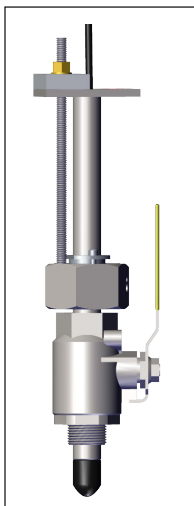
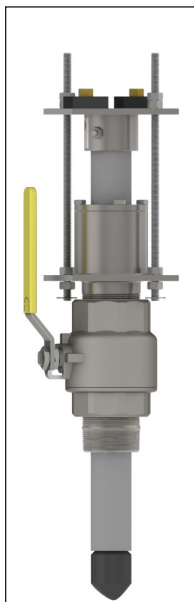


SPI Mag® Sensor



ProComm Converter



The SPI Mag™ (Single Point Insertion) Electromagnetic Flow Meter is a hot tappable single point insertion flow meter for measuring forward flow. The sensor is available for one-inch or two-inch taps, depending upon line size and application.

The SPI Mag is a cost effective flow meter solution with a purchase price that is independent of line size making the cost to meter a sixty-inch line the same as a two-inch. The SPI Mag's hot tap installation allows for uninterrupted service as it installs without system shut-down, de-watering lines, cutting pipe or welding flanges. Installation costs are reduced by eliminating the need for heavy equipment or extensive manpower. The SPI can be easily re-located to various line sizes.

The compact insertion design fits in confined spaces and offers complete accessibility. The flow meter can be removed in pipes under pressure for easy inspection, cleaning, calibrating or verification. It is particularly cost-effective for retrofit applications replacing flow meters or in sites never metered before.

This cost effective flowmeter is available for line sizes from 2 to 96 inches. The flow sensor comes pre-calibrated from McCrometer's NIST traceable Calibration Lab and requires no recalibration in the field. With no moving parts and a single-piece design, the SPI Mag's sensor contains nothing to wear or break, and it is generally immune to clogging by sand, grit or other debris.

The SPI Mag is easily installed without interruption of the flow process. Sensor insertion hardware is utilized to insert the sensor through a ball valve or corporation stop in the flow conduit. Measurements are taken at the nearest pipe wall with negligible pressure drop in the pipe.

The SPI Mag allows profiling of the pipe inside diameter, further enhancing its measurement accuracy by allowing precise determination of mean velocities.

TYPICAL WATER APPLICATIONS

Wastewater: (2" only)

- Effluent
- Waste Activated Sludge (WAS)
- Return Activated Sludge (RAS)
- Reclaim / Recycle

Clean Water: (1" or 2")

- Raw Water Intake
- Clear Wells

BENEFITS

- Easy to relocate to various line sizes
- Ease of hot-tap installation
- Installs without service interruption
- Insertion design for total accessibility
- Price is independent of line size
- No moving parts
- Does not require recalibration in the field

PROCOMM CONVERTER

- Pre-programmed
- Curve-fitting algorithm to improve accuracy
- 4-20mA (1000 ohm) analog output
- Eight line graphical display
- Six key touch programming
- Rugged enclosure meets IP67



FLOW METER SPECIFICATIONS

Measurement

- Volumetric flow in filled flow conduits 2" (50mm) to 96" (2,440 mm) diameter utilizing insertable velocity sensor. 1" meter = 2" to 30" pipe I.D.; 2" meter = 6" to 96" pipe I.D.
- Flow indication in English Standard or Metric units

Flow Measurement

Method	Electromagnetic
Accuracy	±2% of reading ±0.03 ft/s (±0.009 m/s) zero stability from 0.3 to 32 ft/s (0.09 to 10 m/s) velocity range
Velocity range	+0.3 to +32 ft/s (+0.09 to +10 m/s)
Direction measurement	Has reverse flow indication

Materials

Sensor	Polyurethane exposed to flow
2" sensor mounting:	PVC and Stainless Steel exposed to flow. (Stainless Steel Insertion Tube Optional)
Compression seal	Buna "N" O-Ring seal exposed to flow

Environmental Ranges

Pressure/temperature limits	<ul style="list-style-type: none">• PVC Insertion Tube: Up to 105°F (41°C) at 150 PSI• Stainless Steel Insertion Tube: Up to 160°F (71°C) at 250 PSI (McCrometer recommends the use of Stainless Steel) <p>Note regarding storage: During freezing conditions and when meter is not in use, sensor must be removed from pipe and stored in dry conditions.</p> <p>NOTE: Damage to the sensor caused by allowing the sensor freeze in the pipe is not covered by the warranty.</p>
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Electrical Connections

Compression gland seals for 0.125" to 0.375" dia. round cable

IP Rating

IP68 submersible sensor

Insertion Tube

To determine insertion tube length for typical near wall installations, divide the pipe I.D. by 8 and add 18".

For full profiles, add 18" to the pipe I.D.

Tube assemblies include rods and mounting hardware

1" tube	<ul style="list-style-type: none">• Stainless steel tube, 12" length. Will profile 4" pipe I.D.• Stainless steel tube, 24" length. Will profile 16" pipe I.D.• Stainless steel tube, 36" length. Will profile 28" pipe I.D.
2" tube	<ul style="list-style-type: none">• PVC tube, 18" length. Will profile a 10" pipe I.D.• PVC tube, 24" length. Will profile a 16" pipe I.D.• PVC tube, 30" length. Will profile a 22" pipe I.D.• Opt.: stainless steel tube. Specify length - 65" maximum



Specification Sheet

SPI Mag Model 282L Flow Meter with ProComm Converter

System Options

- Stainless Steel ID Tag
- Sensor Insertion Tool
- Additional Sensor Cable up to 200' (for longer lengths consult factory)
- Valves

Ordering Requirements

At the time of ordering, please be prepared to provide the following information:

- Model and tap size
- Insertion tube length
- Pressure
- Minimum flow
- Maximum flow
- Typical flow
- Fluid
- Pipe I.D.
- Cable length
- Temperature
- Any other chemicals in use
- Indicator and totalizer units



Specification Sheet

SPI Mag Model 282L Flow Meter with ProComm Converter

PROCOMM CONVERTER SPECIFICATIONS

Power Source

AC	100-240 VAC / 45-66 Hz (10 W)	Note: AC or DC must be specified at time of ordering.
DC	10-35 VDC (10 W)	

Standard Outputs

Dual 4-20mA Outputs: Galvanically isolated and fully programmable for zero and full scale (0-21mA rangeability)

Two separate digital programmable outputs: open collector transistor usable for pulse, frequency, or alarm settings.

- Volumetric Pulse
- Flow Rate (Frequency)
- Hardware Alarm
- High/Low Flow Alarms
- Empty Pipe
- Directional Indication
- Range Indication
- Maximum switching voltage: 40 VDC
- Maximum switching current: 100mA
- Maximum switching frequency: 1250 Hz
- Insulation from other secondary circuits: 500V

Optional Outputs

- Modbus
- HART
- Smart Output™ (Sensus, Itron 6, Itron 9)
- Datalogger
- Built-in verification

Galvanic Isolation

All inputs / outputs are galvanically isolated from power supply up to 500 V

Engineering Units

- Cubic Meter
- Cubic Centimeter
- Milliliter
- Liter
- Cubic Decimeter
- Decaliter
- Hectoliter
- Cubic Inches
- US Gallons
- Imperial Gallons
- Cubic Feet
- Kilo Cubic Feet
- Standard Barrel
- Oil Barrel
- US Kilogallon
- Ten Thousands of Gallons
- Imperial Kilogallon
- Acre Feet
- Megagallon
- Imperial Megagallon
- Hundred Cubic Feet
- Megaliters

Conductivity

Minimum conductivity of 5µS/cm

Electrical Connections

Connection options

- Compression gland seals for 0.24" to 0.47" diameter round cable
- Conduit option: 1/2" NPT threaded connections

Sensor Cable Lengths

- | | |
|----------|--|
| Standard | 25' McCrometer supplied submersible cable with each remote mount unit. |
| Optional | Up to 200 feet, or 25 feet max for battery powered. |

IP Rating

IP67 Die cast aluminum converter (only when connected using compression gland seals)



Specification Sheet

SPI Mag Model 282L Flow Meter with ProComm Converter

Certifications and Approvals

- ISO 9001:2015 certified quality management system
- CE
- Certified by MET to UL 61010-1



System Options

- DC power
- Additional sensor cable up to 200'
- Extension to hardware clearance
- Annual verification / calibration
- Stainless steel ID tag

Temperature Range

Operating and
storage

-20° to 60° C (-4° to 140° F)

Converter Dimensions

- Height: 6.9" (17.5 cm)
- Width: 7.2" (18.25 cm)
- Depth: 6.2" (15.7 cm)

Keypad and Display

Can be used to access and change set-up parameters using six membrane keys and an LCD display

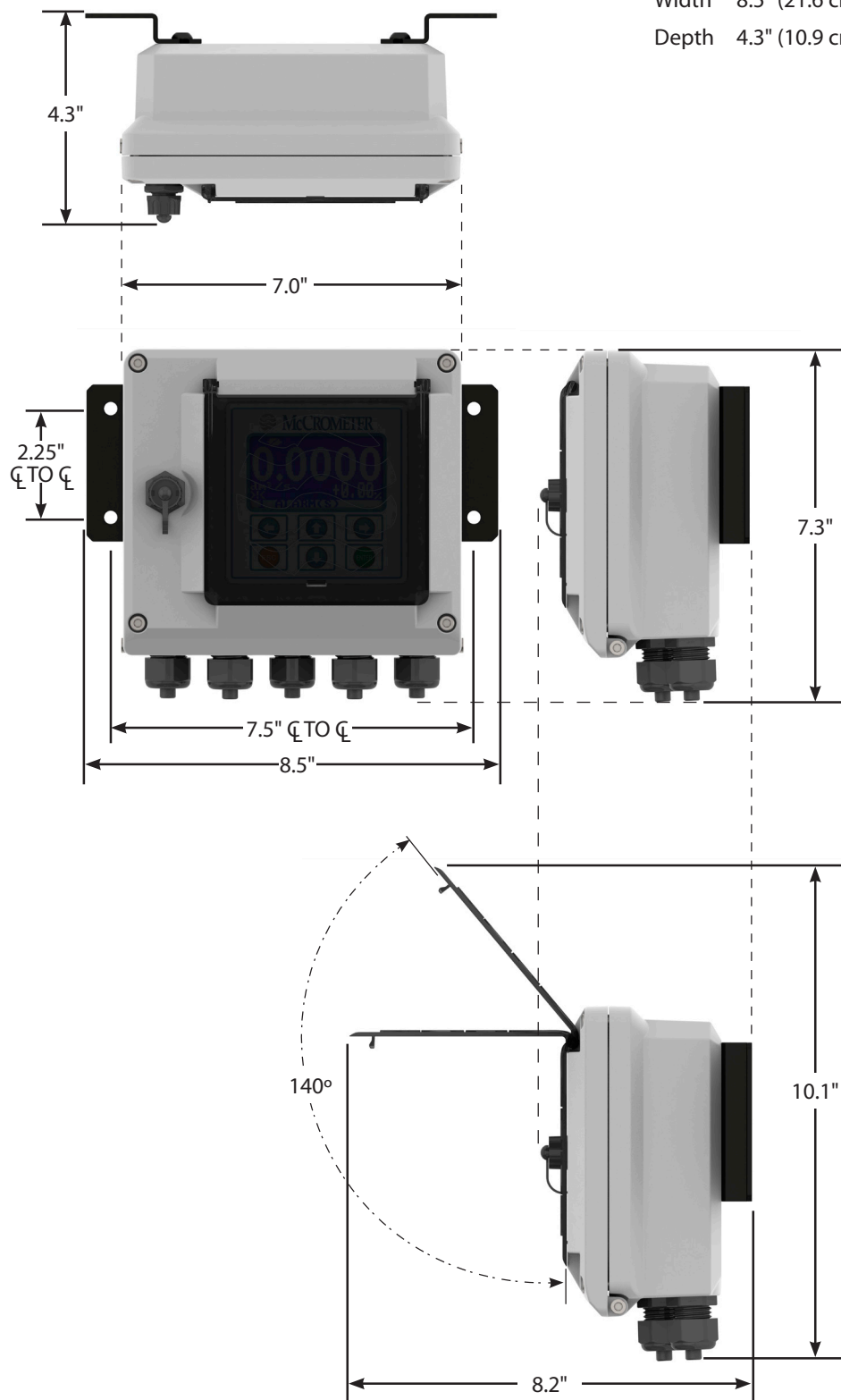
Note regarding cable length: McCrometer recommends minimizing cable length. Electromagnetic flow meters may have unfavorable signal strength to noise ratio in electrically noisy environments. Longer lengths of cable increase the likelihood of interference. In those cases where the meter's signal must be transmitted a long distance, or where the environment may be particularly noisy, we suggest using the converter's analog output(s). That allows locating the converter as close as possible to the metering location.

CONVERTER DIMENSIONS

Height 7.3" (18.5 cm)

Width 8.5" (21.6 cm)

Depth 4.3" (10.9 cm)



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