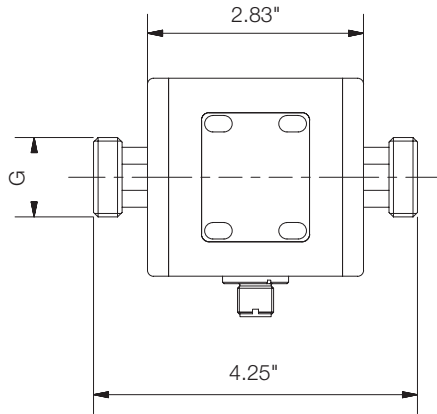


Figure 1

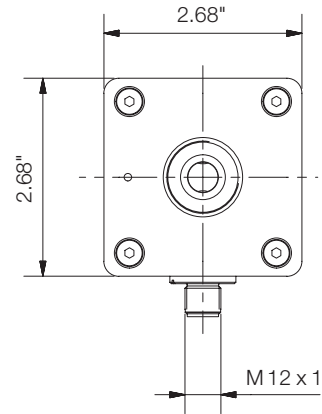


Figure 2

**Dimensions Fitting Set ..H, M, N, R, W, X.. Connections**

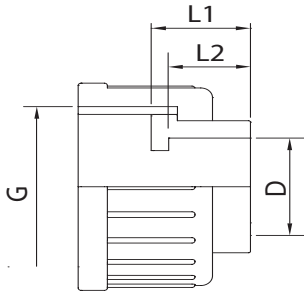


Figure 3

G	L1	L2	D
<b>Fitting H: PVDF, NPT</b>			
G 1	0.96"	0.79"	1/2" nom.
<b>Fitting M: PVC, Glue Socket</b>			
G 3/4	0.87"	0.79"	3/8" nom.
G 1	1.0"	0.89"	1/2" nom.
<b>Fitting N: PVC, NPT Female</b>			
G 1/2	see drawing, figure 4		1/4" nom.
G 3/4	0.68"	0.52"	3/8" nom.
G 1	0.76"	0.68"	1/2" nom.
<b>Fitting R: Polypropylene, NPT Female</b>			
G 3/4	0.68"	0.55"	3/8" nom
G 1	0.98"	0.79"	1/2" nom
<b>Fittings W and X: SS or Brass NPT</b>			
G 1	1.18"	0.63"	1/2" nom

Table 2

**Dimensions Fitting Set ..N.. PVC-1/4" NPT Connection**

G 1/2 only

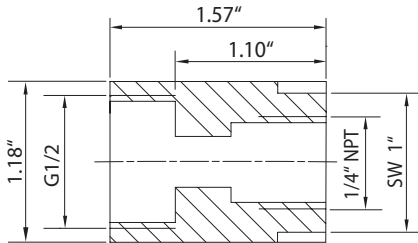


Figure 4

**Dimensions Fitting Set ..P.. PVC-Hose Connection**

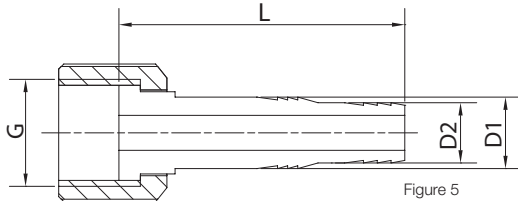


Figure 5

G	L	D1	D2
G 1/2	2.2"	0.55"	0.47"
G 3/4	2.36"	0.71"	0.63"
G 1	2.64"	0.87"	0.79"

Table 3

**Dimensions Fitting Set ..V.. Butt Weld**

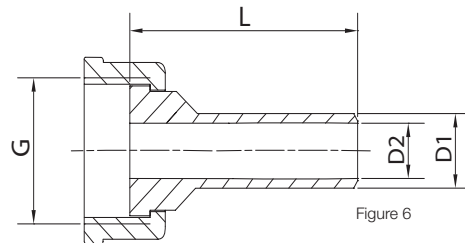


Figure 6

G	L	D1	D2
G 1	2.09"	0.79"	0.62"

Table 4