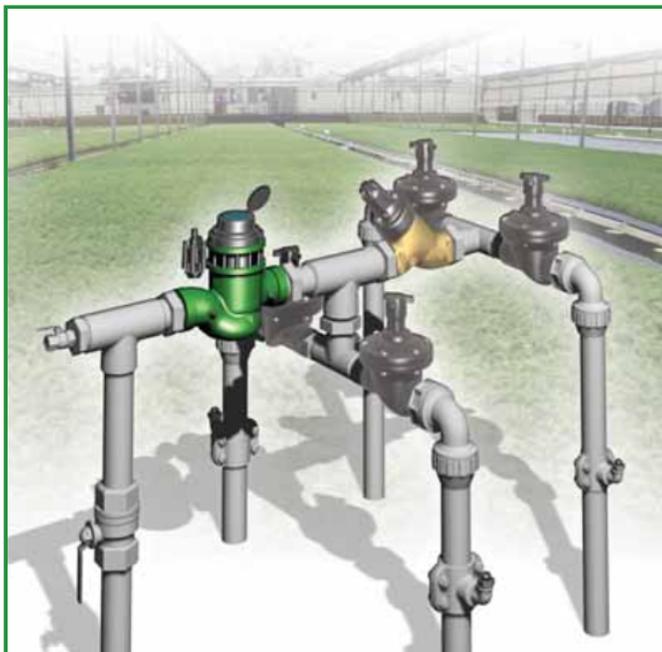




# BASIC HYDROMETER

## 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

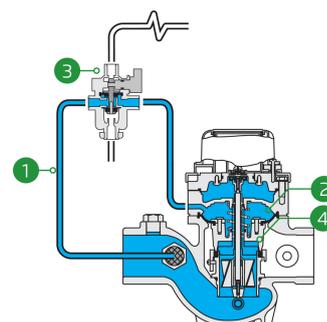
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Hydraulically Controlled, Normally Closed Hydrometer
  - Line pressure driven
  - Closes upon command pressure failure
  - Amplifies and relays weak remote commands
  - Hydraulically controlled On/Off
- Magnetic 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.





### Technical Data

**Pressure Rating:**  
150 psi

**Operating Pressure Range:**  
7-150 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

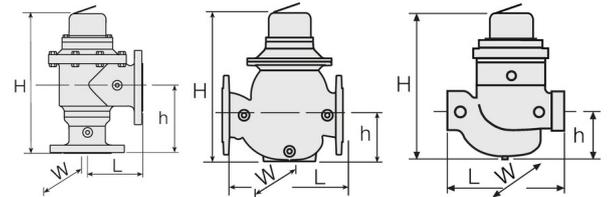
**Tubing and Fittings:**  
Polyethylene and Polypropylene

**\*3W-HRV:**

- Standard spring - 0-33 ft'
- Optional 33-66 ft'

### 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

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 Q @ (gpm)	Accuracy	DN40 1½"	DN50 2"	DN80R 3"R	DN80 3"	DN100 4"
Q1 Minimum Flow	±5%	3.5	3.5	5.3	5.3	7.9
Q2 Transitional Flow	±2%	5.7	5.7	13.2	13.2	19.8
Q3 Permanent Flow	±2%	110	176	440	440	704
Q4 Maximum Flow (Short Time)	±2%	136	220	550	550	880

\*ISO 4604

### Pulse Option

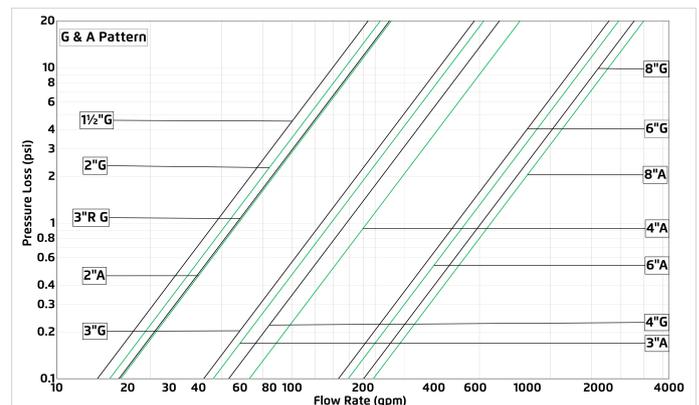
Register Type	Electronic			
	One pulse per			
	1 Gal	10 Gal	100 Gal	1000 Gal
1½"-4" ; DN40-100	✓	✓	✓	

- 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
ME	Electronic register (upgrade kit is available)

### Flow Chart



### Differential Pressure & Flow Calculation

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

Cv = gpm @ ΔP of 1 psi

Q = gpm

ΔP = psi