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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.



MF1, MF2: Magnetic Field E1, E2: Electrodes 3: Coils 4: Pipeline U_m: Induced Voltage

Technical Details: PITe Sensor

| Armature: | 316L Stainless Steel, PTFE |
|--------------------|--|
| Electrodes: | Hastelloy [®] (Others on Request) |
| Nominal Diameters: | 3"16" ANSI, DN 80DN 400 |
| 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: | -4212°F |
| Ambient Temp: | -4140°F |
| Conductivity: | ≥20 µS/cm |
| Straight Run: | 10xD Inlet, 5xD Outlet |
| Measuring Range: | 3.2832 ft/sec |
| Measurement | |
| Deviation: | at (Q≥30% of Full Scale): ±1.5% of Reading at (Q≤30% of Full Scale): ±1.5% of Reading ±2.5% of Full Scale (Under Reference Conditions) |
| Repeatability: | ±0.75% (Under Reference Conditions) |
| Protection: | IP 65 (EN60529), PVC Cable IP 68 (EN60529), PE Cable |



| Technical Details: Tr | ansmitter UMF2 | | | |
|-------------------------------------|--|--|--|--|
| Mounting: | Remote | | | |
| Protection: | IP 67 or IP68 (EN60529) | | | |
| Housing: | Die-cast Aluminum, Painted | | | |
| Power Supply: | 115 or 230 $V_{AC},50\ldots 60$ 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: | -4140°F | | | |
| Communication: | HART® | | | |
| Diagnostics: | Empty Pipe Detection, Coil Current Surveillance | | | |
| Electromagnetic Tolerance: | EMC-Directive 2004/108/EG | | | |



| Measuring Ranges | | | | | |
|------------------|-----|--------------------------------|-----------------------------|---------------------------------------|---------------------------------------|
| Nominal Diameter | | Max Flow GPM | Max Flow LPM | Recommended Measuring Range GPM | Recommended Measuring Range LPM |
| inches | mm | Q _{max} (32.8 ft/sec) | Q _{max} (10 m/sec) | Q _{max} (19.68 ft/sec) | Q _{max} (6 m/sec) |
| 3 | 80 | 723 | 3016 | 431 | 1810 |
| 4 | 100 | 1286 | 4710 | 777 | 2827 |
| 5 | 125 | 2009 | 7363 | 1205 | 4418 |
| 6 | 150 | 2893 | 10600 | 1726 | 6362 |
| 8 | 200 | 5143 | 18850 | 3078 | 11310 |
| 10 | 250 | 8036 | 29452 | 4819 | 17672 |
| 12 | 300 | 11557 | 42410 | 6948 | 25450 |
| 16 | 400 | 20572 | 75400 | 12312 | 45240 |

Specific Flow Values: Recommended Flow According to Pipe Size

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 | | 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 = IP65, Remote Electronics ½" NPT F1 = IP65, Remote Electronics M20x1.5 G1 = IP68, Remote Electronics ½" NPT H1 = IP68, 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%) | FOBK = Current Output 1: (0)4-20 mA Pulse Output: Passive U_m = 24 V_{DC} Status Output: Passive U_m = 24 V_{DC} GOBK = 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



Dimensions: Transmitter UMF2



Dimensions: Sensor PITe



1: Welding Socket

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