

# 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



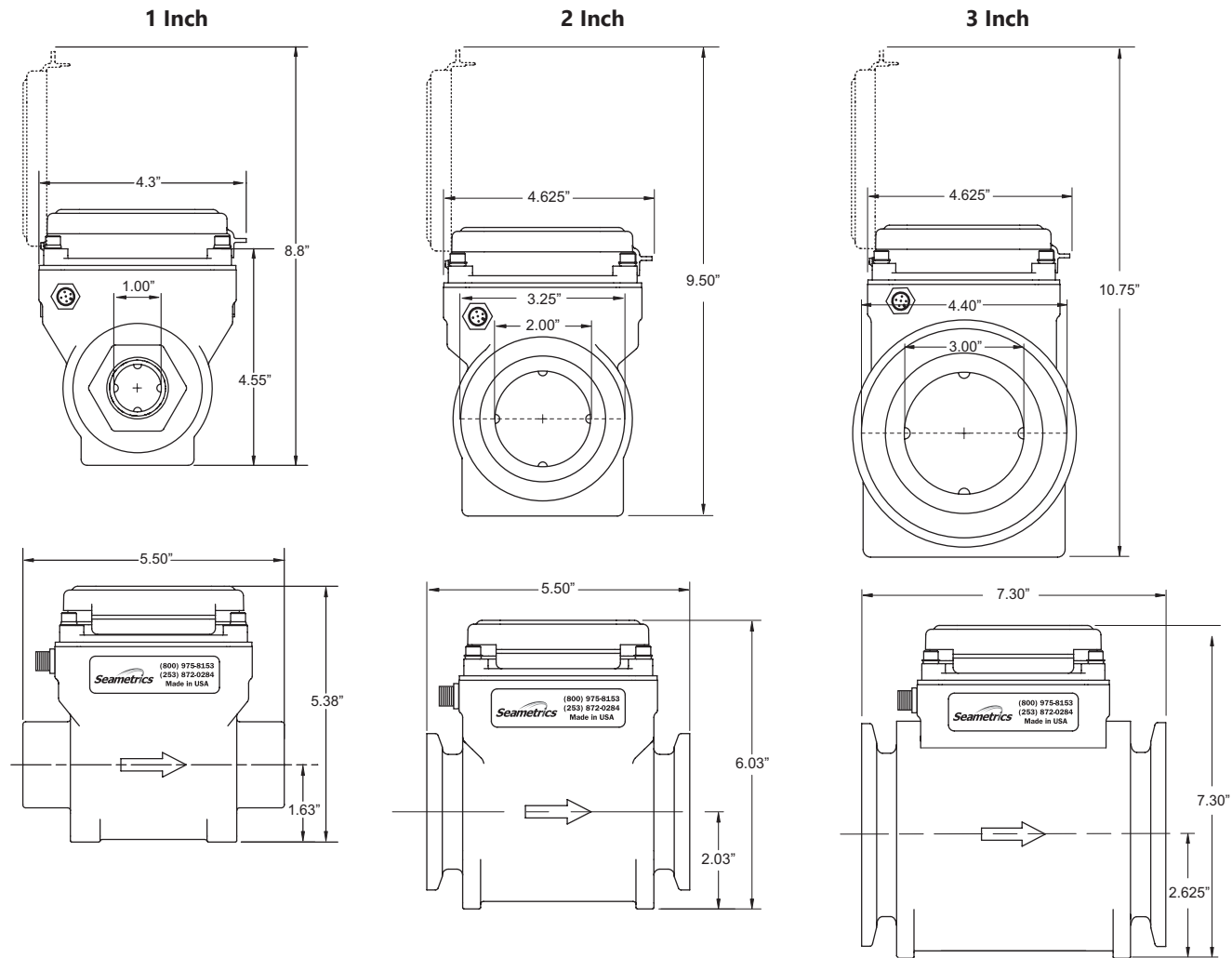
## Specifications\*

Pipe Size		1, 2, or 3 inch full port			
Fittings		1 inch NPTF, 2 or 3 inch flange clamps with 2 or 3 inch NPTF fitting kit			
Pressure		150 psi or 10.3 bar working pressure @ 70° F			
Operating Temperature Range		Operating: 10° to 130° F (-12° to 54° C), Non-operating: -40° to 176° F (-40° to 80° C)			
Accuracy		±1% of reading (between 10% and 100% of maximum flow) ±3% of reading (between cutoff and 10% of maximum flow)			
Flow Range	Minimum	1": 2.3 gpm (0.145 l/s)	2": 6 gpm (0.38 l/s)	3": 14 gpm (0.88 l/s)	
	Maximum	1": 110 gpm (6.94 l/s)	2": 300 gpm (18.9 l/s)	3": 670 gpm (42.3 l/s)	
Materials	Body	Glass-filled polypropylene			
	Electrodes	316 stainless steel			
	Electronics Housing	Power-coated diecast aluminum			
	Display Cover	Polyethylene			
Display	Rate			Total	
	Digits			8	
	Units	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	
Security		Cross-drilled screws and tamper-evident seal (optional)			
Power	WMP101	10–30 Vdc @ 60 mA maximum (15 mA average) Note: Using an unregulated power supply > 18 Vdc may damage the meter due to AC line input voltage fluctuation.			
	WMP104	6 - AA 1.5V lithium cells, replaceable. Estimated life is 1 year depending on usage (standard) 2 - C 3.6V lithium batteries, replaceable. Estimated life is 2–4 years depending on usage (extended battery life opt)			
Pulse Output Signal (WMP101 only)		Current sinking pulse, opto-isolated, 32 Vdc maximum @ 10mA maximum			
Pulse Rate (WMP101 only)	Low Frequency (-PxU)	1 unit/pulse out, pulse width of 10 ms, depending on unit selection			
	High Frequency (-HF)	1"	2"	3"	
		Pulse/Gal	80	30	13
		Pulse/Liter	21.14	7.93	3.44
Empty Pipe Detection		Hardware/software, conductivity based			
Conductivity		> 20 microSiemens/cm			
Environmental		NEMA 3X, IP64			
Electrical Connection (WMP101 only)		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
Minimum	2.3	0.145	6	0.38	14	0.88
Maximum	110	6.94	300	18.9	670	42.3

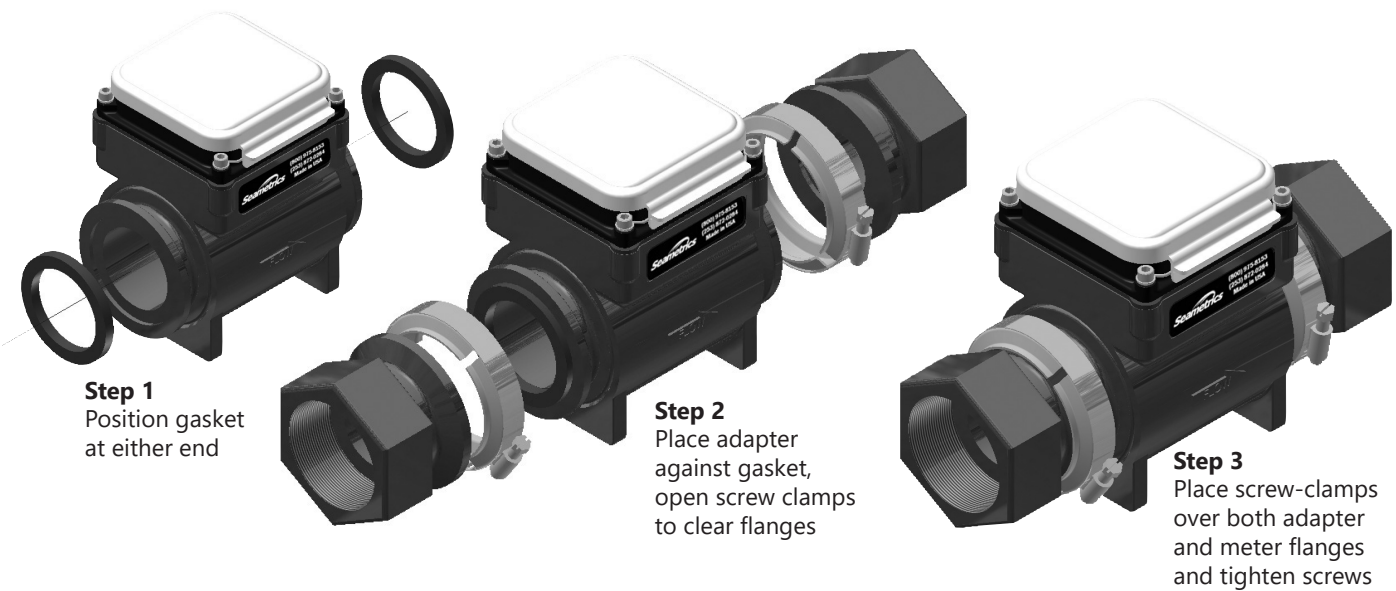
### Piping Conditions

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.

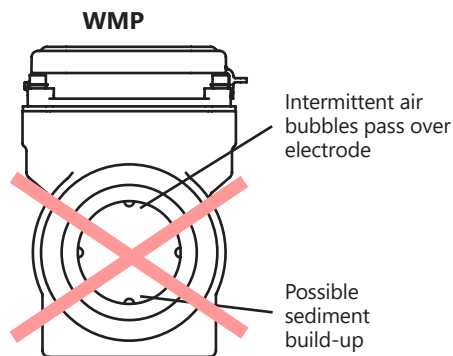
Follow the diagrams below to make the connections.



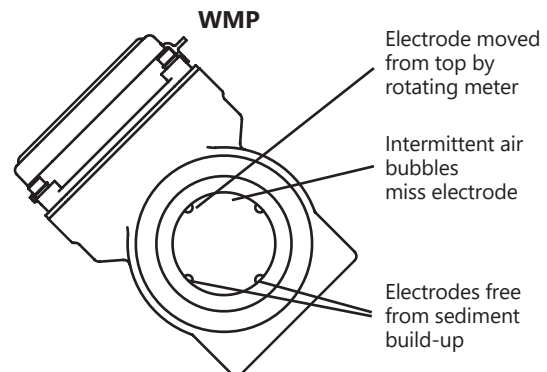
**NOTE:** Above installation instructions are for WMP101/104-200 (2") and WMP101/104-300 (3") only. The WMP101/104-100 (1") is provided with integrated NPT female threaded ends.

### 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.



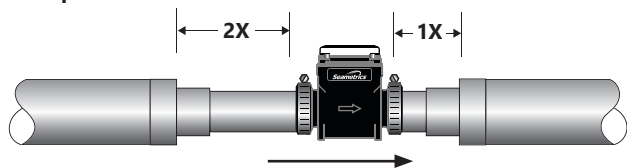
**Not ideal:**  
Air bubbles and sediment on the electrodes can affect accuracy



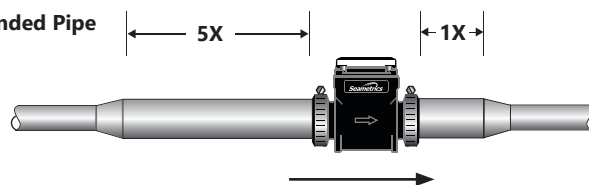
**Recommended:**  
May prevent sediment or bubble problems

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

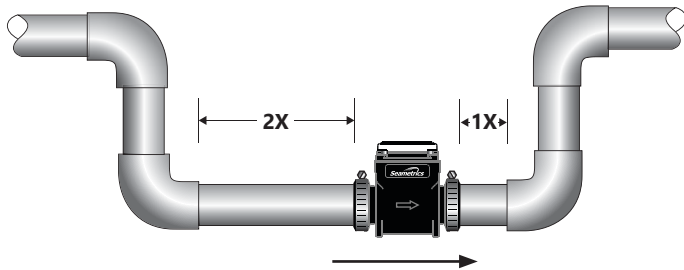
**Reduced Pipe**



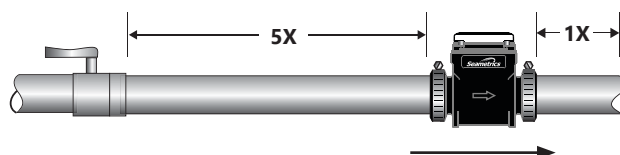
**Expanded Pipe**



**Elbows**

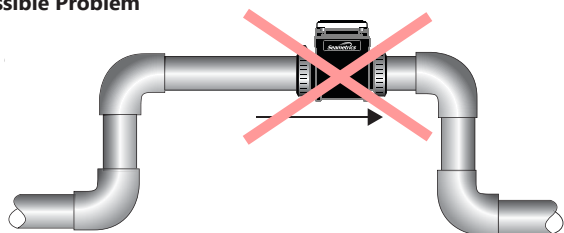


**Swirling Flow: Partially Open Butterfly Valve**



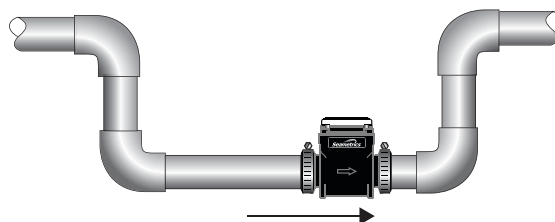
**Full Pipe Recommendations**

**Possible Problem**



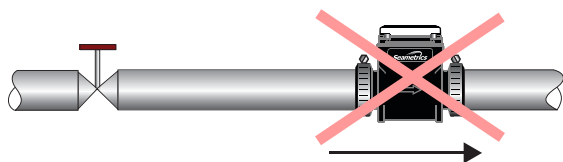
*Allows air pockets to form at sensor*

**Better Installation**



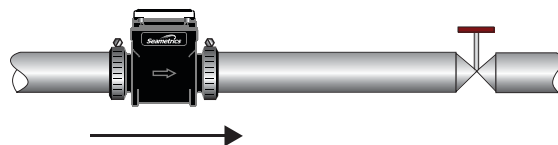
*Ensures full pipe*

**Possible Problem**



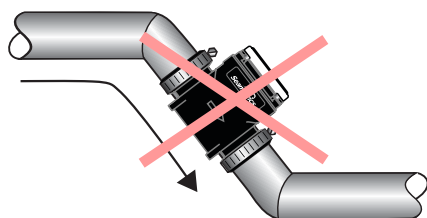
*Post-valve cavitation can create air pocket*

**Better Installation**



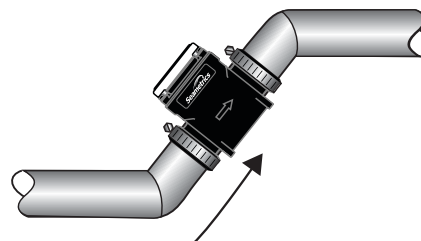
*Keeps pipe full at sensor*

**Possible Problem**



*Air can be trapped*

**Better Installation**



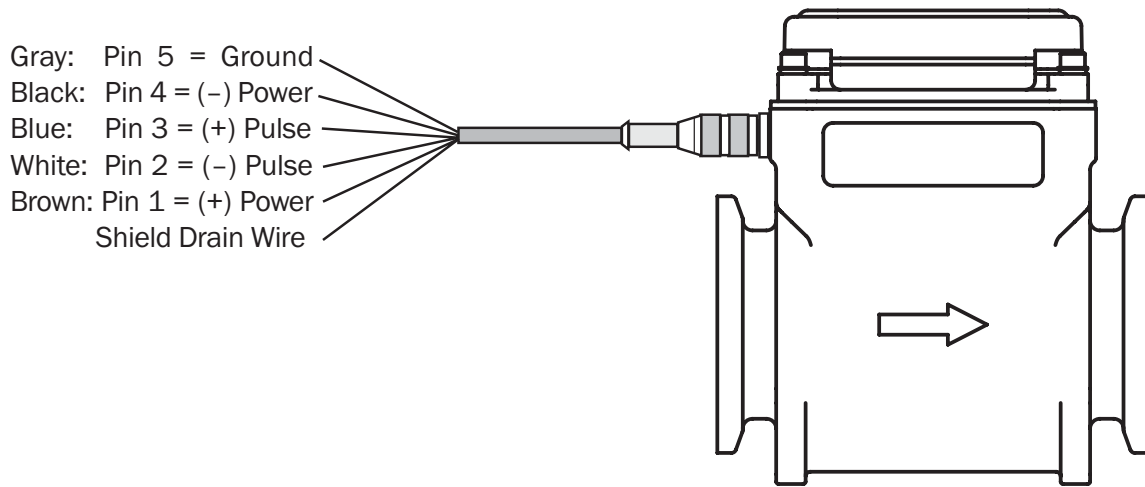
*Allows air to bleed off*

### 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).

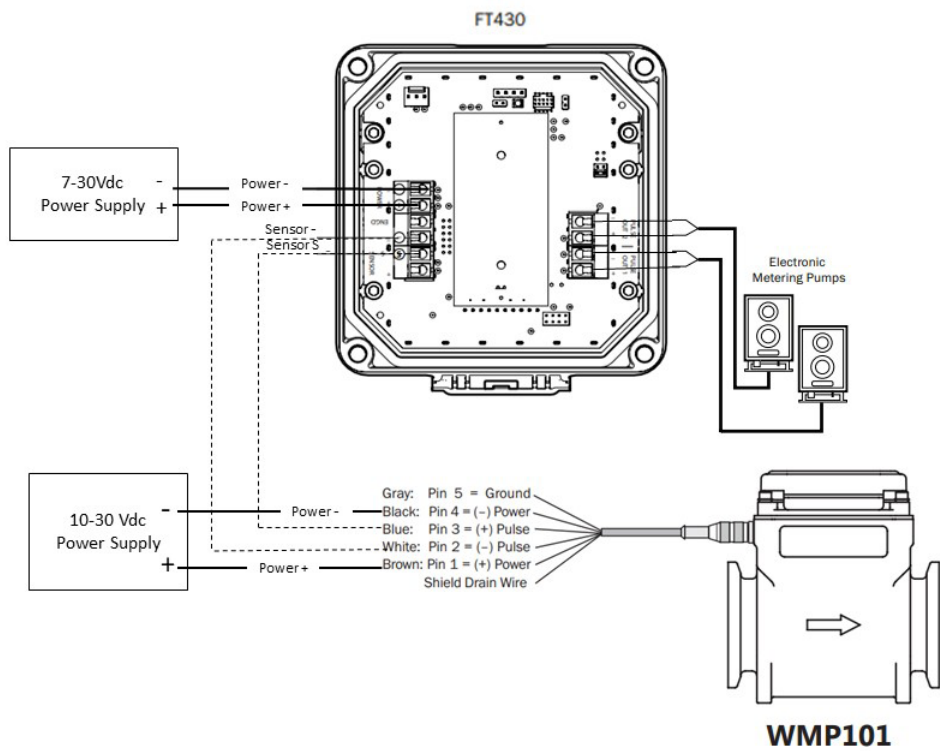
**WMP101.** A connector is provided on the outside of the WMP101. To connect to the meter, plug the cable in and hand tighten the retaining threads. Follow the diagram to make connections. If you are using the pulse output, connect power first and determine that the meter is working properly by observing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

### Cable Connections

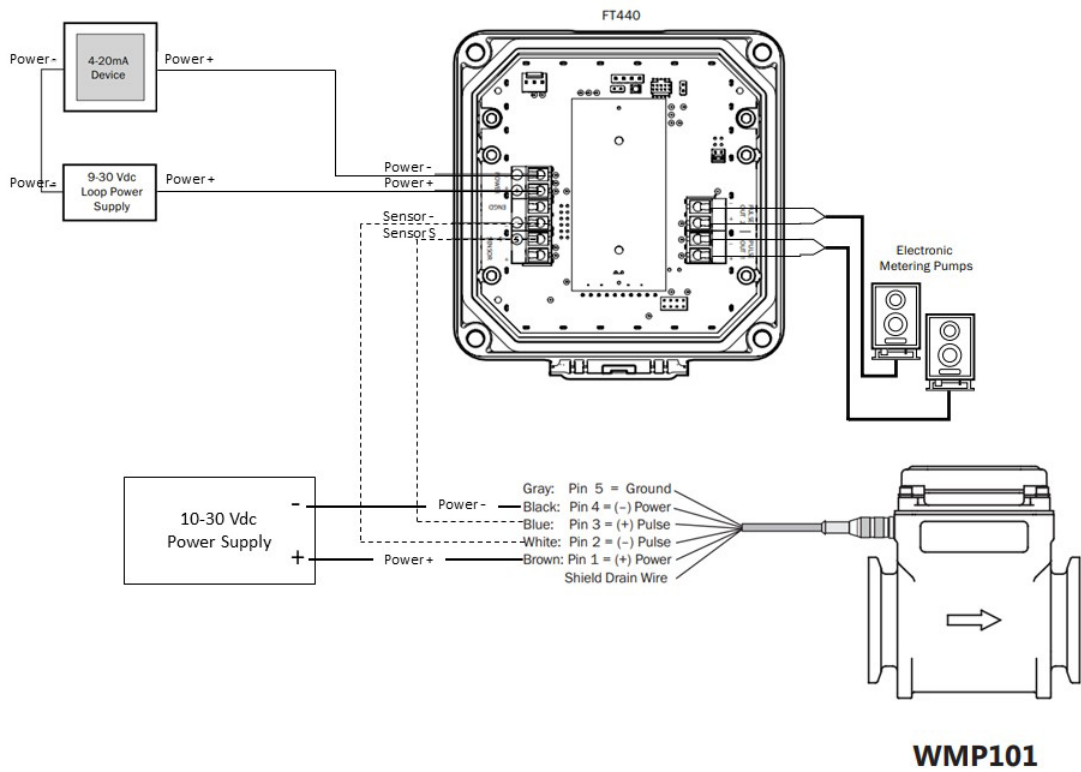




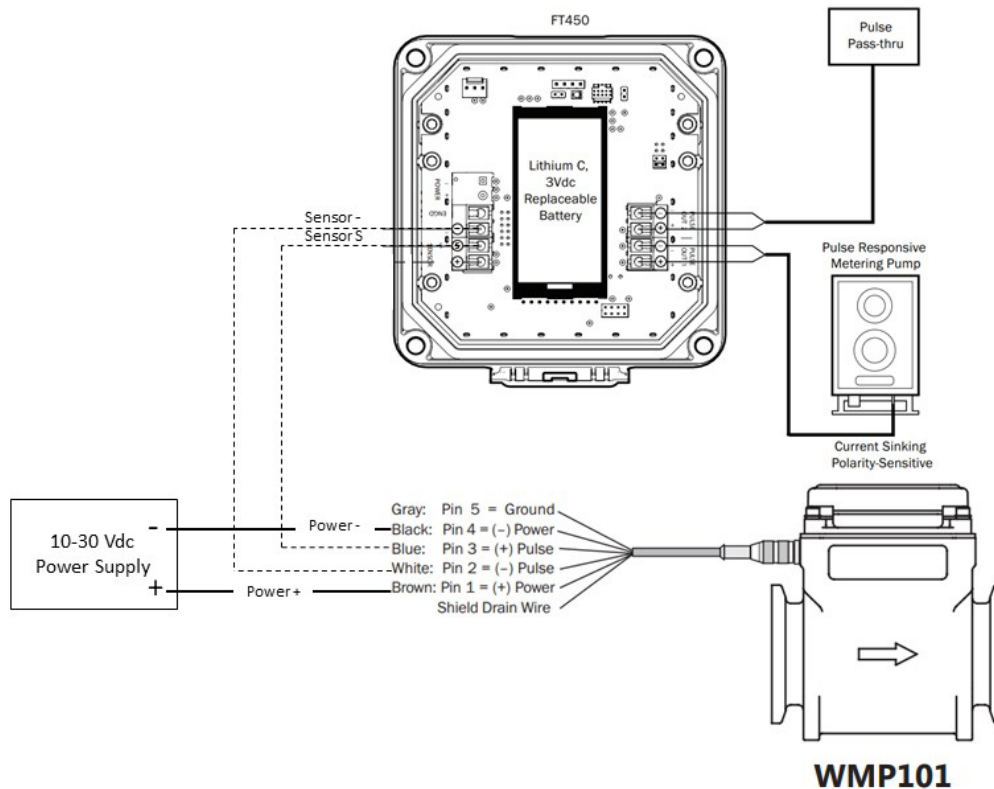
Connections to FT430



Connections to FT440



## Connections to FT450



## Grounding

**Grounding (WMP101).** For best performance, especially in electrically 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.

Erratic readings caused by excessive electrical interference may necessitate the installation of additional grounding. If your system piping is all nonconductive pipe, add a short piece of metal pipe just before and just after the meter and attach a 10-gauge wire from that pipe to a good earth and/or system ground.

In a fully mobile system, the grounds of all components of the assembly may need to be bonded together if the meter reads erratically. This may include, but is not limited to the chassis, power plant, trailer, cab, pumps, sprayers, articulating arms, etc

## 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 1.5V lithium cells are required, or two C 3.6V 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 1.5V lithium 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.

**Note:** AA 1.5V lithium batteries can be purchased locally. Contact Seametrics for 3.6V lithium batteries.



### 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

## SEAMETRICS LIMITED WARRANTY POLICY

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The limited warranty set forth below is given by Seametrics, with respect to Seametrics and INW brand products purchased in the United States of America.

Seametrics warrants that products manufactured by Seametrics, when delivered to you in new condition in their original containers and properly installed, shall be free from defects in material and workmanship. **Seametrics products are warranted against defects for a period of two (2) years from date of installation, with proof of install date. If no proof of install date can be provided, warranty period will be two (2) years from date of shipment from Seametrics, as defined on Seametrics' invoice.** Seametrics' obligation under this warranty shall be limited to replacing or repairing the part or parts, or, at Seametrics' option, the products, which prove defective in material or workmanship. The following are the terms of Seametrics' limited warranty:

- a. Buyer must give Seametrics prompt notice of any defect or failure and satisfactory proof thereof.
- b. Any defective part or parts must be returned to Seametrics' factory or to an authorized service center for inspection.
- c. Buyer will prepay all freight charges to return any products to Seametrics' factory, or another repair facility, as designated by Seametrics.
- d. Defective products, or parts thereof, which are returned to Seametrics and proved to be defective upon inspection, will be repaired to factory specifications.
- e. Seametrics will deliver repaired products or replacements for defective products to the buyer (ground freight prepaid) to the destination provided in the original order.
- f. Products returned to Seametrics for which Seametrics provides replacement under this warranty shall become the property of Seametrics.
- g. This limited warranty covers all defects encountered in normal use of Seametrics products, and does not apply to the following cases:
  - i. Loss of or damage to Seametrics product due to abuse, mishandling, or improper packaging by buyer
  - ii. Failure to follow operating, maintenance, or environmental instructions prescribed in Seametrics' instruction manual
  - iii. Products not used for their intended purpose
  - iv. Alterations to the product, purposeful or accidental
  - v. Electrical current fluctuations
  - vi. Corrosion due to aggressive materials not approved for your specific product
  - vii. Mishandling, or misapplication of Seametrics products
  - viii. Products or parts that are typically consumed during normal operation
  - ix. Use of parts or supplies (other than those sold by Seametrics) which cause damage to the products, or cause abnormally frequent service calls or service problems
- h. A new warranty period shall not be established for repaired or replaced material, products, or supplies. Such items shall remain under warranty only for the remainder of the warranty period on the original materials, products, or supplies.
- i. In the event that equipment is altered or repaired by the buyer without prior written approval by Seametrics, all warranties are void. Damage caused by equipment or accessories not manufactured by Seametrics may void the product's warranty.
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  - iv. The user may not modify or reverse-engineer the software.

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