

PE202

Low Flow Magmeter Instructions



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The **PE202** magmeter is designed for low-flow chemical measuring or difficult-to-meter applications with pulsating metering pumps in 1/4" to 3/4" 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.

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.

FEATURES



8-pin circular bulkhead connector, 20 foot (6 meter) cable provided

Internals made of chemical and corrosion-resistant PVDF

Sturdy HDPE housing

1/2" male NPT with white flowbody for -075 version



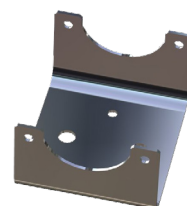
Threaded male or female NPT adapters can be purchased separately (available in PVDF and PP)
(Female NPT available in 1/2" only)



Note: 1/2" male NPT with gray flowbody for -038 version



Embedded cable option (available for both -038 and -075 models)



Mounting bracket

Specifications*

Pipe Size		3/4", 1/2", 3/8", 1/4" **
Fittings		1/2" NPT fittings standard in 3/4" or 3/8" flowbody. NPT threaded adapters available for above pipe sizes.
Materials	Body	PVDF
	Electrodes	PVDF carbon fiber filled
	Ground	PVDF carbon fiber filled
	Housing	HDPE with 25% glass
	Adapters (NPT)	Polypropylene or PVDF
Temperature	Ambient	0° to 130° F (-18° to 54° C)
	Fluid	32° to 200° F (0° to 93° C)
Pressure		150 psi
Flow Range	-075	20 GPM max. (0.2 GPM cutoff; 11.5 max GPM with high resolution option)
	-038	3 GPM max. (0.03 GPM cutoff)
Accuracy	-075	±1% plus ±0.005 GPM of reading across rated range
	-038	±1% plus ±0.002 GPM of reading across rated range
Output Signal Standard		Optoisolated current sinking or current sourcing pulse output: 30 Vdc, 5 mA max Optoisolated 4-20 mA current loop: 7 Vdc plus load voltage drop min; 50 Vdc max
	-075	500 pulses/liter (1892 pulses/gallon)
	-038	1000 pulses/liter (3785 pulses/gallon)
Output Signal High Res. Option		Optoisolated current sinking or current sourcing pulse output: 30 Vdc, 5 mA max Optoisolated 4-20 mA current loop: 7 Vdc plus load voltage drop min; 50 Vdc max
	-075	2641.7 pulses/liter (10000 pulses/gallon)
	-038	4999 pulses/liter (18925 pulses/gallon)
Power		10–15 Vdc, 150 mA (linear power supply recommended)
Conductivity		>20 microSiemens
Empty Pipe Detection		Hardware/software, conductivity-based
Environmental		NEMA 4X standard; IP66 splashproof standard

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

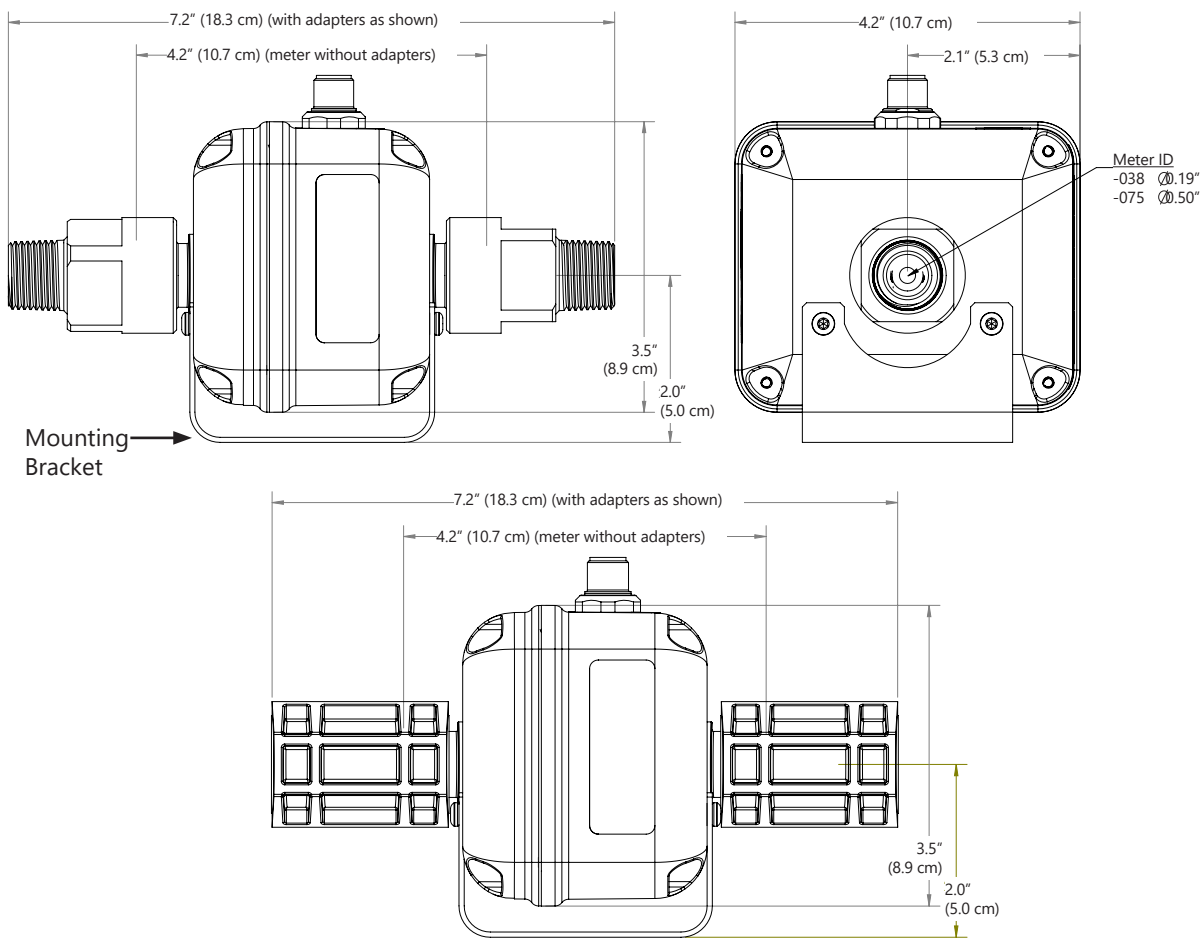
** Requires adaptors

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

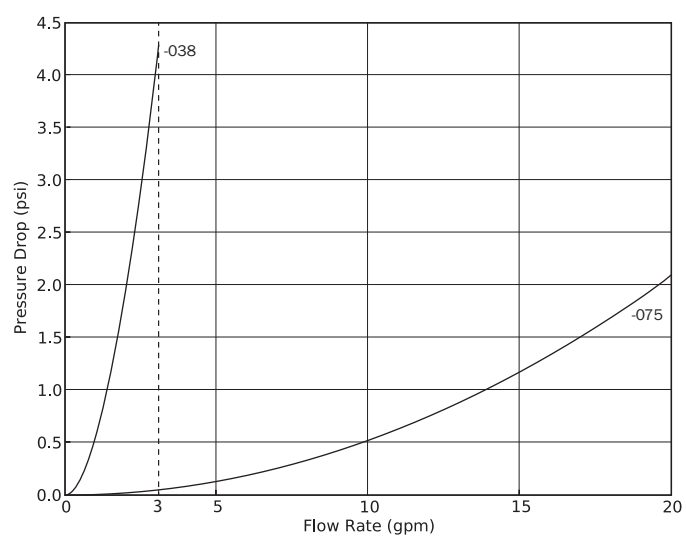
For applications with the listed chemicals, the following conditions apply:

- Max concentration 15% / Max temperature 100° F
- Flow is greater than 20% of min for accurate reading

Dimensions



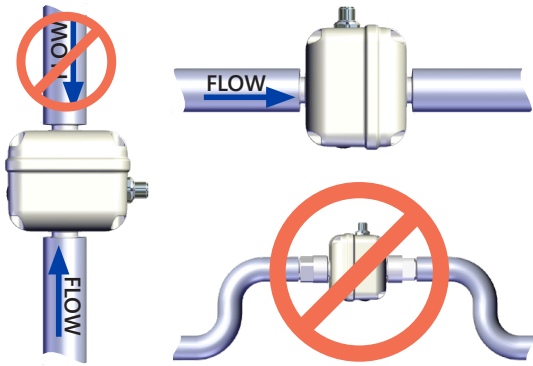
Pressure Drop Curve



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.

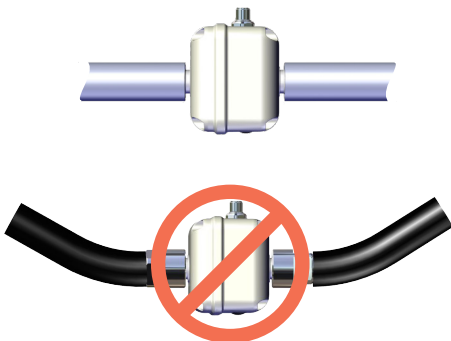


Mounting

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

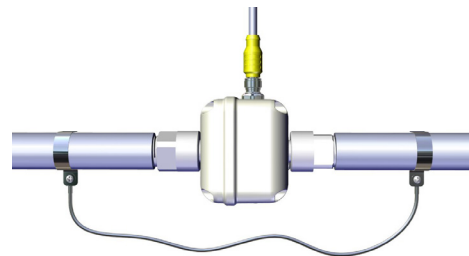
Metal pipe, metal tube, or plastic tubing can be used with the meter. The standard NPT fittings can be used with or without NPT adapters on 3/4" or 3/8" pipe. If used, apply Teflon tape onto the NPT fittings. ***NPT adapters should be hand tightened onto the fittings.*** Thoroughly clean the pipe threads 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

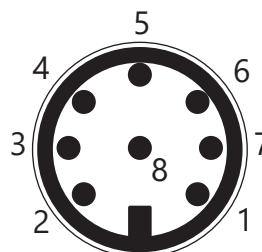
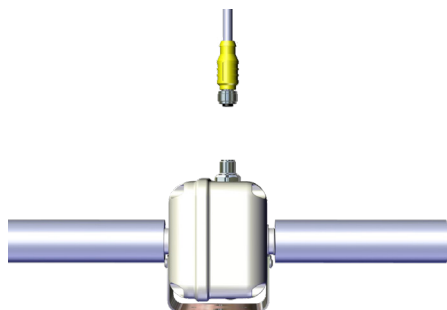
A 12 Vdc linear, regulated power supply with an output current of at least 0.25A is recommended. If a switching power supply must be used, consult Seametrics for approved manufacturer's model numbers.

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.



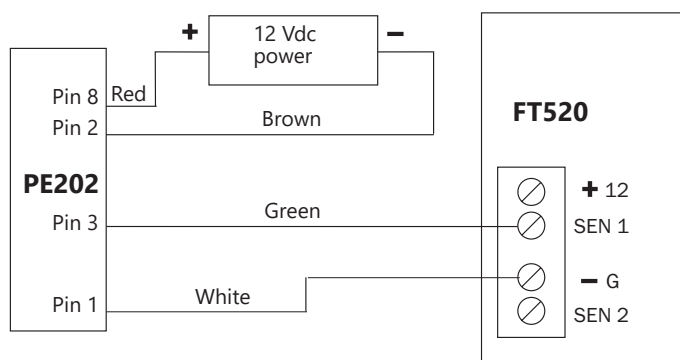
Power and signal connections are provided through the 8-pin male bulkhead connector on the meter housing (20 ft (6 m) cable provided). See the Pin Assignment and Connections diagrams.



Cable Plug Contact Arrangement

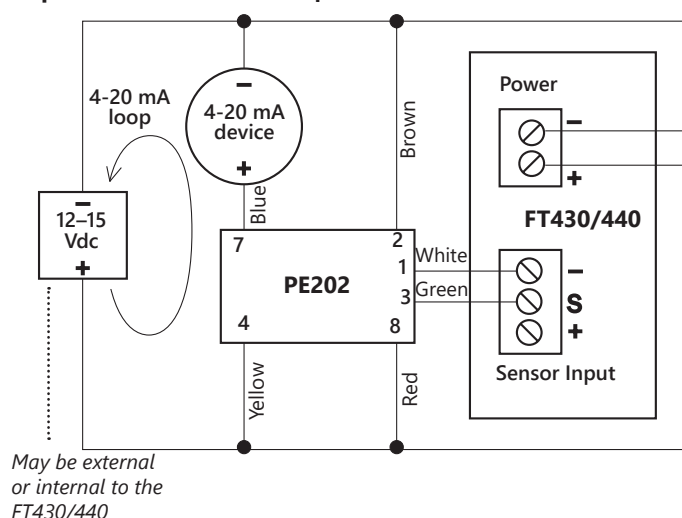
Pin #	Function	Color
1	Pulse (-)	White
2	Ground	Brown
3	Pulse (+)	Green
4	4-20 (+)	Yellow
5	Not used	Grey
6	Not used	Pink
7	4-20 (-)	Blue
8	Power (+)	Red

Pulse Output Only with FT520

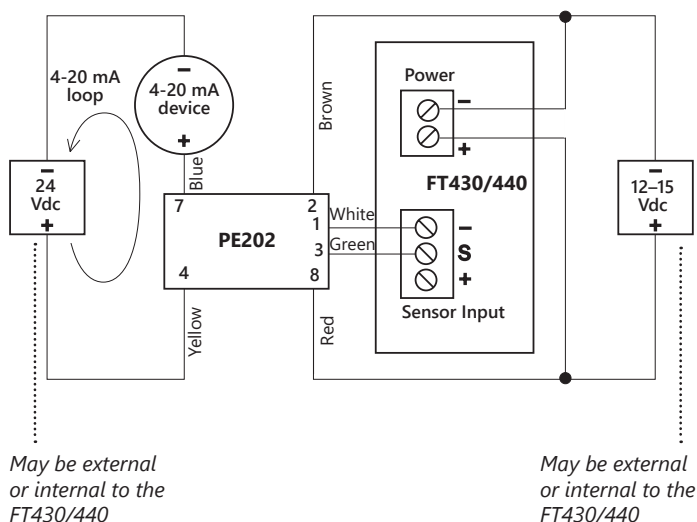


4-20 mA Device and FT430/440 with Single Power Supply

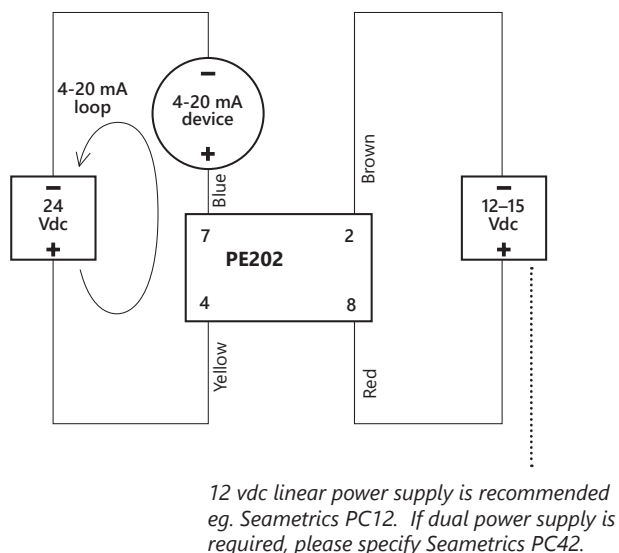
Important: 4-20mA device input resistance must not exceed 250 Ω



Dual Power Supply with Loop Isolation with FT 430/440



PE202 with 4-20 mA Device Only



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:

Standard

PE202-075: 500 pulses/liter (1892 pulses/gallon)

PE202-038: 1,000 pulses/liter (3785 pulses/gallon)

High Res Option

PE202-075: 2641.7 pulses/liter (10000 pulses/gallon)

PE202-038: 4989 pulses/liter (18925 pulses/gallon)

TROUBLESHOOTING

Problem	Probable Causes	Things to try...
No output	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 Check piping conditions Relocate meter or reduce noise

