

Magnetic-Inductive Flowmeter



measuring
•
monitoring
•
analyzing

PI_Te



- Measuring Range: 1...10 m/sec (3.28... 32.8 ft/sec)
- Accuracy: Greater than 30% of URV $\pm 1.5\%$ of Reading
Less than 30% of URV $\pm 1.5\%$ of Reading + 2.5% of Full Scale
- p_{max} : 230 PSIG to 90 °C (194 °F), 200 PSIG to 100 °C (212 °F)
- t_{max} : 100 °C (212 °F)
- Connection: Welding Stub and M52x2 Union Nut for 3" to 16" pipes
- Material: Stainless Steel/PTFE, Hastelloy® Electrodes
- Outputs: Analog with HART®, Pulse, and Status



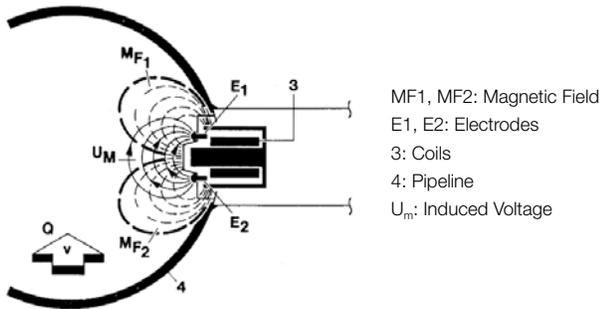
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Description

An electrically conductive media flowing through an orientated magnetic field, in accordance to Faraday's law of induction, will induce a voltage proportional to the mean flow velocity rate and hence the volumetric flow. The PITe magnetic inductive flowmeter sensor is placed in a pipeline and when a conductive liquid flows by the magnetic field coil and two electrodes, the electrode voltage is detected by a transmitter and converted into a standardized signal such as a 4-20 mA or a pulse output. The PITe sensor can be used in conjunction with the UMF2 transmitter. It offers a simple compact design, is maintenance-free, and has almost no pressure drop. It is used to measure the volumetric flow of liquids, slurries and other electrically conductive media. Pressure, temperature, density and viscosity do not affect the measurement. However, it is not suitable for use with media that has solid particles or small gas bubbles.



Technical Details: PITe Sensor

- Armature:** 316L Stainless Steel, PTFE
- Electrodes:** Hastelloy® (Others on Request)
- Nominal Diameters:** 3" ... 16" ANSI, DN80... DN400
- Connection:** Welding Stub Ø40 mm, 316L SS, with M52x2 union nut 316L SS (Other Connections on Request)
- Nominal Pressure:** 230 PSIG / 194 °F, 200 PSIG / 212 °F
- Process Temp:** -4...212 °F
- Ambient Temp:** -4...140 °F
- Conductivity:** ≥20 µS/cm
- Straight Run:** 10xD Inlet, 5xD Outlet
- Measuring Range:** 3.28...32 ft/sec
- Measurement Deviation:**
 - at ($Q \geq 30\%$ of Full Scale): ±1.5% of Reading
 - at ($Q \leq 30\%$ of Full Scale): ±1.5% of Reading ±2.5% of Full Scale (Under Reference Conditions)
- Repeatability:** ±0.75% (Under Reference Conditions)
- Protection:** IP65 (EN60529), PVC Cable
IP68 (EN60529), PE Cable

Technical Details: Transmitter UMF2

- Mounting:** Remote
- Protection:** IP67 or IP68 (EN60529)
- Housing:** Die-cast Aluminum, Painted
- Power Supply:** 115 or 230 V_{AC}, 50...60 Hz, 10 VA, or 24 V_{DC}, 10 W
- Display:** LCD, 2 Lines, 16 Digits, Backlit
- Interface Language:** English, German
- Output: Standard**
 - 1x Analog:** 1 x 4-20 mA HART®, Active, Galvanically Isolated
 - 2x Binary:** Passive, Galvanically Isolated
1 Pulse Output, Max. 1 kHz Freely Configurable
1 Status Output, Freely Configurable e.g. Empty Pipe Detection
- Ambient Temp:** -4...140 °F
- Communication:** HART®
- Diagnostics:** Empty Pipe Detection, Coil Current Surveillance
- Electromagnetic Tolerance:** EMC-Directive 2004/108/EG



Specific Flow Values: Recommended Flow According to Pipe Size

Measuring Ranges					
Nominal Diameter		Min/Max. Flow (3.28...32.8 ft/sec)		Recommended Measuring Range (9.84...19.68 ft/sec)	
inches	mm	Q _{min} (3.28 ft/sec)	Q _{max} (32.8 ft/sec)	Q _{min} (9.84 ft/sec)	Q _{max} (19.68 ft/sec)
3	80	79.2 GPM	792 GPM	238 GPM	475 GPM
4	100	123 GPM	1,232 GPM	370 GPM	739 GPM
5	125	189 GPM	1,892 GPM	568 GPM	1,135 GPM
6	150	286 GPM	2,860 GPM	858 GPM	1,716 GPM
8	200	506 GPM	5,060 GPM	1,518 GPM	3,476 GPM
10	250	792 GPM	7,920 GPM	2,376 GPM	4,752 GPM
12	300	1,108 GPM	11,088 GPM	3,327 GPM	6,652 GPM
16	400	1,980 GPM	19,800 GPM	5,971 GPM	11,941 GPM

Order Details Sensor (Example: PItE-S A504 013 H 4 00 0K)

Model	Material	Process Connection	Sensor Length	Electrode Material	Transmitter, Remote	Approval/Certificate (Order Separately)	Special Configuration
PITe-	..S.. = 316L and 316-Ti SS, PTFE	..A504.. = Weld on Adaptor for Pipe Sizes 3"...16" (DN80... DN400) ..309B.. = Flange Conn. DN25 PN40	..013.. = 138.5 mm (5.45") ..XXX.. = Custom Length ¹⁾	..H.. = Hastelloy® C-4 ..X.. = Special	..4.. = IP65, Incl. 5 m PVC-Cable Conn. ..5.. = IP68, Incl. 5 m PE Cable Conn.	..00.. = Without Approval/Certificate ..01.. = Certificate of Compliance 2.1 ..02.. = Test Report 2.2 ..0B.. = Material Certificate 3.1 ..0C.. = Material Certificate 3.2	..0K = Without ..XK = With Special Configuration

¹⁾ Please indicate custom length in cm with 3 digits (e.g. 087 for 870 mm)

Order Details Transmitter (Example: UMF2-E1 2 G0BK)

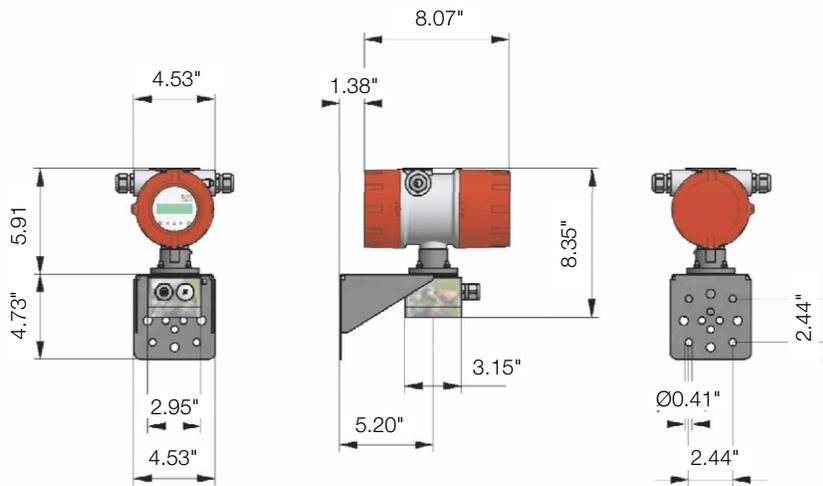
Model	Protection ¹⁾	Power Supply	Output Signal
UMF2-	..E1.. = IP 65, Remote Electronics ½" NPT ..F1.. = IP 65, Remote Electronics M20x1.5 ..G1.. = IP 68, Remote Electronics ½" NPT ..H1.. = IP 68, Remote Electronics M20x1.5	..1.. = 230 V _{AC} (+10%, -15%) 50/60 Hz ..2.. = 115 V _{AC} (+10%, -15%) 50/60 Hz ..4.. = 24 V _{DC} (±15%)	..F0BK = Current Output 1: (0)4-20 mA Pulse Output: Passive U _m = 24 V _{DC} Status Output: Passive U _m = 24 V _{DC} ..G0BK = Current Output 1: (0)4-20 mA HART® Pulse Output: Passive U _m = 24 V _{DC} Status Output: Passive U _m = 24 V _{DC}

¹⁾ Pipe Mount Kit Included

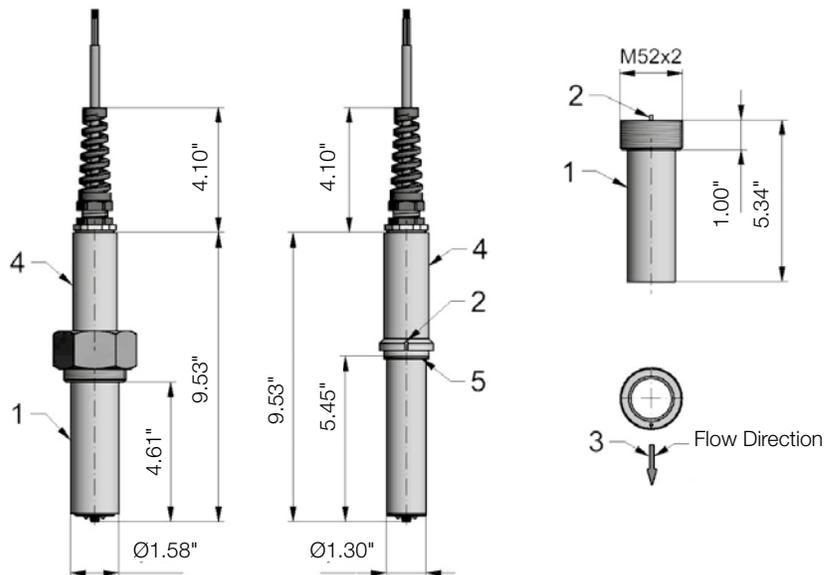


Magnetic-Inductive Flowmeter Model PITe

Dimensions: Transmitter UMF2



Dimensions: Sensor PITe



- 1: Welding Socket
- 2: Anti-rotation Lock
- 3: Flow Direction
- 4: Armature
- 5: Gasket