

HYDROMETERS

SAVE SPACE WITH A VALVE AND WATER METER IN ONE UNIT

SUPERIOR HYDRAULIC PERFORMANCE AND RELIABLE FLOW MEASURING



PRODUCT ADVANTAGES

- Double-chambered valve provides quick acting and positive opening and closing.
- Rugged, heavy-duty construction with corrosion-resistant body for reliable performance.
- Stainless steel encapsulated registers guaranteed against fogging due to moisture.
- Globe configuration with built-in straightening vane requires no straight pipe installation saving space.
- Low head loss for energy efficiency and +/-2% accuracy across all flow ranges.

APPLICATIONS

- High pressure, remote control applications
- For communication with irrigation controllers and central control units
- For use as a remote master valve for automated operation
- For variety of pilot options: manual electric, pressure reducing manual electric

SPECIFICATIONS

- Sizes: 1 1/2", 2", 3", 4", 6" and 8"
- Maximum Working Pressure:
Manual Electric - 235 psi
Pressure Reducing Manual Electric - 140 psi
Higher pressures available
- Minimum Working Pressure: 21.75 psi
- Maximum Liquid Temperature: 140° F
- Connections: Flanged, Threaded
- Register Options: Reed Switch, Photo Diode or ER Digital
- Reed Switch Register Pulse Outputs:
0.1 or 1.0
- Photo Diode Register Pulse Outputs: 0.0015, 0.0021 or 0.0074
- ER Digital Register Pulse Outputs:
Gallons - .1, 1, 10, 100, 1000
Acre Feet - .0001, .001, .01
- Body: Cast Iron, Epoxy Coated
- Valve Diaphragm: Reinforced Natural Rubber

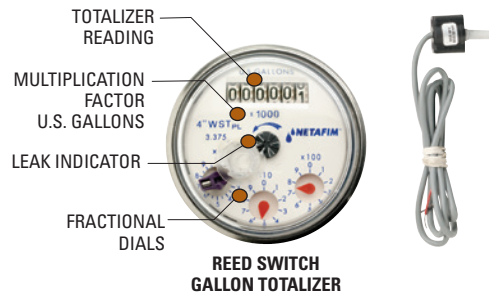
HYDROMETERS

REED SWITCH REGISTER GALLON TOTALIZER

The Reed Switch Register has a low frequency pulse output for communicating with control and monitoring equipment. A leak indicator in the center of the dial registers the lowest flow through the meter. Flows are totalled in U.S. Gallons and each dial face indicates the multiplication factor (located directly under the totalizer reading). Three small fractional dials measure quantities smaller than the totalizer reading.

ELECTRICAL SPECIFICATIONS

- Maximum contact current: 50 mA
- Maximum contact voltage: 48 VDC



ELECTRONIC (ER) DIGITAL REGISTER

GPM RATE OF FLOW WITH GALLON OR ACRE FEET TOTALIZER

Combines standard digital register features with dry pulse output capabilities. Clearly displays the rate of flow and volume readings in Gallons or Acre Feet. Mounted inside an IP68 stainless steel glass encapsulated cap. Multi-line digital LCD readout displays 9 digits for Total Volume in U.S. Gallons (U.S.G.) or Acre Feet and 4 digits for Rate of Flow in Gallons per Minute (GPM). It's programmable to a wide variety of pipe sizes. Register is interchangeable with common tools.

ELECTRICAL SPECIFICATIONS

- Minimum voltage: 3.6 VDC
- Maximum contact current: 200 mA
- Maximum contact voltage: 40 VDC
- Maximum distance between meter and control board: 65'

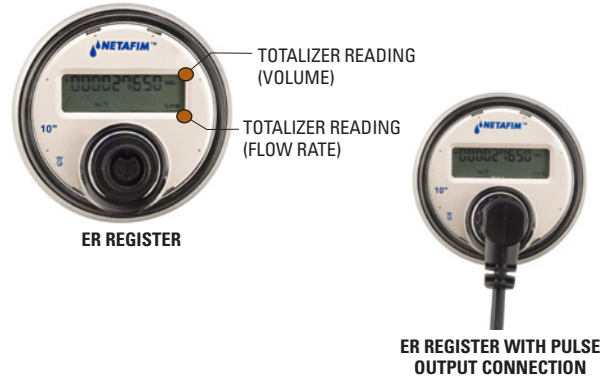
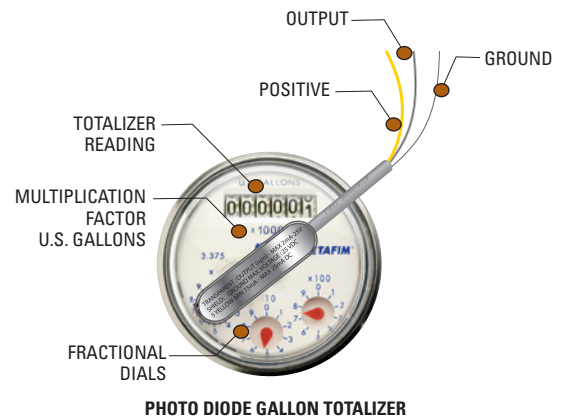


PHOTO DIODE REGISTER GALLON TOTALIZER

A sensor combines an IR light source and a light sensitive diode in one package. Signals are created when the light beam created by the IR light is interrupted by a rotating element. The Photo Diode Register includes pulse output (open collector) for communicating with control and monitoring equipment. This register requires a constant supply of DC power. Flows are totalled in U.S. Gallons based on the multiplication factors indicated on the dial face.

ELECTRICAL SPECIFICATIONS

- Positive powers the IR light (Yellow wire): current min. 15 to a max. 25 mA through a resistor. Maximum voltage: 28 VDC
- Output (Transparent wire): Open collector, max. load 2 mA
- Ground (Bare wire)



REED SWITCH REGISTERS LOW FREQUENCY

METER SIZE	PULSE OUTPUT (GALS/PULSE)	PULSE OUTPUT (PULSE/GAL)
1 1/2", 2", 3", 4"	1	1
6", 8"	10	0.1

ELECTRONIC (ER) DIGITAL REGISTERS

METER SIZE	REGISTER TOTALIZER	PULSE OUTPUT (GALS/PULSE)	FLOW RATE UNITS
1 1/2" TO 3"	GALLON	.1, 1, 10, 100, 1000	GPM
4" to 8"	GALLON	1, 10, 100, 1000	GPM

PHOTO DIODE REGISTERS

METER SIZE	STANDARD FREQUENCY		HIGH FREQUENCY	
	GALLONS/PULSE	PULSE/GALLON	GALLONS/PULSE	PULSE/GALLON
1 1/2"	0.1	10	0.0053	187.900
2"	0.1	10	0.0085	117.000
3"	0.1	10	0.025	48.710
4"	0.1	10	0.0556	17.993
6"	1	1	0.174	5.747
8"	1	1	0.317	3.152

RECOMMENDED RESISTOR VALUES

VOLTAGE (V+)	RESISTOR VALUE	
	Ω	W
5	180	0.25
6	220	0.25
9	330	0.25
12	470	0.50
24	1,000	1.00

NOTE: Correct polarity of the leads should be checked carefully to prevent damage to the sensor.

PERFORMANCE DATA

METER SIZE	LOWEST FLOW RATE +/- 5% ACCURACY	LOWEST FLOW RATE +/- 2% ACCURACY	NOMINAL FLOW RATE +/- 2% ACCURACY	MAXIMUM FLOW RATE +/- 2% ACCURACY
1 1/2"	1.8 GPM	4.4 GPM	44 GPM	55 GPM
2"	5.3 GPM	20 GPM	66 GPM	95 GPM
3"	14 GPM	53 GPM	176 GPM	220 GPM
4"	21 GPM	79 GPM	264 GPM	380 GPM
6"	53 GPM	198 GPM	660 GPM	860 GPM
8"	97 GPM	357 GPM	1,189 GPM	1,500 GPM

CV VALUES

METER SIZE	CV (FLOW RATE AT 1.0 PSI HEADLOSS)
1 1/2"	23 GPM
2"	35 GPM
3"	92 GPM
4"	139 GPM
6"	347 GPM
8"	624 GPM

$\Delta P = (Q/Cv)^2$
 P = psi
 Q = GPM = desired pressure loss
 Cv = flow at which 1 psi of head loss occurs

FLOW RATE (GPM) VS. PRESSURE LOSS (PSI)

METER SIZE	FLOW RATE IN GPM													
	1.8	4.4	5.3	14	20	21	53	55	79	97	95	125	150	198
1 1/2"	0.01	0.04	0.1	0.4	0.8	0.8	503	5.7						
2"			0.02	0.2	0.3	0.4	2.3	2.5	5.1	7.7	7.4			
3"				0.02	0.05	0.1	0.3	0.4	0.7	1.1	1.1	1.8	2.7	4.6
4"						0.02	0.1	0.2	0.3	0.5	0.5	0.8	1.2	2.0
6"							0.02	0.03	0.05	0.1	0.1	0.1	0.2	0.3
8"										0.02	0.02	0.04	0.1	0.1

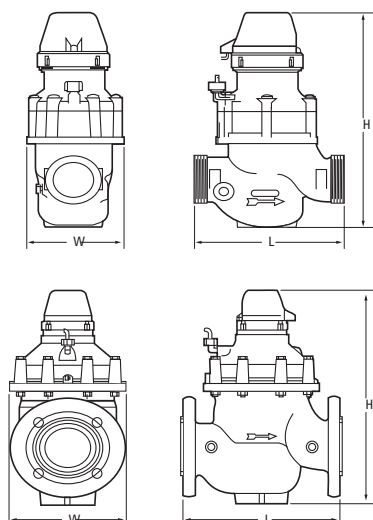
± 2% Accuracy Pressure loss in psi = (GPM/Cv)²
 ± 5% Accuracy EXAMPLE: 2" Hydrometer, design flow @ 55 GPM (55 GPM / 35)² = 2.5 psi headloss



FLOW RATE (GPM) VS. PRESSURE LOSS (PSI)

METER SIZE	FLOW RATE IN GPM													
	220	250	300	357	380	400	500	700	860	900	950	1,000	1,250	1,500
1 1/2"														
2"														
3"	5.7													
4"	2.5	3.2	4.7	6.6	7.5									
6"	0.4	0.5	0.7	1.1	1.2	1.3	2.1	4.1	6.1					
8"	0.1	0.2	0.2	0.3	0.4	0.4	0.6	1.3	1.9	2.1	2.3	2.6	4.0	5.8

± 2% Accuracy Pressure loss in psi = (GPM/Cv)²
 ± 5% Accuracy EXAMPLE: 2" Hydrometer, design flow @ 55 GPM (55 GPM / 35)² = 2.5 psi headloss



DIMENSIONS & WEIGHT

METER SIZE	L LENGTH	W WIDTH	H HEIGHT	WEIGHT (LBS.)
1 1/2"	6 5/16"	4 15/16"	10 7/16"	4
2"	8 11/16"	4 15/16"	13"	7
3"	11 1/4"	8 1/16"	17"	52
4"	14 3/16"	9"	18 1/16"	65
6"	19 11/16"	14 15/16"	24 13/16"	245
8"	23 9/16"	17 11/16"	30 11/16"	309

INSTALLATION REQUIREMENT:
 Globe configuration Hydrometers have no straight pipe installation requirements.

HYDROMETERS

ORDERING INFORMATION - ER DIGITAL REGISTERS

36 HM SIZE REGISTER VOLUME FLOW RATE OUTPUT 1 OUTPUT 2 CONTROL OPTION

SIZE	REGISTER	VOLUME	FLOW RATE	OUTPUT 1 AND OUTPUT 2 **	CONTROL OPTION
15 = 1.5"	ER = ER DIGITAL REGISTER	1 = GALLONS	1 = GPM	A = NO OUTPUT	M = MANUAL
2 = 2"		2 = ACRE FEET		C = .1 GALLON PER PULSE	MEL = MANUAL ELECTRIC
3 = 3"	EM = ER DIGITAL REGISTER W/OUTPUT MODULE			D = 1 GALLON PER PULSE	RC = REMOTE CONTROL
4 = 4"				E = 10 GALLONS PER PULSE	PR = PRESSURE REDUCING
6 = 6"				F = 100 GALLONS PER PULSE	PRMEL = PRESSURE REDUCING MANUAL ELECTRIC
8 = 8"				G = 1000 GALLONS PER PULSE	PRRC = PRESSURE REDUCING REMOTE CONTROL
				H = 0.0001 ACRE FT. PER PULSE	PRPS = PRESSURE REDUCING & SUSTAINING
				I = 0.001 ACRE FT. PER PULSE	PRPSEL = PRESSURE REDUCING & SUSTAINING ELECTRIC PRESSURE SUSTAINING
				J = 0.01 ACRE FT. PER PULSE	PS = PRESSURE SUSTAINING
					PSEL = ELECTRIC

ORDERING EXAMPLE:

36HM15ER11EEMEL

1 1/2" Hydrometer, ER Register, Volume in Gallons, Flow Rate in Gallons per Minute, Pulse Output 1 is 10 Gallons per Pulse, Pulse Output 2 is 10 Gallons per Pulse, Manual Electric Control

OUTPUT C: Can be either Gallons or Acre Feet

** Pulse rate is based on volume units. If volume is in Acre Feet and Option D is chosen for Output 1 or 2, it will result in 1 pulse every acre foot of water that passes through the meter. To convert Acre Feet to Gallons per Pulse, multiply by 325,850.

ORDERING INFORMATION REED SWITCH & PHOTO DIODE REGISTERS

METER SIZE	MODEL NUMBER	REGISTER TYPE	GALLONS/PULSE	CONNECTION
1 1/2"	36HM1.5TG	REED SWITCH	1	UNION
	36HM1.5TG.1	PHOTO DIODE	0.1	UNION
	36HM1.5TG-.0053	PHOTO DIODE	0.0053	UNION
2"	36HM2TG	REED SWITCH	1	THREADED
	36HM2TG.1	PHOTO DIODE	0.1	THREADED
	36HM2TG-.0085	PHOTO DIODE	0.0085	THREADED
3"	36HM3FG-1	REED SWITCH	1	FLANGE
	36HM3FG.1	PHOTO DIODE	0.1	FLANGE
	36HM3FG-.0025	PHOTO DIODE	0.0205	FLANGE
4"	36HM4FG	REED SWITCH	10	FLANGE
	36HM4FG1	REED SWITCH	1	FLANGE
	36HM4FG-0.566	PHOTO DIODE	0.0566	FLANGE
6"	36HM6FG	REED SWITCH	10	FLANGE
	36HM6FG1	PHOTO DIODE	1	FLANGE
	36HM6FG-.1739	PHOTO DIODE	0.1739	FLANGE
8"	36HM8FG-10	REED SWITCH	10	FLANGE
	36HM8FG1	PHOTO DIODE	1	FLANGE
	36HM8FG-.3173	PHOTO DIODE	0.3173	FLANGE

MAXIMUM PRESSURE: 235 psi
Call Netafim USA Customer Service for Item Numbers
6" and 8" sizes are Non-Stock, Special Order items



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