

# 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:  
 $< \pm (0.8\% \text{ of Reading} + 0.5\% \text{ of Full Scale})$



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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
- Batching Function with External Control Input
- 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  
**Native Fittings:** G 1/2, G 3/4, or G 1  
**Optional Fitting Kits:** 1/4", 1/2", or 3/4" NPT (Male or Female) (All Kits Include 2x KlingerSIL Gaskets)  
**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 Signal U<sub>high</sub> max. 30 V<sub>DC</sub>, 0<Low<10 V<sub>DC</sub>, 15V<sub>DC</sub><High<V<sub>S</sub>  
**Batching Function:** Batching Output OUT2: Push-Pull, High Active  
Control Input OUT1: START/STOP 0.5s <t<sub>high</sub><4s  
RESET t<sub>high</sub>>5s  
**Electrical Connection:** 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 05G G4 C3T0)

Model	Measuring Range	Native Connection	Electronics	
MIM-12.. = SS Housing SS Electrodes FKM Seals	..05G <sup>2)</sup> .. = 0.01...2.6 GPM ..05H <sup>1)</sup> .. = 0.04...10 LPM	..G4.. = G 1/2 Male	..C3T0 = Compact TFT Display 2x Configurable Outputs (Current/Voltage/Pulse/ Frequency/Alarm) M12x1 Electrical Connection	
	..10G <sup>2)</sup> .. = 0.025...6.6 GPM ..10H <sup>1)</sup> .. = 0.1...25 LPM ..15G <sup>2)</sup> .. = 0.05...13 GPM ..15H <sup>1)</sup> .. = 0.2...50 LPM	..G5.. = G 3/4 Male		
	..15G <sup>2)</sup> .. = 0.05...13 GPM ..15H <sup>1)</sup> .. = 0.2...50 LPM ..20G <sup>2)</sup> .. = 0.1...26 GPM ..20H <sup>1)</sup> .. = 0.4...100 LPM	..G6.. = G 1 Male		
	<b>Accessories:</b> P/N 807.037 = 4-Pin Micro-DC Connector with 6-foot Cable P/N 807.037/5M = 4-Pin Micro-DC Connector with 16-foot Cable P/N 807.037/10M = 4-Pin Micro-DC Connector with 32-foot Cable			

1) LPM Package: (LPM, °C, bar), calibrated range and temperature °C

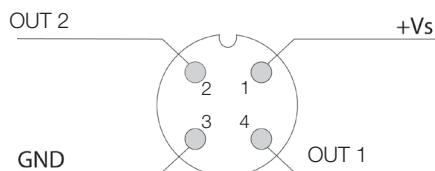
2) GPM Package: (GPM, °F, PSI), calibrated range and temperature °F

**Order Details: MIM Fitting Accessory Kits\***

Accessory Kit Number	Meter Connection	Process Connection	Fitting Kit Type
ZUB-AD2U15P08	G 1/2	1/4" NPT Male	Cap Nut and Union
ZUB-AD2G15P15	G 1/2	1/2" NPT Male	Adapter
ZUB-AD2G15N08	G 1/2	1/4" NPT Female	Adapter
ZUB-AD2G15N15	G 1/2	1/2" NPT Female	Adapter
ZUB-AD2U20P15	G 3/4	1/2" NPT Male	Cap Nut and Union
ZUB-AD2G20P20	G 3/4	3/4" NPT Male	Adapter
ZUB-AD2G20N15	G 3/4	1/2" NPT Female	Adapter
ZUB-AD2G20N20	G 3/4	3/4" NPT Female	Adapter
ZUB-AD2U25P15	G1	1/2" NPT Male	Cap Nut and Union
ZUB-AD2U25P20	G1	3/4" NPT Male	Cap Nut and Union
ZUB-AD2G25N15	G1	1/2" NPT Female	Adapter
ZUB-AD2G25N20	G1	3/4" NPT Female	Adapter

\*NOTE: All Fitting Kits Include 2x KlingerSIL Flat Sealing Gaskets

**Electrical Connection MIM-..C3T**

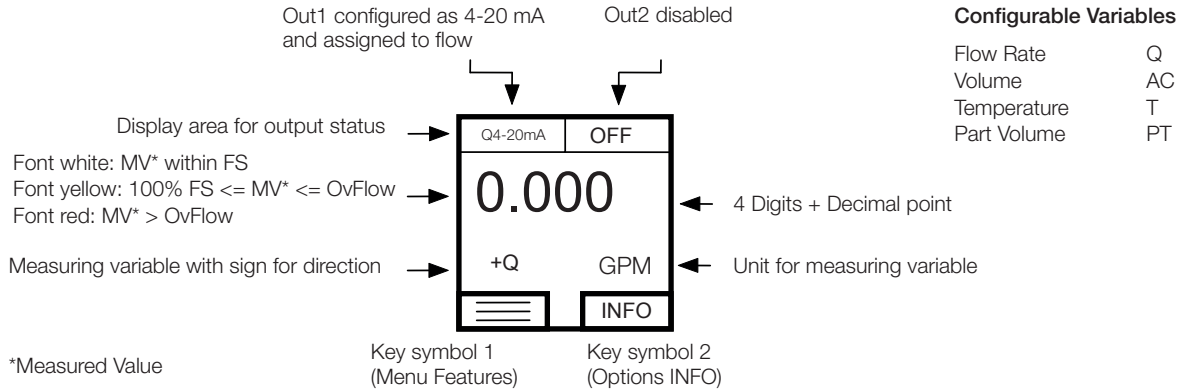


**Configuration of Outputs**

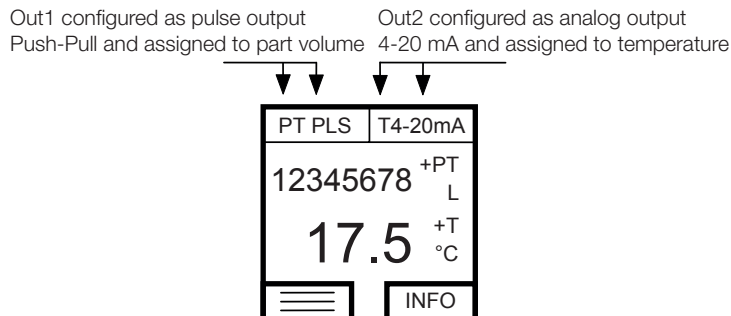
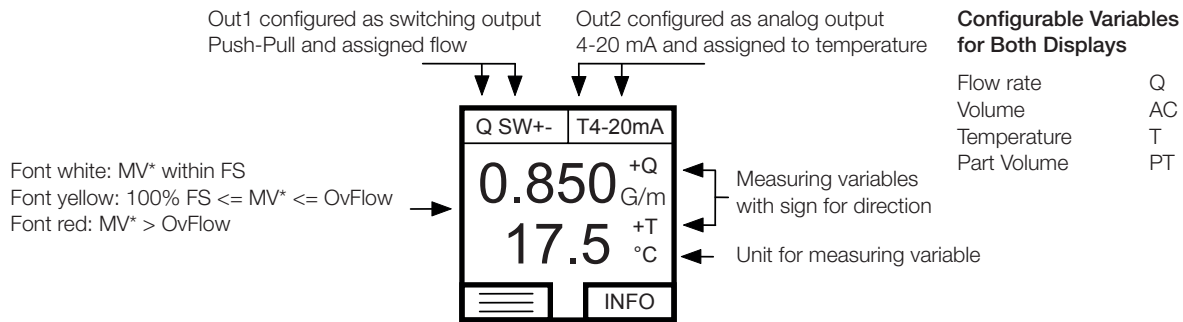
Output 1 (OUT1, PIN 4)	Output 2 (OUT2, PIN 2)
Analog Output 0-10 V <sub>DC</sub>	Analog Output 0-10 V <sub>DC</sub>
Analog Output 4-20 mA	Analog Output 4-20 mA
Switching Output NPN/PNP/PP	Switching Output NPN/PNP/PP
Pulse Output PP	Pulse Output PP
Frequency Output PP	Frequency Output PP
Control Input Start/Stop/Reset Batching Function	Batching Function Switch/PP



**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

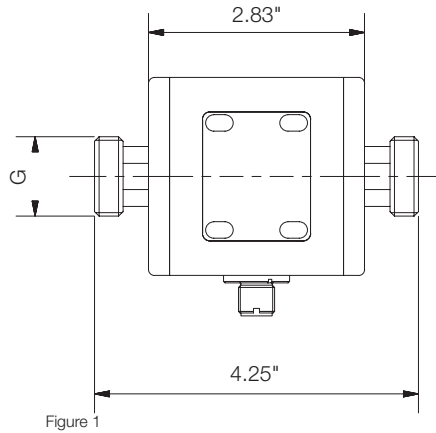


Figure 1

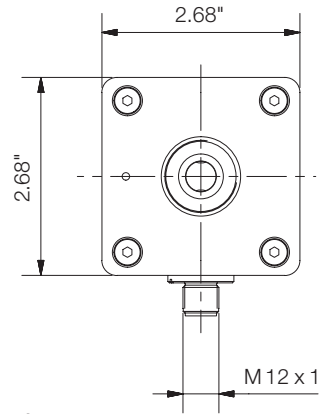
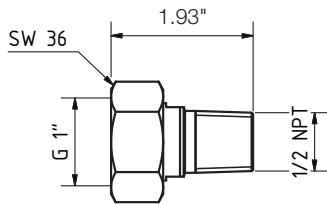


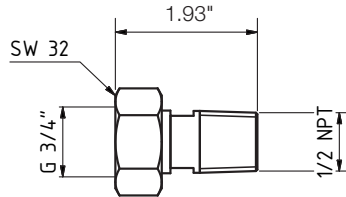
Figure 2

**Dimensions for Fitting Sets**

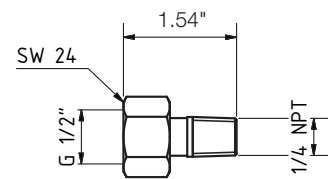
**ZUB-AD2U25P15**



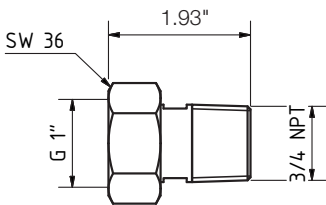
**ZUB-AD2U20P15**



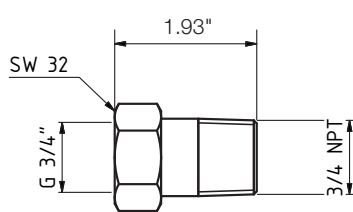
**ZUB-AD2U15P08**



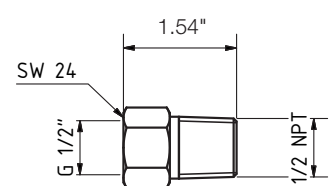
**ZUB-AD2U25P20**



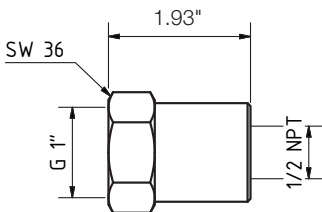
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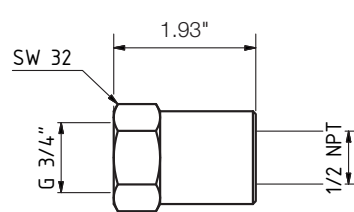
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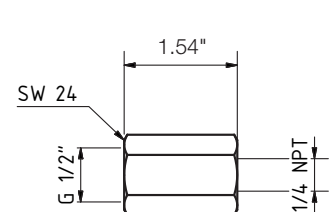
**ZUB-AD2G25N15**



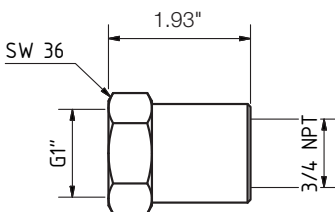
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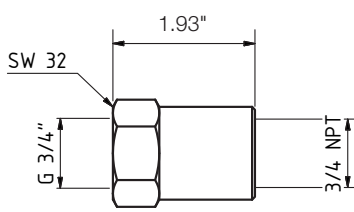
**ZUB-AD2G15N08**



**ZUB-AD2G25N20**



**ZUB-AD2G20N20**



**ZUB-AD2G15N15**

