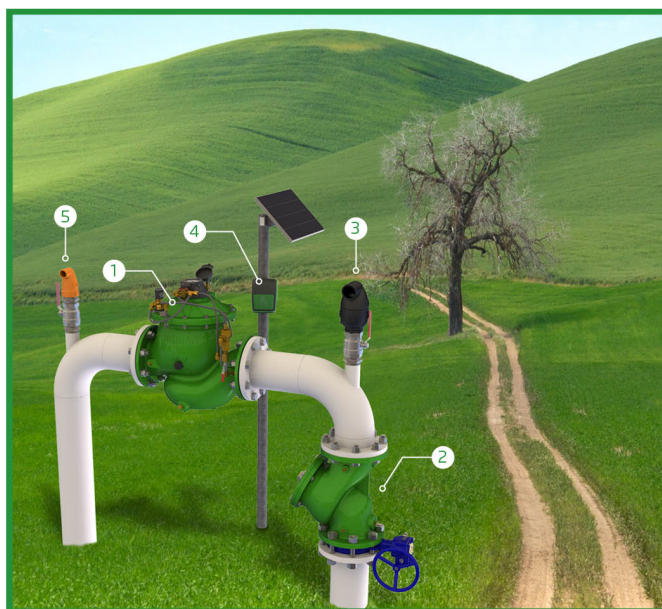


SOLENOID CONTROLLED HYDROMETER

Model IR-910-M0-3W-RX

The BERMAD Hydrometer with solenoid control combines a turbine Woltman-type water meter and a hydraulically operated, diaphragm-actuated control valve. It functions as both a mainline flow meter and a solenoid-operated valve, opening and closing in response to an electric command from a control system. The Hydrometer features a magnetically coupled, vacuum-sealed register for precise volume measurement. An optional pulse output enhances system capabilities.



- [1] BERMAD Model IR-910-M0-3W-RX opens in response to an electric signal.
- [2] Strainer Model 70-F
- [3] Combination Air Valve Model C10
- [4] Smart Irrigation Controller-OMEGA
- [5] Kinetic Air Valve Model K10

Features & Benefits

- Integrated "All-in-One" Control Valve & Flow Meter
 - Saves space, cost and maintenance
- Hydraulic Hydrometer with Solenoid Control
 - Line pressure driven
 - Electrically controlled On/Off
- Magnetic Drive with Vacuum-Sealed Register
 - Water-free gear train mechanism
 - Reed-switch tension free pulse output
 - Various pulse combinations
- Internal Inlet & Outlet Flow Straighteners
 - Saves on straightening distances
 - Maintains accuracy
- Integrated Flow Metering Calibration Device
 - Precise measurement
- User-Friendly Design
 - Simple in-line inspection and service

Typical Applications

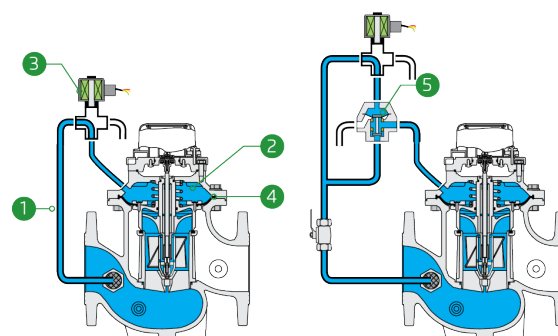
- Automated Irrigation Systems
- Distribution Centers
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Volumetric Irrigation Systems

Operation:

Line pressure [1] is applied to the Control Chamber [2] through the 3-Way Normally Open Solenoid [3], generating a hydraulic force that moves the Diaphragm Assembly [4] to the closed position. When the solenoid is electrically activated, it switches to release pressure from the control chamber, allowing the Hydrometer to open and measure flow. The solenoid also features a manual override for opening and closing.

For Hydrometers with diameters of 6"-8" (DN150-200), a 3-Way Hydraulic Relay Valve (3W-HRV) [5] accelerates Hydrometer response.

All images in this catalog are for illustration only





Technical Data

Pressure Rating:
250 psi

Operating Pressure Range:
7-250 psi

Materials

Body & Cover: Ductile Iron
Diaphragm: NR, Nylon fabric reinforced
Seals: NR, Nylon fabric reinforced
Spring: Stainless Steel
Internals: Stainless Steel & Plastic Reinforced Nylon
Impeller: Polypropylene
Pivots and Bearings: Polypropylene
**Other materials are available on request*

Control Loop Accessories

Tubing and Fittings: Reinforced Nylon and Brass

**For other solenoids please consult [BERMAD](#)*

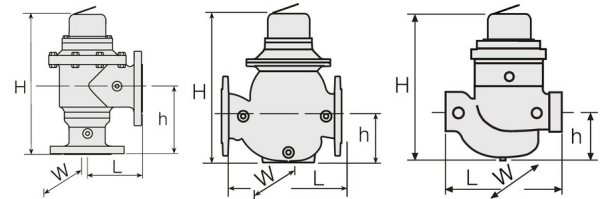
AC solenoid:
S-400-3W-24VAC-R

DC solenoid:
S-400-3W-24VAC-D
S-400-3W-24 V DC

DC latch solenoid:
S-402-3W-M.B.-9-40 V DC latch
S-982-3W M.B.-12-50 V DC latch

Technical Specifications

For other patterns and end connection types,
Please refer to [BERMAD](#) full engineering page.



Size	Pattern	End Connection	Weight (Lb)	L (In)	H (In)	h (In)	W	CCDV (Gal)	CV
1½" ; DN40	Globe	Threaded	15.9	9¾	10¾	3¾	5¾	0.04	47
2" ; DN50	Globe	Threaded	16.1	9¾	10¾	3¾	5¾	0.04	53
2" ; DN50	Angle 90°	Threaded	17.8	4¾	13¾	6¾	5¾	0.04	59
3"R ; DN80R	Globe	Threaded	16.1	9¾	10¾	3¾	5¾	0.04	58
3"R ; DN80R	Globe	Flanged	35.3	12¾	11¾	4	7¾	0.04	58
3" ; DN80	Globe	Flanged	50.7	11¾	15	4¾	8¾	0.13	133
3" ; DN80	Angle 90°	Flanged	56.9	6	15¾	7¾	8¾	0.13	146
4" ; DN100	Globe	Flanged	68.3	13¾	17¾	5¾	9¾	0.26	170
4" ; DN100	Angle 90°	Flanged	79.6	7¾	19	8¾	9¾	0.26	208
6" ; DN150	Globe	Flanged	156.5	19¾	23¾	8½	15	1	497
6" ; DN150	Angle 90°	Flanged	169.1	9¾	23	12	15	1	547
8" ; DN200	Globe	Flanged	205	23¾	24¾	9	15	1	636
8" ; DN200	Angle 90°	Flanged	181.8	9¾	23	11	15	1	699

CCDV = Control Chamber Displacement Volume • **Threaded** = BSP & NPT are available.

• Extra length for male Threaded: 1½" Globe = 2.6 (Inch) ; 2" Globe & Angle = 3 (Inch)

Flow Properties

Size	Accuracy	DN40	DN50	DN80R	DN80	DN100	DN150	DN200
Q @ (gpm)		1½"	2"	3"R	3"	4"	6"	8"
Q1 Minimum Flow	±5%	3.5	3.5	5.3	5.3	7.9	17.6	27.7
Q2 Transitional Flow	±2%	5.7	5.7	13.2	13.2	19.8	44	69.6
Q3 Permanent Flow	±2%	110	176	440	440	704	1100	1761
Q4 Maximum Flow (Short Time)	±2%	136	220	550	550	880	1378	2201

*ISO 4604

Pulse Option

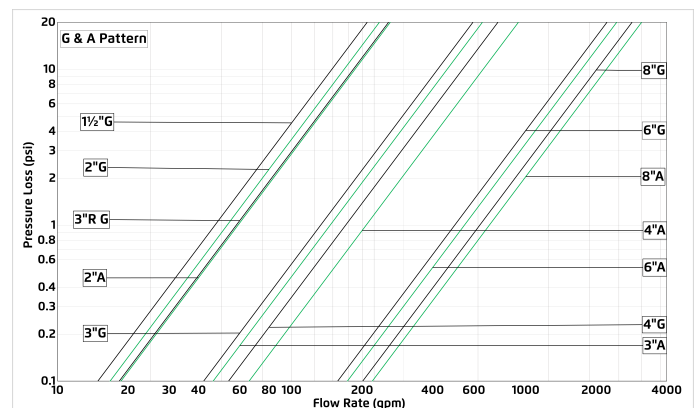
Register Type	Electronic			
Size	One pulse per			
	1 Gal	10 Gal	100 Gal	1000 Gal
1½"-4" ; DN40-100	✓	✓	✓	
6"-10" ; DN150-250		✓	✓	✓

- 1 Gallon pulse (only available with electronic register) suitable for flows up to 790 gpm.
- Two parallel pulses are transmitted. other pulse rates are available on request.

Additional Features

Code	Description	Size Range
ME	Electronic register (upgrade kit is available)	1½"-8"

Flow Chart



Differential Pressure & Flow Calculation

$$\Delta P = \left(\frac{Q}{Cv} \right)^2$$

Cv = gpm @ ΔP of 1 psi
 Q = gpm
 ΔP = psi