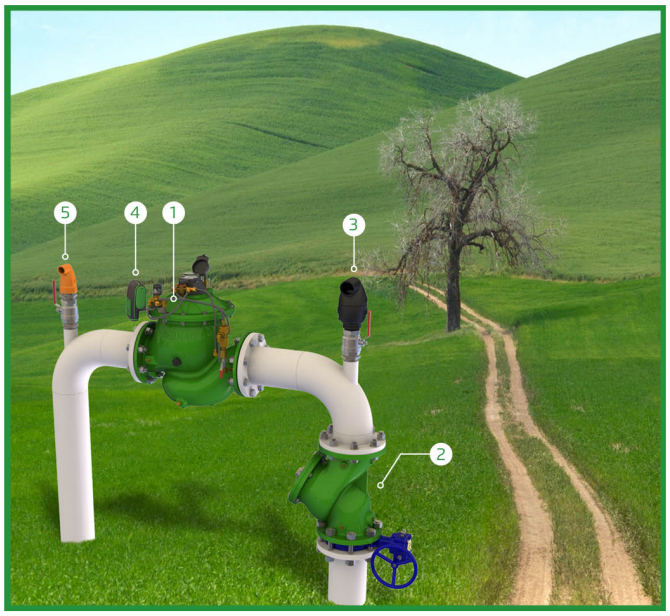
HYDROMETER, SOLENOID CONTROLLED

Model IR-910-ME-3W-RX

The BERMAD Hydrometer with Solenoid Control integrates a vertical turbine water meter (Woltman-type), and a diaphragm actuated hydraulic control valve. The impeller drive is magnetically coupled to a vacuum-sealed electronic register in the Hydrometer head. As the system's Flow Meter and Main Valve, it controls system irrigation together with the irrigation controller. The BERMAD Hydrometer opens and shuts in response to an electric signal.



[1] BERMAD Model IR-910-ME-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

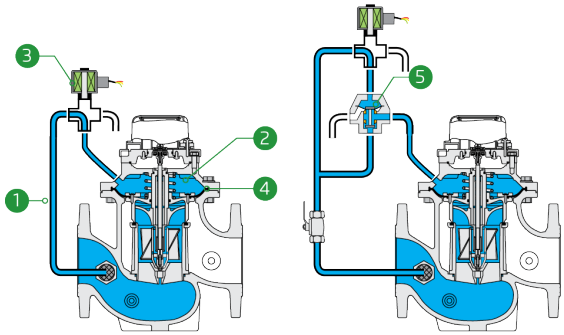
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Hydraulic Hydrometer with Solenoid Control
  - Line pressure driven
  - Electrically controlled On/Off
- Magnetic Drive with BERMAD Universal E-Register
  - Suits all Hydrometer sizes
  - Support metric & imperial units of measurement
  - Instant flow rate display
  - Forward and reverse flow indication
  - Data logging capabilities
  - Fast pulse output rate
- Internal Inlet & Outlet Flow Straighteners
  - Saves on straightening distances
  - Maintains accuracy
- User-Friendly Design
  - Simple in-line inspection and service

Typical Applications

- Automated Irrigation Systems
- Distribution Centers
- Remote Systems
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Water Treatment Systems
- Irrigation Machines

Operation:

Line Pressure [1] is applied to the Control Chamber [2] , through the 3-Way Solenoid [3] . This creates a superior closing force that moves the Diaphragm Assembly [4] to a closed position. Electrically operating the Solenoid causes it to switch, discharging pressure from the control chamber. The Hydrometer then opens, measuring the flow. The solenoid also features local manual opening & closing. For Hydrometers of 6"-10"; DN150-250 diameter, a 3-Way Hydraulic Relay Valve (3W-HRV) [5] accelerates Hydrometer response.



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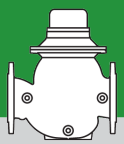


Technical Data

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*

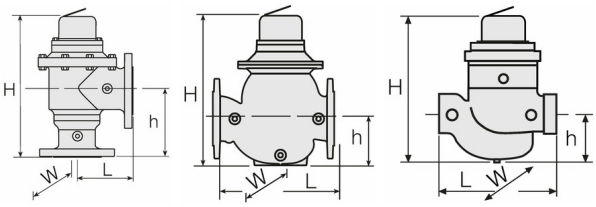
AC solenoid:
S-400-3W

DC solenoid:
S-400-3W

DC latch solenoid:
S-402-3W M.B.
S-982-3W M.B.

Technical Specifications

For other patterns and end connection types,
Please refer to BERMAD full engineering page.



Size (DN)	Pattern	End Connection	Weight (Lb)	L (In)	H (In)	h (In)	W (In)	CCDV (Gal)	CV
1½" ; 40	Globe	Threaded	15.9	9⅞	10⅝	3¾	5⅝	0.04	47
2" ; 50	Globe	Threaded	16.1	9⅞	10⅞	3¾	5⅝	0.04	53
2" ; 50	Angle 90°	Threaded	17.8	4¾	13⅞	6⅛	5⅝	0.04	59
3"R ; 80R	Globe	Threaded	16.1	9⅞	10⅞	3⅛	5⅝	0.04	58
3"R ; 80R	Globe	Flanged	35.3	12¼	11¾	4	7⅞	0.04	58
3" ; 80	Globe	Flanged	50.7	11⅞	15	4⅞	8¼	0.13	133
3" ; 80	Angle 90°	Flanged	56.9	6	15⅞	7¾	8¼	0.13	146
4" ; 100	Globe	Flanged	68.3	13¾	17⅝	5⅜	9⅞	0.26	170
4" ; 100	Angle 90°	Flanged	79.6	7⅛	19	8⅞	9⅞	0.26	208
6" ; 150	Globe	Flanged	156.5	19¾	23¾	8½	15	1	497
6" ; 150	Angle 90°	Flanged	169.1	9⅞	23	12	15	1	547
8" ; 200	Globe	Flanged	205	23⅝	24⅜	9	15	1	636
8" ; 200	Angle 90°	Flanged	181.8	9⅞	23	11	15	1	699
10" ; 250	Globe	Flanged	310	23⅝	24⅜	9	16	1	636

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 (DN) Q @ (gpm)	Accuracy	DN40 1½"	DN50 2"	DN80R 3"R	DN80 3"	DN100 4"	DN150 6"	DN200 8"	DN250 10"
Q1 Minimum Flow	±5%	3.5	3.5	5.3	5.3	7.9	17.6	27.7	27.7
Q2 Transitional Flow	±2%	5.7	5.7	13.2	13.2	19.8	44	69.6	69.6
Q3 Permanent Flow	±2%	110	176	440	440	704	1100	1761	1761
Q4 Maximum Flow (Short Time)	±2%	136	220	550	550	880	1378	2201	2201

**ISO 4604*

Pulse Option

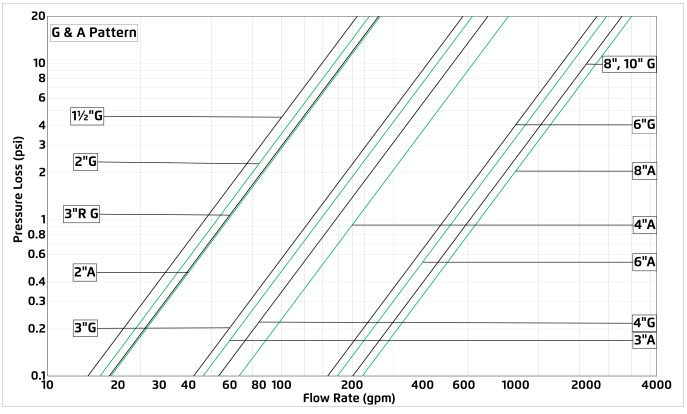
Register Type	Electronic			
Size (DN)	One pulse per			
	1 Gal	10 Gal	100 Gal	1000 Gal
1½"-4" ; 40-100	✓	✓	✓	
6"-10" ; 150-250		✓	✓	✓

- *1 Gallon pulse suitable for flows up to 790 gpm.*

Additional Features

Code	Description	Size Range
Z	Manual Selector	1½"-10"

Flow Chart



Differential Pressure & Flow Calculation

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

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