

# WMP-Series

Plastic-Bodied Magmeter  
Instructions

3 inch



2 inch

1 inch



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The WMP-Series meters are full-bore, plastic-bodied electromagnetic flow meters designed for flow and usage monitoring applications in 1, 2, and 3 inch pipe. The polypropylene flow tube offers corrosion resistance to a wide range of chemicals. It's light weight and easy to install or remove from the pipe for inspection.

With no moving parts, the magmeter permits unobstructed flow, minimizing flow disturbances and hence, straight pipe requirements. The WMP-Series can be used in piping configurations where there is little space between the meter and an elbow or valve. The WMP-Series meters are resistant to wear from sand and debris found in ground or surface water. Since there are no bearings or propeller to wear out, downtime, maintenance, and repair costs are kept to a minimum. Because there are no mechanical parts in the flow stream, the meter tolerates high flows without damage.

The hinged, opaque polyethylene cover protects from dust and UV rays, while permitting easy access to the LCD flow

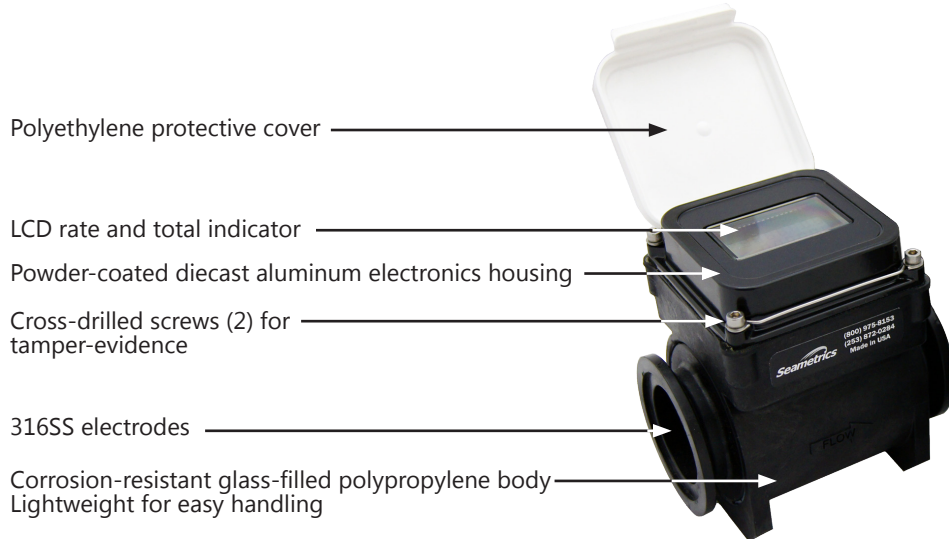
rate and total display. The electronics housing is made of rugged powder-coated diecast aluminum. It can be fitted with cross-drilled screws and seal wire for tamper-evidence. Flow rate and total can be displayed in a variety of units, customer-selected and factory-set.

The **WMP101** is externally powered via a 5-pin connector and the power cable also provides pulse output for use with a variety of Seametrics and other displays and controls for remote reading, data logging, pulse-to-analog conversion, and telemetry applications.

The **WMP104** is a battery-operated unit for use when pulse output is not required. The standard batteries are user replaceable with an approximate 1–2 year life depending on usage. An extended battery life option offers an estimated 2–4 year life depending on usage.

In the event of DC power loss, or when changing the battery, the WMP is designed to retain the internal settings and flow total.

Features



Seametrics Fitting Kit for 2 & 3 inch model



Unobstructed Flow

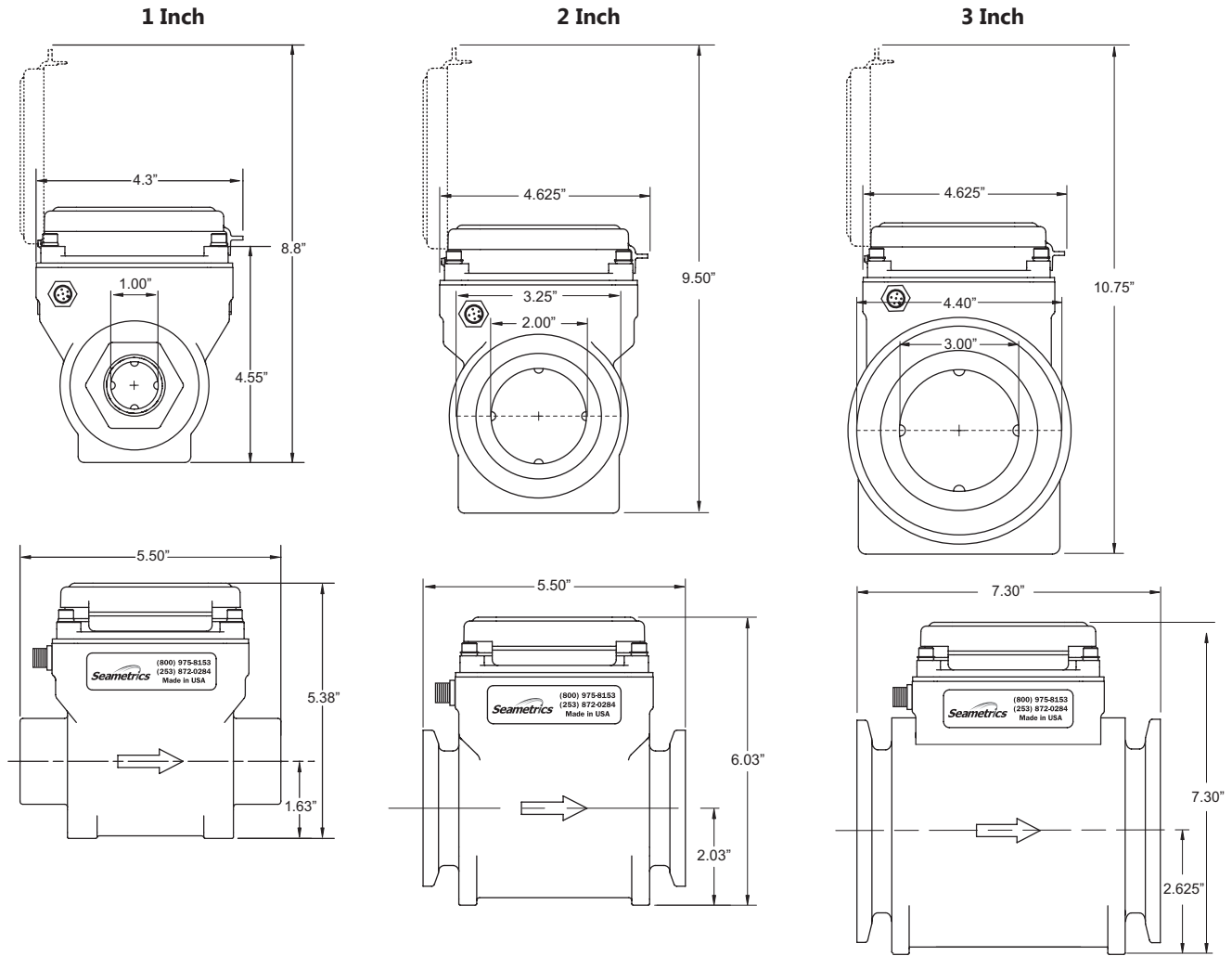
Specifications\*

|  |  |  |                                |  |      |
|--|--|--|--------------------------------|--|------|
| <b>Pipe Size</b>                           | 1, 2, or 3 inch full port  |  |                                |  |      |
| <b>Fittings</b>                            | 1 inch NPTF, 2 or 3 inch flange clamps with 2 or 3 inch NPTF fitting kit   |  |                                |  |      |
| <b>Pressure</b>                            | 150 psi or 10.3 bar working pressure @ 70° F   |  |                                |  |      |
| <b>Operating Temperature Range</b>         | Operating: 10° to 130° F (-12° to 54° C), Non-operating: -40° to 176° F (-40° to 80° C)                          |  |                                |  |      |
| <b>Accuracy</b>                            | ±1% of reading (between 10% and 100% of maximum flow)<br>±3% of reading (between cutoff and 10% of maximum flow) |  |                                |  |      |
| <b>Flow Range</b>                          | <b>Minimum</b>   | <b>1"</b> : 2.3 gpm (0.145 l/s)  | <b>2"</b> : 6 gpm (0.38 l/s)   | <b>3"</b> : 14 gpm (0.88 l/s)  |      |
|  | <b>Maximum</b>   | <b>1"</b> : 110 gpm (6.94 l/s)   | <b>2"</b> : 300 gpm (18.9 l/s) | <b>3"</b> : 670 gpm (42.3 l/s)   |      |
| <b>Materials</b>                           | <b>Body</b>  | Glass-filled polypropylene   |                                |  |      |
|  | <b>Electrodes</b>  | 316 stainless steel  |                                |  |      |
|  | <b>Electronics Housing</b>   | Power-coated diecast aluminum  |                                |  |      |
|  | <b>Display Cover</b>   | Polyethylene   |                                |  |      |
| <b>Display</b>                             | <b>Rate</b>  |  |                                | <b>Total</b>   |      |
|  | <b>Digits</b>  | 6  |                                | 8  |      |
|  | <b>Units</b>   | Gallons/Minute, Million Gallons/Day, Cubic Feet/Second, Cubic Feet/Minute, Liters/Second, Liters/Minute, Million Liters/Day, Cubic Meters/Minute, Cubic Meters/Hour  |                                | Acre-Feet, Acre-Inch, Gallons, Gallons x 1000, Cubic Feet, Liters, Megaliters, Cubic Meters, Cubic Meters x 1000 |      |
| <b>Security</b>                            | Cross-drilled screws and tamper-evident seal (optional)  |  |                                |  |      |
| <b>Power</b>                               | <b>WMP101</b>  | 10–30 Vdc @ 60 mA maximum (15 mA average)<br>Note: Using an unregulated power supply >18 Vdc may damage the meter due to AC line input voltage fluctuation.  |                                |  |      |
|  | <b>WMP104</b>  | 6 - AA alkaline cells, replaceable. Estimated life is 1 year depending on usage (standard)<br>2 - C lithium batteries, replaceable. Estimated life is 2–4 years depending on usage (extended battery life opt) |                                |  |      |
| <b>Pulse Output Signal (WMP101 only)</b>   |  | Current sinking pulse, opto-isolated, 32 Vdc maximum @ 10mA maximum  |                                |  |      |
| <b>Pulse Rate (WMP101 only)</b>            | <b>Low Frequency (-PxU)</b>  | 1 unit/pulse out, pulse width of 10 ms, depending on unit selection  |                                |  |      |
|  | <b>High Frequency (-HF)</b>  | <b>1"</b>  | <b>2"</b>                      | <b>3"</b>  |      |
|  |  | <b>Pulse/Gal</b>   | 80                             | 30   | 13   |
|  |  | <b>Pulse/Liter</b>   | 21.14                          | 7.93   | 3.44 |
| <b>Empty Pipe Detection</b>                | Hardware/software, conductivity based  |  |                                |  |      |
| <b>Conductivity</b>                        | >20 microSiemens/cm  |  |                                |  |      |
| <b>Environmental</b>                       | NEMA 4X standard   |  |                                |  |      |
| <b>Electrical Connection (WMP101 only)</b> |  | 5-pin male circular connector, mates to industry standard cable  |                                |  |      |

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

Dimensions

Dimensions shown without the Seametrics WMP Fitting Kit.



Flow Range

|                | 1"      |           | 2"      |           | 3"      |           |
|----------------|---------|-----------|---------|-----------|---------|-----------|
|                | Gal/Min | Liter/Sec | Gal/Min | Liter/Sec | Gal/Min | Liter/Sec |
| <b>Minimum</b> | 2.3     | 0.145     | 6       | 0.38      | 14      | 0.88      |
| <b>Maximum</b> | 110     | 6.94      | 300     | 18.9      | 670     | 42.3      |

**Piping Conditions**

It is highly recommended that the meter be installed with a length of straight pipe at least two times the diameter upstream and one diameter downstream. Some piping conditions require more than this. See next page for recommendations.

**End Connections**

The meter comes with Banjo™ union-type flange connections for ease in servicing the meter. To connect these to piping ends, a variety of kits are available from any Banjo dealer or from Seametrics.

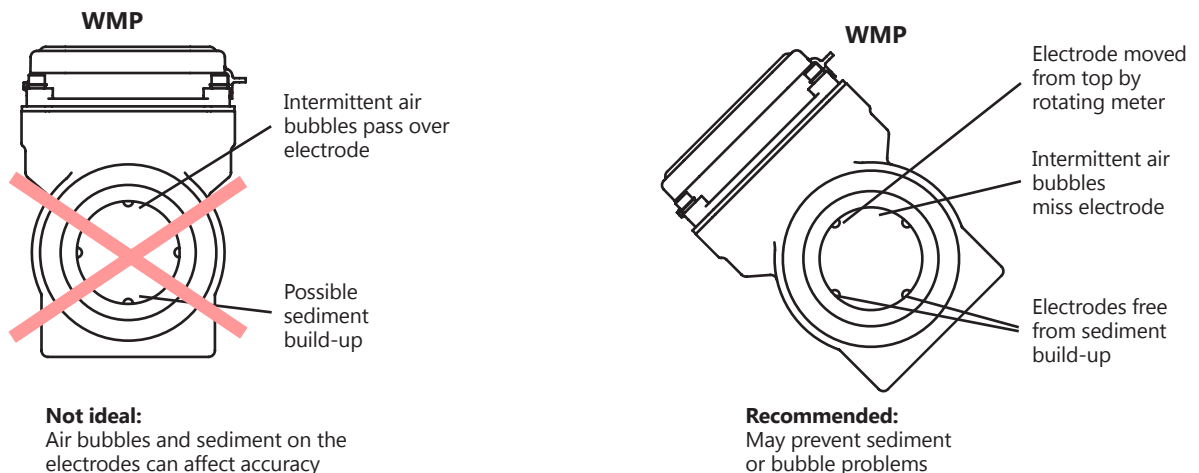
Follow the diagrams below to make the connections.



**NOTE:** Above installation instructions are for WMP101/104-200 (2") and WMP101/104-300 (3") only. The WMP101/104-100 (1") is provided with integrated NPT female threaded ends.

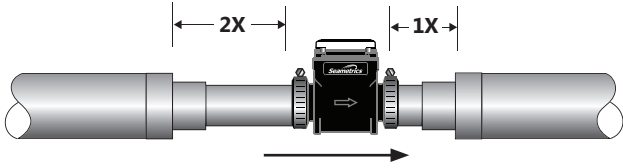
**Positioning**

This is an all position meter which can be installed either vertically or horizontally, register up, down, or angled. However, entrained air or solids may make some positions preferable to others.

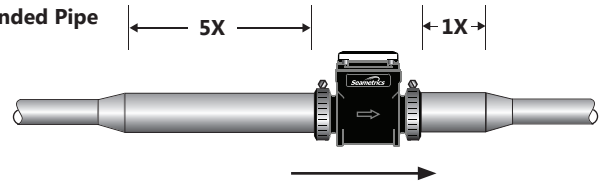


**Straight Pipe Recommendations** (X = pipe diameter)

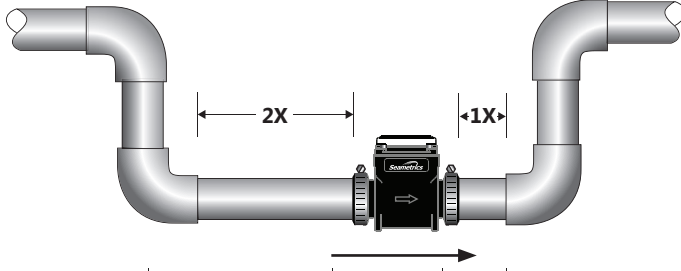
**Reduced Pipe**



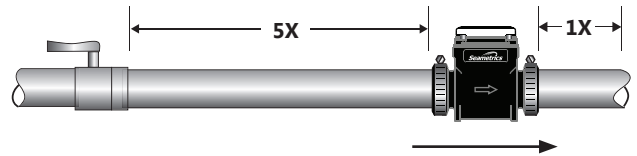
**Expanded Pipe**



**Elbows**

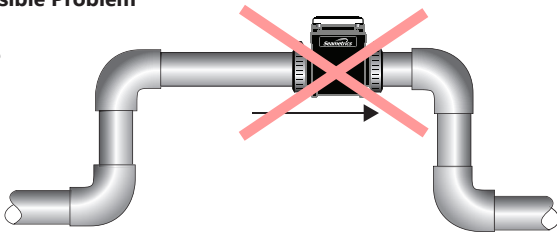


**Swirling Flow: Partially Open Butterfly Valve**



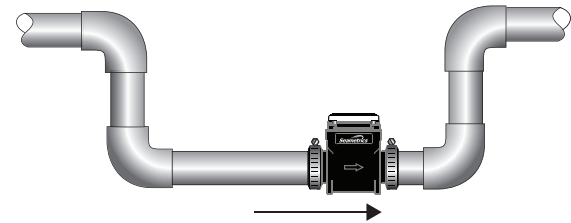
**Full Pipe Recommendations**

**Possible Problem**



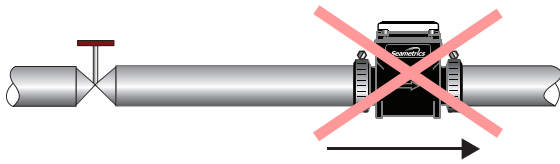
*Allows air pockets to form at sensor*

**Better Installation**



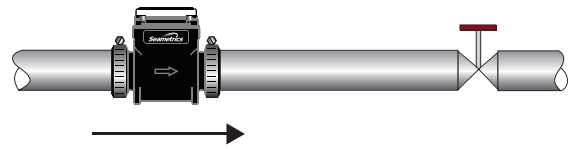
*Ensures full pipe*

**Possible Problem**



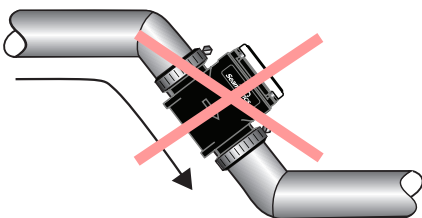
*Post-valve cavitation can create air pocket*

**Better Installation**



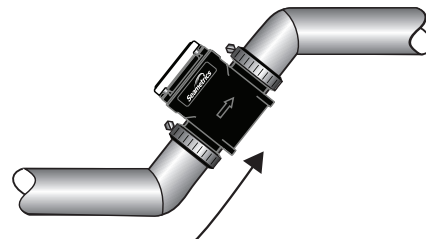
*Keeps pipe full at sensor*

**Possible Problem**



*Air can be trapped*

**Better Installation**



*Allows air to bleed off*

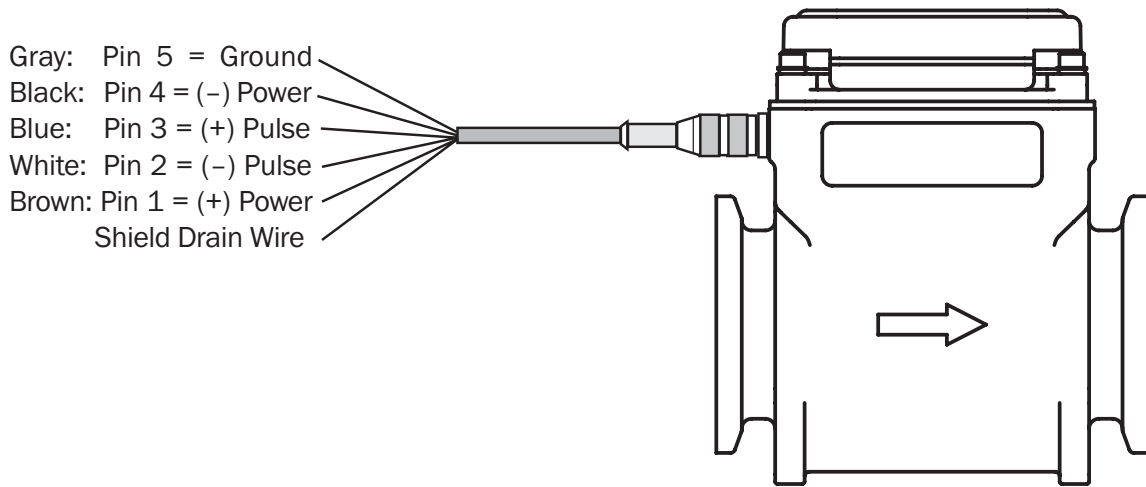


**Electrical Connections**

**WMP104.** The WMP104 is battery-powered, totally self-contained, and does not require any electrical connections (there is no output on the WMP104 model).

**WMP101.** A connector is provided on the outside of the WMP101. To connect to the meter, plug the cable in and hand tighten the retaining threads. Follow the diagram to make connections. If you are using the pulse output, connect power first and determine that the meter is working properly by observing the display. Then connect the pulse output.

**Cable Connections**



**Grounding**

**Grounding (WMP101).** For best performance, especially in chemically noisy environments, the gray ground wire and the bare drain wire should be connected together and to a good earth ground as close to the meter as possible. Metal pipe and fittings in contact with the fluid should also be bonded to the same earth ground with corrosion-resistant connections.

**Operation**

**Display.** The display reads flow rate and accumulated total, in the units for which it was ordered. The top line is the total, the bottom line is the rate, and indicators give the units (ac-ft, GPM for instance.) Empty or partially full pipe is automatically detected and is indicated by a reading of " - EP - ".

**Battery.** The standard batteries are user replaceable with an approximate 1–2 year life depending on usage. An extended battery life option offers an estimated 2–4 year life depending on usage. On the battery-powered WMP104 there is a low-battery indicator ("low bat") when the battery voltage drops below a certain point. Batteries should be changed within four weeks of the appearance of this indicator.

**Maintenance**

There are no user-serviceable parts in the WMP-Series meters except the batteries in the WMP104.

**Battery Replacement.** When the “low bat” indicator appears, the batteries should be changed. Either six AA alkaline cells are required, or two C lithium cells with integrated wiring harness, depending on power option ordered with meter.

To change the batteries, first remove the four screws which hold the top cover in place. Be careful not to lose the washers. Move the top cover to one side and remove the foam retainer which covers the battery tray or pack.

- For units with AA alkaline batteries, remove the old batteries from the battery tray and replace them with fresh ones, taking care to follow the polarity indicators in the battery tray.
- For units with the optional C lithium batteries, carefully unplug each of the two battery wiring harness connectors. Slip the batteries out from under the elastic retainer, and replace them with the new batteries. Reconnect each of the two wiring harness connectors. The connectors are indexed for correct installation.

Replace the foam retainer, and then put the top cover back in place. Replace the four screws and washers, and then tighten them securely using cross-pattern to evenly compress the gasket.



**Warning!**  
Use Extreme Caution not to pinch wiring or other assembly parts under the housing seal—this may cause an ingress of water, voiding the product warranty.



**Environmental and Safety Note**  
Take care to dispose of all batteries in accordance with Federal, State, and Local regulations.

**Troubleshooting**

| Problem                       | Probable Causes   | Things to try...                     |
|-------------------------------|---|--------------------------------------|
| Blank Display (WMP101)        | No power to unit  | Check power supply; check wiring     |
| Blank Display (WMP104)        | Batteries dead or misinstalled                                  | Check polarity; replace batteries    |
| Reading “-EP-”                | Empty or partly filled pipe or excessive air pockets or foaming | Rearrange piping to ensure full pipe |
| Flow but no flow rate reading | Heavily coated electrodes                                       | Remove meter and wipe electrodes     |

