

MJN-SERIES



PULSE METER INSTRUCTIONS



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GENERAL INFORMATION

MJN-Series meters use the internationally-accepted multi-jet principle. A gear train drives the register totalizer dials. For pulse output, one of the pointers is replaced by a magnet arm, which is detected by an encapsulated sensor attached to the outside of the lens.

MJNE meters use a solid-state, long-lasting Hall-effect sensor, which requires power. They are suited for use with Seametrics controls and metering pumps (LMI for instance) that have sensor power.

MJNR meters use a reed switch. They provide a dry contact closure and do not require power.

MJNT meters do not have a sensor, and they totalize only.

SPECIFICATIONS*

Power	6 mA at 12 Vdc (MJNE only)				
Temperature	105° F (40° C) max				
Pressure	150 psi operating				
Materials	Body	Eco-brass alloy			
	Internals	Engineered thermoplastic			
	Magnet	Alnico			
Accuracy	+/- 1.5% of reading				
Pulse Output		MJNE	MJNR	MJNT	
	Sensor	Hall-effect	Reed switch	Totalizer only	
	Max Current	20 mA	20mA	n/a	
	Max Voltage	24 Vdc	24 Vdc or Vac	n/a	
Cable Length	12' (4 m) standard (2000' maximum run)				
Flow Rates (GPM)	3/4"	1"	1-1/2"	2"	
	Minimum	0.22	0.44	0.88	1.98
	Maximum	22	52	88	132
Regulatory	NSF-61-G				

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

****CAUTION:** Excessive flow can cause breakage.
Do not exceed recommended maximums.

INSTALLATION

Position. MJN-Series 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. No upstream straight pipe is required.



Caution: These water meters are not recommended for installation in uninsulated suspended ceilings where freezing is possible, or in any overhead indoor piping configuration where leakage may cause damage.

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. Though it is possible to thread a standard pipe coupling directly onto the meter for close coupling, the included couplings are much preferable because they provide a union connection for meter service. Be sure to use the included gasket between the end of the meter and the coupling.

Connections. MJNE and MJNR sensors are supplied with a color coded output cable (see diagram, page 4). Optional connectors can be ordered to plug directly into a Seametrics control or LMI metering pump.

Pulse Output. Both MJNE and MJNR 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 maximum current and voltage ratings, under Specifications.

MAINTENANCE

Seametrics recommends all service to be performed by an authorized distributor or the factory to maintain the integrity of the protective tamper-proof wire-and-seal.

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

Calibration. Meters used for billing or billing exemption may be regulated by state or local authorities. New meters are factory-tested to meet the AWWA C-708 Multi-Jet Meter accuracy specification. Some states require retesting at various intervals, typically eight years for 3/4" meters, six for 1", and four for 1-1/2" and 2". Meters used for control should be tested every 5-10 years. Testing may be done by a local mobile meter service or in a private or municipal meter shop. Changes in calibration should be made at an authorized meter shop.

CHANGING PULSE RATES

Setting Your Pulse Rate. The pulse rate is determined by which sensor was ordered from the factory (single reed switch, dual reed switch, or single Hall-effect) 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.

In the table below: 1) Locate your meter size (Column 1); 2) Find your desired pulse rate (Column 2); 3) Note the magnet pointer position (Column 3); 4) Move the magnet pointer to the appropriate dial position (using the detailed instructions below the table); 5) Use the appropriate Connection Diagram (from Column 4) to wire the sensor to your remote device (using diagrams on page 4).

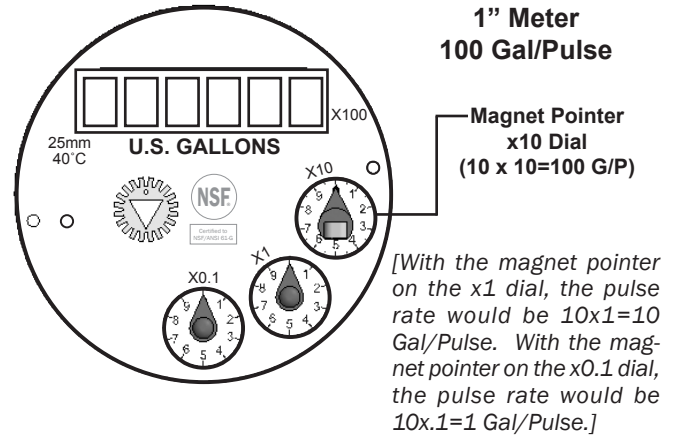
Col. 1	Col. 2	Col. 3	Col. 4
Meter Size	Pulse Rate	Magnet Pointer Dial Position	Connection Diagram #
3/4"	*20 P/G	x0.01	2
	10 P/G	x0.01	1
	†4 P/G	x0.1	1
	*2 P/G	x0.1	2
	1 P/G	x0.1	1
	*5 G/P	x1	2
	10 G/P	x1	1
	*50 G/P	x10	2
1"	†4 P/G	x0.1	1
	*2 P/G	x0.1	2
	1 P/G	x0.1	1
	*5 G/P	x1	2
	10 G/P	x1	1
	*50 G/P	x10	2
	100 G/P	x10	1
	1-1/2"	†4 P/G	x0.1
*2 P/G		x0.1	2
1 P/G		x0.1	1
*5 G/P		x1	2
10 G/P		x1	1
*50 G/P		x10	2
100 G/P		x10	1
2"		†4 P/G	x0.1
	*2 P/G	x0.1	2
	1 P/G	x0.1	1
	*5 G/P	x1	2
	10 G/P	x1	1
	*50 G/P	x10	2
	100 G/P	x10	1

*These pulse rates available in MJNR dual reed switch meters only.
 †This pulse rate available in MJNR single reed switch meters only.

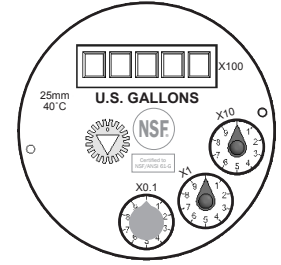
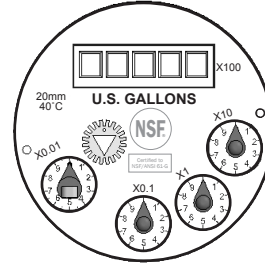
Moving the Magnetic Pointer. Remove meter top and lens, taking care not to lose the sealing ring. With fingers, lift the magnet pointer off its shaft and remove the plain pointer from the target dial. Reverse their positions and press them firmly into place. Securely seat the sealing ring and replace 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.

†NOTE: A special magnet (available from the factory) is required 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. Otherwise, the procedure is the same.

Sample Set-Up. A 1" meter is shown with the magnet pointer set at the x10 dial, with a pulse rate of 100 Gallons per Pulse (that is, 10 increments on the x10 dial, or 10x10=100 Gal/Pulse).



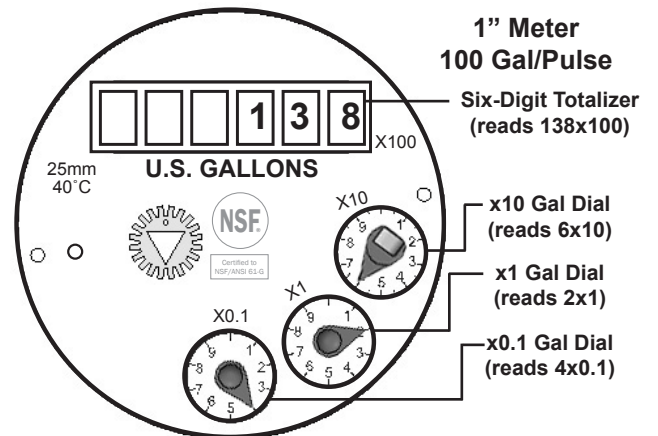
Special Configurations.



The 3/4" meter has a fourth dial, as shown above. The x0.01 dial is used for 20 P/G and 10 P/G rates. Note: The 3/4" meter has a 5 digit totalizer.

The 4 P/G rate requires a special magnet, placed on the x0.1 dial, as shown above.

Reading Your Meter. The Total Flow that has passed through your meter is read by starting at the top of the register with the Six-Digit Totalizer, and then reading clockwise around the small dials. In the example below, the Six-Digit Totalizer reads 13,800 (138 x 100), and the dials read 60 (6 x 10), 2 (2 x 1), and .4 (4 x .1) respectively. The Total Flow is 13,862.4 gallons.

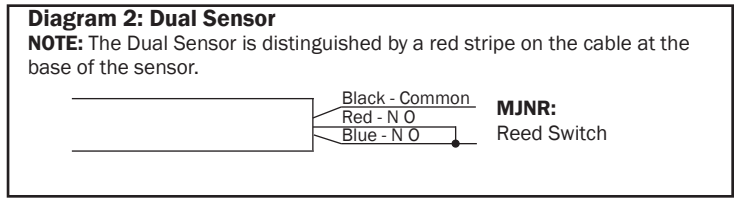
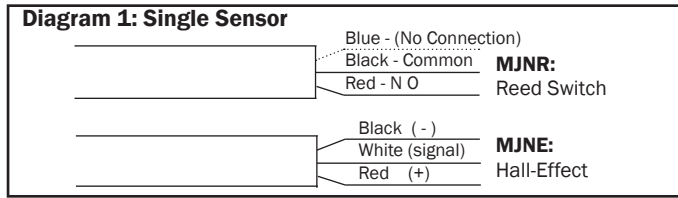


(NOTE: Disregard the color of the numbers on the totalizer when reading your total.)

The "ones" digit is significant but the fact that it is red is not significant.

CONNECTIONS, MAINTENANCE and REPAIR

CONNECTION DIAGRAMS



To Distinguish Single Sensor From Dual:

Single: (if new from factory) blue wire is cut back on cable end.

Dual: A red stripe will be on cable near sensor.

INTERNAL PARTS REPLACEMENT. All of the internal parts of an MJN-Series meter lift out as a unit, after the top has been unscrewed. The lens can then be removed and the internal as-

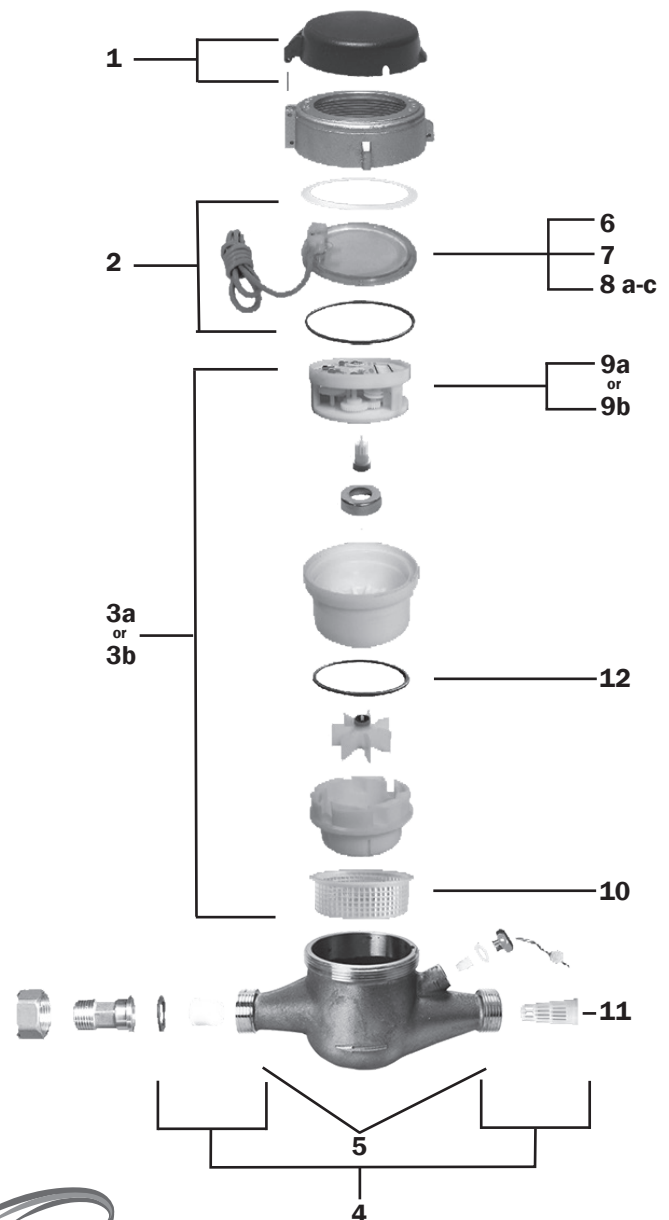
Note: Dual sensor can be used as a single sensor also - use either the red OR the blue wire w/black. If using it as a dual sensor then connecting red and blue together will produce two pulses with every revolution of magnet.

sembly lifted out. If necessary, turn the meter upside down and tap one end lightly on a countertop to loosen the internals. The assembly can be separated by hand.

MJN-SERIES PARTS

		3/4"	1"
1		Lid and Hinge Pin Assembly	101068 101069
2		Lens Gasket Assembly	101071 101072
3	a	Internal Assembly (gallons)	101073 101074
	b	Internal Assembly (cubic feet)	101077 101078
4		Coupling Assembly (incl 2 sets)	103239-075 103239-100
5		Coupling Gasket Assembly (incl 2)	103240-075 103240-100
6		Lens	101004 101004
7		Sensor Screw	101045 101045
8	a	Single Reed Switch Sensor (MJR)	100980 100980
	b	Double Reed Switch Sensor (MJR)	100993 100993
	c	Single Hall-Effect Sensor (MJE)	101065 101065
9	a	Register (gallons)	100997 100998
	b	Register (cubic feet)	101006 101007
10		Internal Strainer	101016 101043
11		Tubular Strainer	101029 101030
12		Register Gasket	101013 101027

		1 1/2"	2"
1		Lid and Hinge Pin Assembly	101070 101070
2		Lens Gasket Assembly	101085 101085
3	a	Internal Assembly (gallons)	101075 101076
	b	Internal Assembly (cubic feet)	101079 101080
4		Coupling Assembly (incl 2 sets)	103239-150 103239-200
5		Coupling Gasket Assembly (incl 2)	103240-150 103240-200
6		Lens	101004 101004
7		Sensor Screw	101045 101045
8	a	Single Reed Switch Sensor (MJR)	100980 100980
	b	Double Reed Switch Sensor (MJR)	100993 100993
	c	Single Hall-Effect Sensor (MJE)	101065 101065
9	a	Register (gallons)	100999 101000
	b	Register (cubic feet)	101008 101009
10		Internal Strainer	101044 101044
11		Tubular Strainer	101031 101032
12		Register Gasket	102228 102228



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