



MULTI-JET WATER METERS



Certified to
NSF/ANSI 61

INSTALLATION INSTRUCTIONS

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Technical Data

NSF/ANSI 61 Certified

Pulsafeeder's multi-jet water meters provide value by offering efficient, accurate operation for potable and non-potable water applications. The meters are offered in three body types: Plastic (potable water) Low-lead brass (potable water) and Leaded brass (non-potable water). The water meters are available in both totalizing & contacting head type providing a dry contact output proportional to flow and can interface directly with both Pulsafeeder pumps and controllers. A totalizing register dial records flow over a wide range with low head loss.

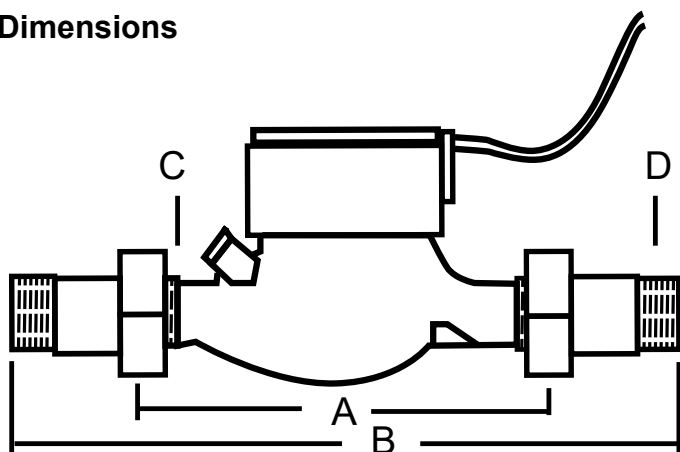
Features

- Sensor fastens to lens without removing top
- Calibration plug seal wire for tamper evidence
- Union end couplings for each service
- Factory set pulse rates
- Changing pulse rate requires no special tools
- Adjustable GPC (Tools required, see instruction manual for more details)

Applications

- Plastic Body NSF 61 certified – Residential Water Conditioning and Potable Water
- Brass Lead-Free NSF 61 certified – Municipal, Industrial, Heat Transfer Cooling Tower and Boiler

Dimensions



Body Type	3/4"	1"	1.5"	2"
Brass Body				
A (Body)	7 1/2"	10 1/4"	11 3/4"	11 3/4"
B (Body w/ Couplings)	11 5/8"	15"	17"	17 5/8"
C (IPS Thread)	1"	1 1/4"	2"	2 1/2"
D (NPT Thread)	3/4"	1"	1 1/2"	2"
Plastic Body				
A (Body)	7 1/2"	10 1/4"	11 3/4"	
B (Body w/ Couplings)	11 5/8"	15"	17"	
C (IPS Thread)	1"	1 1/4"	2"	
D (NPT Thread)	3/4"	1"	1 1/2"	

Shipping Weight

	3/4"	1"	1.5"	2"
Plastic - LBS	3 lb	4.5 lb	7.5 lb	N/A
Brass - LBS	6 lb	8 lb	13 lb	16 lb

Multi-Jet					
Power	6mA at 12 Vdc (Hall Effect Sensor Only)				
Temperature	105° F (40° C) max				
Materials					
Pressure	150 PSI operating (10.3 Bar)				
	Body	Plastic or Eco-brass alloy			
	Internals	Engineered thermoplastic			
	Magnet	Alnico			
	Fittings	Lead-free tail piece			
Accuracy	± 1.5% of reading				
Pulse Output					
	Sensor	Totalizer Only	Reed Switch	Hall-effect Device	
	Max Current	N/A	20 mA	20 mA	
	Max Voltage	N/A	24 Vdc or Vac	24 Vdc	
Cable Length	12' (4 m) standard (2000' maximum run)				
Flow Rates - Multi-Jet (GPM)*		3/4"	1"	1.5"	2"
	Minimum	0.25	0.75	1.5	2
	Maximum	20	50	100	160
Regulatory	Lead-Free Brass and Plastic Body - NSF/ANSI 61				

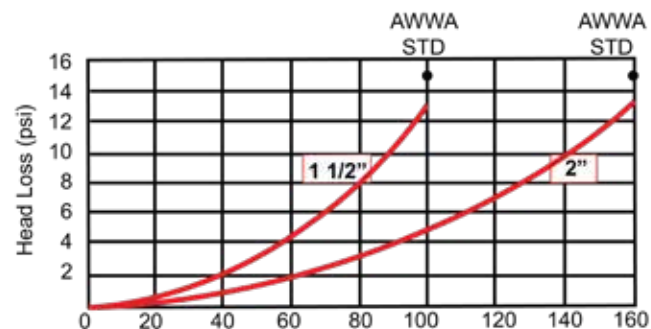
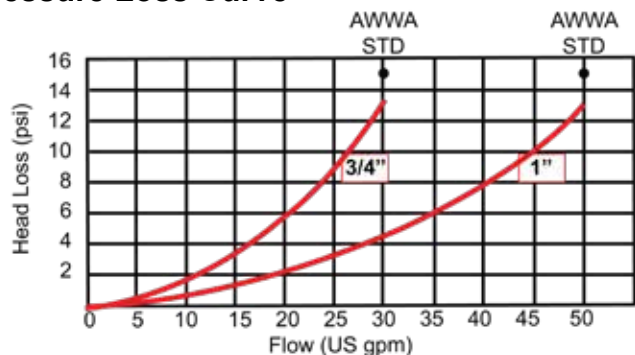
*Caution: Excessive Flow can cause breakage. Do not exceed recommended maximums.

Pulse Rate

Pulse Rate	Magnetic Pointer Dial Position
10 Pulse Per Gallon (3/4" only)	x 0.01
*4 Pulse Per Gallon	x 0.1
1 Pulse Per Gallon	x 0.1
10 Gallons Per Pulse	x 1
100 Gallons Per Pulse	x 10
1 Liters Per Gallon	x 0.1
10 Liters Per Pulse	x 1
100 Liters Per Pulse	x 10

* A special magnet is required to achieve a rate of 4 pulses per gallon. It should be placed on the x.01 dial, with non-magnetic pointers on the remaining dials. Otherwise the procedure is the same.

Pressure Loss Curve



Installation

Position: The water meters should be installed horizontally with the register up. Vertical mounting will result in some degree of under-measurement and shortened life of the bearings. Do not install in an area where leaking may cause damage or where freezing is possible.

Note: Vertical Mounting will void warranty.



Figure: 1

Couplings: Male NPT threaded couplings are included with each meter. The threads on the end of the meter are IPS straight threads one size bigger than the meter size. The couplings provide a union connection for meter service. Be sure to use the included gasket between the end of the meter and the coupling. If connecting a plastic meter to a metal pipe, you can use brass tail pieces, but you must use the plastic coupling nuts.

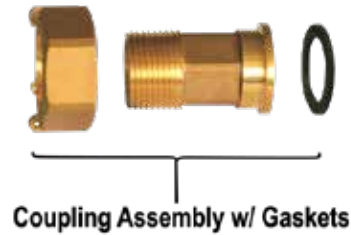


Figure: 2

Connections: A single sensor Reed Switch or Hall-Effect style when included comes with a color coded output cable.

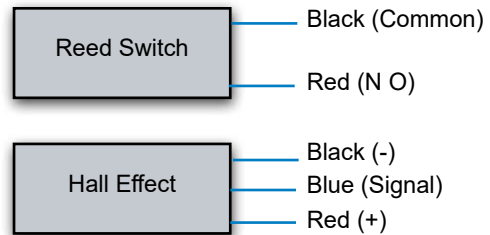


Figure: 3

Pulse Output: The sensors respond to a magnet that rotates on the face of the meter under the lens. The sensor turns on and off once each time the magnet passes under it. Sensors are designed for electronic control loads, and should not be used to switch power loads or line voltages. See Figure 4.

Setting Pulse Rate: The pulse rate is determined by which sensor was ordered from the factory and by the dial on which the magnet pointer is located. The pointer is set at the factory, but can be changed in the field as follows.

1. Find your pulse rate (Column 1)
2. Note the magnet pointer position (Column 2)
3. Move the magnet pointer to the appropriate dial position

Pulse Rate	Magnetic Pointer Dial Position
10 Pulse Per Gallon (3/4" only)	x 0.01
*4 Pulse Per Gallon	x 0.1
1 Pulse Per Gallon	x 0.1
10 Gallons Per Pulse	x 1
100 Gallons Per Pulse	x 10
1 Liters Per Gallon	x 0.1
10 Liters Per Pulse	x 1
100 Liters Per Pulse	x 10

* A special magnet is required to achieve a rate of 4 pulses per gallon. It should be placed on the x.01 dial, with non-magnetic pointers on the remaining dials. Otherwise the procedure is the same.

Figure: 4

Operation

Moving the Magnetic Pointer: Start by removing the meter top and lens and take care not to lose the sealing ring. With fingers, lift the magnet pointer off its shaft and remove the plain pointer from the target dial. Reverse their positions and press them firmly into place. Securely seat the sealing ring and replace the lens, matching the tab on the lens to the notch on the meter to align the sensor with the magnetic pointer dial. Thread the meter top on and tighten.

1. A special magnet is used to achieve a rate of 4 pulses per gallon. It should be placed on the x0.1 dial, with non-magnetic pointers on the remaining dials. This is included installed on the water meter. Otherwise, the procedure is the same.



Magnetic Pointer Dial X 10
Example $0.01 \times 10 = 0.1$ Gallon/Pulse

Magnetic Pointer on 0.01 Dial

Figure: 5

Special Configurations: The $\frac{3}{4}$ " water meter has a fourth dial. This dial is x0.01 and is used for 10 pulses/gallon rates. The $\frac{3}{4}$ " water meter has a 5 digit totalizer as well.



X0.01 Dial is on far left by the sensor connection.

Figure: 6

Reading Meter: The total flow that has passed through the meter is read by starting at the top of the register with the six digit totalizer and reading clockwise around the small dials.



Multiple the 5 or 6 Digit Totalizer by 100

Multiple dials by the gallon dial X#

Example... The X10 Gallon Dial is multiplied by 3 (Not yet to 4) for 30 gallons.

Figure: 7

Recommended Tools: 24" Pipe Wrench is needed to change the pulse rate.



Figure: 8

Warnings:

1. Do not install in overhead indoor piping or where leakage may cause damage.
2. Thoroughly flush the service line upstream of the meter to remove any dirt and debris.
3. Do not overtighten connections; tighten only as required to seal.
4. This meter is not recommended for installation in uninsulated suspended ceilings where freezing is possible.
5. Do not use pipe sealant or tape on the meter threads.
6. When removing the larger meter nut, use a 24" pipe wrench. Larger or smaller pipe wrenches may damage the nut on plastic units.



Figure: 9

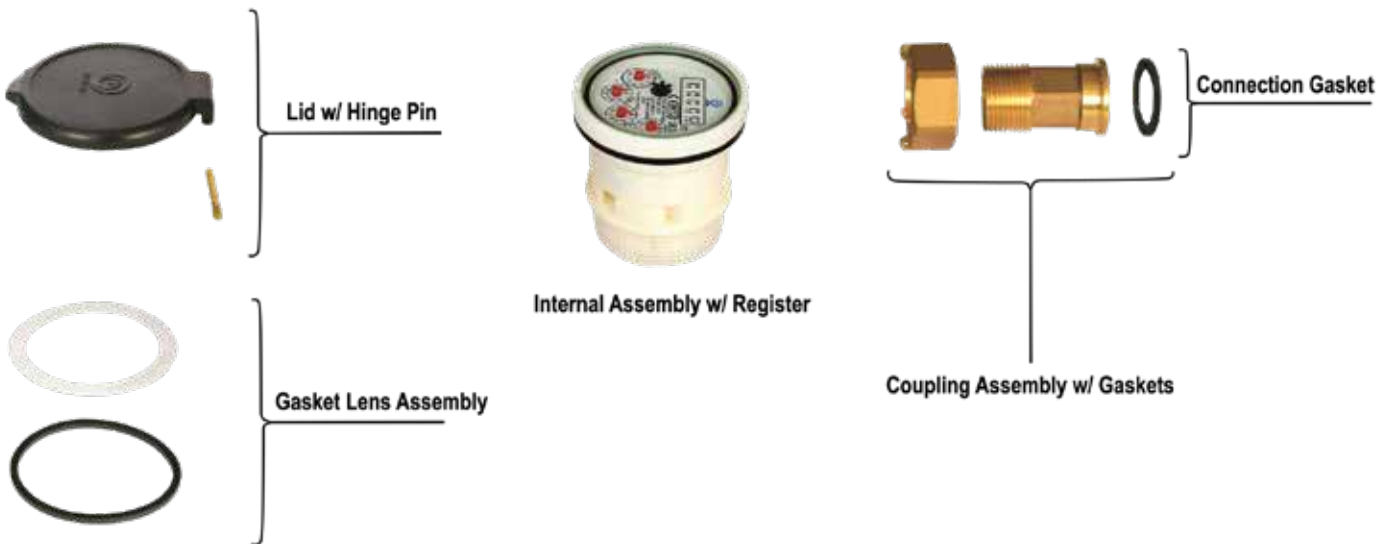
Maintenance

Maintenance: Clean the inlet strainer yearly, or as required depending on the water condition. Pull out the strainer or backflush the meter to loosen trapped particulates.

Calibration: New water meters are factory-tested to meet the AWWA C-708 Multi-Jet meter accuracy specification. Check local or state testing and billing regulations. Changes in calibration should be made by an authorized water meter shop.

Parts:

Lead Free Brass Meter Replacement Parts		
Connection	Part Number	Description
3/4"	MTRG1-1	Lid w/ Hinge Pin
3/4"	MTRG1-2	Gasket Lens Assembly
3/4"	MTRG1-3	Internal Assembly w/ Register only available for MTR107-G
3/4"	MTRG1-4	Coupling Assembly w/ Gaskets
3/4"	MTRG1-5	Connection Gasket(2pcs)
1"	MTRG3-1	Lid w/ Hinge Pin
1"	MTRG3-2	Gasket Lens Assembly
1"	MTRG3-3	Internal Assembly w/ Register only available for MTR307-G
1"	MTRG3-4	Coupling Assembly w/ Gaskets
1"	MTRG3-5	Connection Gasket(2pcs)
1.5"	MTRG4-1	Lid w/ Hinge Pin
1.5"	MTRG4-2	Gasket Lens Assembly
1.5"	MTRG4-3	Internal Assembly w/ Register only available for MTR407-G
1.5"	MTRG4-4	Coupling Assembly w/ Gaskets
1.5"	MTRG4-5	Connection Gasket(2pcs)
2"	MTRG5-1	Lid w/ Hinge Pin
2"	MTRG5-2	Gasket Lens Assembly
2"	MTRG5-3	Internal Assembly w/ Register only available for MTR507-G
2"	MTRG5-4	Coupling Assembly w/ Gaskets
2"	MTRG5-5	Connection Gasket(2pcs)



Notes



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