PE202
Low Flow Magmeter
Instructions
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The **PE202** magmeter is designed for low-flow chemical injection or difficult-to-meter applications with pulsating metering pumps in 3/4” to 1/4” pipe/tube. The housing is made of sturdy splashproof HDPE plastic.

With no moving parts, the PE202 can handle fluids containing particulate matter without clogging or jamming, keeping maintenance at a minimum. With no metallic parts (100% PVDF body and PVDF carbon fiber-filled electrodes), the meter is corrosion-resistant and compatible with a wide range of chemicals (consult factory for chemicals and concentrations). Accuracy is maintained with conductive fluids (>20 microSiemens) of varying viscosities and densities.

### FEATURES

**GENERAL INFORMATION**

The PE meter is compact enough to fit most pump/injection systems. With zero straight pipe required after an elbow, it can be easily mounted in tight spaces. The mounting bracket adds stability.

The PE meter has an optoisolated current sinking pulse output that can be connected to the Seametrics FT430/440 rate/total display or FT520 batch processor, as well as an optoisolated 4-20 mA current loop for analog devices. Outputs and power are provided through a cable with 8-pin female circular connector.

**INTERNALS**

Internals made of chemical and corrosion-resistant PVDF

**STURDY HDPE HOUSING**

**8-PIN CIRCULAR BULKHEAD CONNECTOR**

20 foot (6 meter) cable provided

**½” MALE NPT WITH WHITE FLOWBODY**

For the -075 version

**THREADED MALE OR FEMALE NPT ADAPTERS**

Can be purchased separately (available in PVDF and PP)

**FEMALE NPT AVAILABLE IN 1/2” ONLY**

**EMBEDDED CABLE OPTION**

Available for both -038 and -075 models

**MOUNTING BRACKET**

Available for -038 and -075 models

**NOTE**

½” male NPT with gray flowbody for -038 version
## Specifications*

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pipe Size</strong></td>
<td>3/4&quot;, 1/2&quot;, 3/8&quot;, 1/4&quot; **</td>
</tr>
<tr>
<td><strong>Fittings</strong></td>
<td>1/2&quot; NPT fittings standard in 3/4&quot; or 3/8&quot; flowbody. NPT threaded adapters available for above pipe sizes.</td>
</tr>
<tr>
<td><strong>Materials</strong></td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td>PVDF</td>
</tr>
<tr>
<td>Electrodes</td>
<td>PVDF carbon fiber filled</td>
</tr>
<tr>
<td>Ground</td>
<td>PVDF carbon fiber filled</td>
</tr>
<tr>
<td>Housing</td>
<td>HDPE with 25% glass</td>
</tr>
<tr>
<td>Adapters (NPT)</td>
<td>Polypropylene or PVDF</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td></td>
</tr>
<tr>
<td>Ambient</td>
<td>0˚ to 130˚ F (-18˚ to 54˚ C)</td>
</tr>
<tr>
<td>Fluid</td>
<td>32˚ to 200˚ F (0˚ to 93˚ C)</td>
</tr>
<tr>
<td><strong>Pressure</strong></td>
<td>150 psi</td>
</tr>
<tr>
<td><strong>Flow Range</strong></td>
<td>-075 20 GPM max. (0.2 GPM cutoff)</td>
</tr>
<tr>
<td></td>
<td>-038 3 GPM max. (0.03 GPM cutoff)</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>-075 ±1% plus ±0.005 GPM of reading across rated range</td>
</tr>
<tr>
<td></td>
<td>-038 ±1% plus ±0.002 GPM of reading across rated range</td>
</tr>
<tr>
<td><strong>Output Signal</strong></td>
<td>Optoisolated current sinking or current sourcing pulse output: 30 Vdc, 5 mA max</td>
</tr>
<tr>
<td></td>
<td>Optoisolated 4-20 mA current loop: 7 Vdc plus load voltage drop min, 50 Vdc max</td>
</tr>
<tr>
<td></td>
<td>-075 500 pulses/liter (1892 pulses/gallon)</td>
</tr>
<tr>
<td></td>
<td>-038 1000 pulses/liter (3785 pulses/gallon)</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>10–15 Vdc, 150 mA (linear power supply recommended)</td>
</tr>
<tr>
<td><strong>Conductivity</strong></td>
<td>&gt;20 microSiemens</td>
</tr>
<tr>
<td><strong>Empty Pipe Detection</strong></td>
<td>Hardware/software, conductivity-based</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>NEMA 4X standard; IP66 splashproof standard</td>
</tr>
</tbody>
</table>

* Specifications subject to change • Please consult our website for current data (seametrics.com).
** Requires adaptors

NOTE: Consult factory for applications flowing sodium hypochlorite, sodium chlorite, sodium chlorate.

For applications with the listed chemicals, the following conditions apply:
- Max concentration 15% / Max temperature 100˚ F
- Flow is greater than 20% of max for accurate reading
Dimensions

Mounting Bracket

Pressure Drop Curve

- PE202-075 with 3/4" adapters.
- PE202-038 with 3/8" adapters.

Actual curve dependant on pipe size/fittings
Positioning
The PE202 can be mounted vertically or horizontally. It is important to choose a position that will ensure full pipe. (Under certain conditions of empty or partially-full pipe the meter may give a pulse out when there is no flow.) With a zero straight pipe requirement after an elbow, the PE meter can be installed in tight spaces.

Mounting
It is highly recommended to use the mounting bracket provided. The mounting bracket uses two #8 screws on a 1.5" center.

The PE202 may be supported by its piping connections IF the piping is rigid. The meter and pipe must be perfectly aligned with no flexion at the fittings to prevent leakage or damage to the meter.

Piping
Metal pipe, metal tube, or plastic tubing can be used with the meter. The standard NPT fittings can be used with or without NPT adapters on 3/4" or 3/8" pipe. If used, apply Teflon tape onto the NPT fittings. NPT adapters should be hand tightened onto the fittings. Thoroughly clean the pipe threads and nose and apply Teflon tape to adapter threads. Hold adapters with a wrench while tightening the pipe to prevent damage to the meter.

Power Supply
A 12 Vdc linear, regulated power supply with an output current of at least 0.25A is recommended. If a switching power supply must be used, consult Seametrics for approved manufacturer’s model numbers.

Grounding
In addition, it is necessary for proper operation to ground the unit to a good quality earth ground. Assure negative power supply is grounded to earth and to the entire electrical/mechanical system. If metal piping is used, jumper inlet and outlet pipes together and connect to ground for best results in metering accuracy. The cable shield drain wire should be left unconnected.
Power and signal connections are provided through the 8-pin male bulkhead connector on the meter housing (20 ft (6 m) cable provided). See the Pin Assignment and Connections diagrams.
**OPERATION**

The meter will output one pulse when powered up. The newly-installed meter takes from a few seconds to a minute for the signal to stabilize at startup, especially if it has been dry. In normal operation, keep the meter filled with fluid and powered on to prevent this delay. When the meter is mounted properly, an empty pipe detection feature will normally detect absence of liquid in the pipe and register zero flow.

The 4-20 mA signal outputs 4 mA at zero flow and 20 mA at 20 gallons/minute flow or 3 gallons per minute, depending on model.

The pulse signal is a 50% duty cycle pulse set at:
- PE202-075: 500 pulses/liter (1892 pulses/gallon)
- PE202-038: 1,000 pulses/liter (3785 pulses/gallon)

**TROUBLESHOOTING**

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<thead>
<tr>
<th>Problem</th>
<th>Probable Causes</th>
<th>Things to try…</th>
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<tbody>
<tr>
<td>No output</td>
<td>Reversed flow direction</td>
<td>Reverse flow connections</td>
</tr>
<tr>
<td></td>
<td>Empty pipe</td>
<td>Check piping conditions</td>
</tr>
<tr>
<td></td>
<td>Flow rate below minimum</td>
<td>Select a different flow meter</td>
</tr>
<tr>
<td></td>
<td>Loose or incorrect wiring</td>
<td>Check electrical connections</td>
</tr>
<tr>
<td></td>
<td>Fluid conductivity too low</td>
<td>Select a different flow meter</td>
</tr>
<tr>
<td></td>
<td>Electrical noise</td>
<td>Relocate meter or reduce noise</td>
</tr>
<tr>
<td></td>
<td>Material or oils in fluid coating electrodes</td>
<td>Using 99% isopropyl alcohol, scrub the bore with soft bristled brush and/or soak bore to remove contaminants</td>
</tr>
<tr>
<td>Flow rate incorrect</td>
<td>Fluid conductivity too low</td>
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Problem
Probable Causes
Things to try...

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Reversed flow direction
Empty pipe
Flow rate below minimum
Loose or incorrect wiring
Fluid conductivity too low
Electrical noise
Material or oils in fluid coating electrodes
Reverse flow connections
Check piping conditions
Select a different flow meter
Check electrical connections
Select a different flow meter
Relocate meter or reduce noise
Using 99% isopropyl alcohol, scrub the bore with soft bristled brush and/or soak bore to remove contaminants

Flow rate incorrect
Fluid conductivity too low
Empty pipe
Electrical noise
Select a different flow meter
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Relocate meter or reduce noise