# BASIC HYDROMETER
Model IR-900-M0-54-3W-KX

The BERMAD Hydrometer with hydraulic relay 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 normally closed valve, opening in response to a remote pressure-rise command and closing when the command is absent. The Hydrometer features a magnetically coupled, vacuum-sealed register for precise volume measurement. An optional pulse output enhances system capabilities.
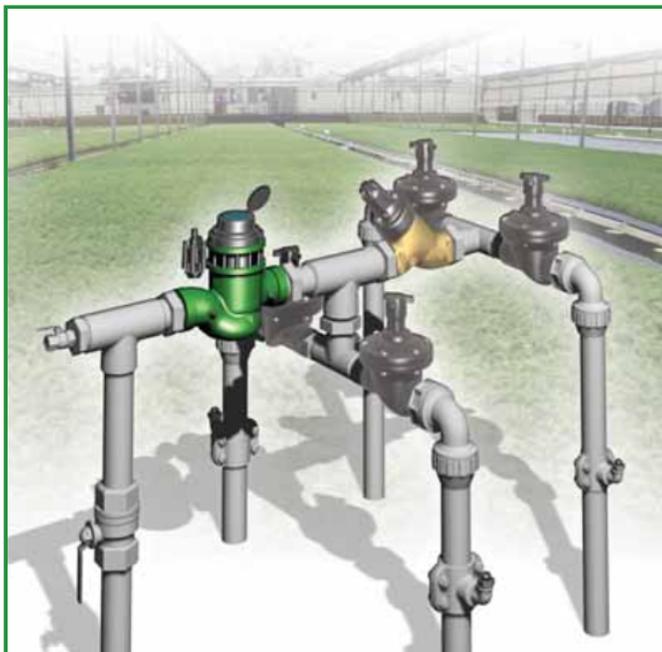
[1] BERMAD Model IR-900-M0-54-3W-KX opens upon pressure rise command, measuring flow.

Features & Benefits

- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Hydraulically Controlled, Normally Closed Hydrometer
  - Line pressure driven
  - Closes upon command pressure failure
  - Amplifies and relays weak remote commands
  - Hydraulically 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
- 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 held open, 3-Way Hydraulic Relay Valve (3W-HRV) [3]. This creates superior closing force that moves the Diaphragm Assembly [4] to a closed position. Upon pressure rise command, the 3W-HRV switches, releasing pressure from the control chamber. The Hydrometer then opens, measuring the flow. The 3W-HRV also features local manual opening and closing.

All images in this catalog are for illustration only
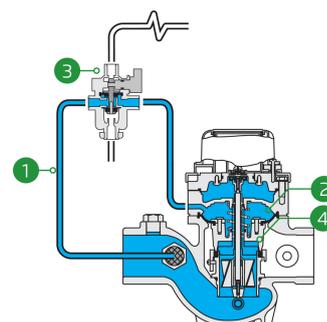
Technical Data

Pressure Rating:
10 bar
Operating Pressure Range:
0.5-10 bar

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
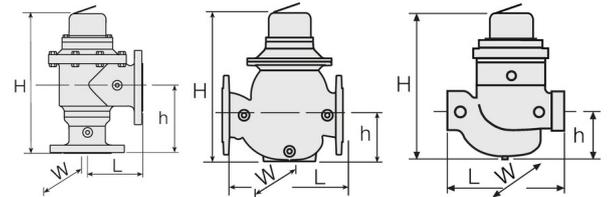*Other materials are available on request*

Control Loop Accessories

Tubing and Fittings: Polyethylene and Polypropylene

3W-HRV;
- *Standard spring - 0-10 m'*
- *Optional 10-20 m'*

Technical Specifications

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

Size	Pattern	End Connection	Weight (Kg)	L (mm)	H (mm)	h (mm)	W	CCDV (Lit)	KV
1½" ; DN40	Globe	Threaded	7.2	250	270	95	143	0.16	41
2" ; DN50	Globe	Threaded	7.3	250	277	95	143	0.16	46
2" ; DN50	Angle 90°	Threaded	8.1	120	353	155	143	0.16	51
3"R ; DN80R	Globe	Threaded	7.3	250	277	79	143	0.16	50
3"R ; DN80R	Globe	Flanged	16	310	298	100	200	0.16	50
3" ; DN80	Globe	Flanged	23	300	382	123	210	0.49	115
3" ; DN80	Angle 90°	Flanged	25.8	150	402	196	210	0.49	126
4" ; DN100	Globe	Flanged	31	350	447	137	250	1	147
4" ; DN100	Angle 90°	Flanged	36.1	180	481	225	250	1	180

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

• Extra length for male Threaded: 1½" Globe= 67(mm) ; 2" Globe & Angle= 77(mm)

Flow Properties

Size Q ⊕ (m³/h)	Accuracy	DN40 1½"	DN50 2"	DN80R 3"R	DN80 3"	DN100 4"
Q1 Minimum Flow	±5%	0.8	0.8	1.2	1.2	1.8
Q2 Transitional Flow	±2%	1.3	1.3	3	3	4.5
Q3 Permanent Flow	±2%	25	40	100	100	160
Q4 Maximum Flow (Short Time)	±2%	31	50	125	125	200

ISO 4604

Pulse Option

Register Type	Reed Switch - Single				Reed Switch - Combined		Electronic			
Size	One pulse per				One pulse per		One pulse per			
	10L	100L	1m³	10m³	10L+100L	1m³+10m³	10L	100L	1m³	10m³
1½"-4" ; DN40-100		✓	✓		✓		✓	✓	✓	

- *10L pulse (only available with electronic register) suitable for flows up to 180 m³/h.*
- *Two parllel pulses are transmitted. other pulse rates are avaiable on request.*

Additional Features

Code	Description
ME	Electronic register (upgrade kit is available)

Flow Chart
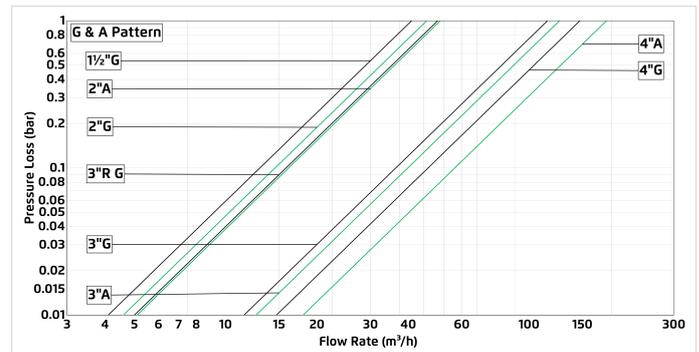
Differential Pressure & Flow Calculation

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

Kv = m³/h @ ΔP of 1 bar
Q = m³/h
ΔP = bar