

PRESSURE REDUCING HYDROMETER, HYDRAULIC CONTROLLED

Model IR-920-M0-50-2W-R

The BERMAD Pressure Reducing Hydrometer with hydraulic relay combines a Woltman-type turbine water meter and a hydraulically operated, diaphragm-actuated control valve. It functions as both a mainline flow meter and a pressure-reducing valve, opening or shutting in response to a remote pressure command, reducing higher upstream pressure to a constant downstream pressure, or modulating open when line pressure drops below the setting. The Hydrometer features a vacuum-sealed register for precise volume measurement. An optional pulse output enhances system capabilities.



[1] BERMAD Model IR-920-M0-50-2W-R opens upon command pressure drop, establishing reduced pressure zones & measuring the flow.

Features & Benefits

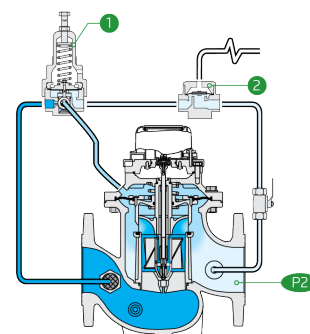
- Integrated "All-in-One" Control Valve & Flow Meter
 - Saves space, cost and maintenance
- Hydraulic Pressure Control
 - Line pressure driven
 - Protects downstream
 - Hydraulically controlled On/Off
- Magnetic Drive with Vacuum-Sealed Register
 - Water-free gear train mechanism
 - Reed-switch tension 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
 - Easy pressure setting
 - Simple in-line inspection and service

Typical Applications

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

Operation:

The Pressure Reducing Pilot (PRP) **[1]** commands the Hydrometer to throttle closed if Downstream Pressure **[P2]** rises above pilot setting and modulate open when it drops below setting. The Hydraulic Relay Valve (2W-HRV) **[2]** closes upon receiving a remote pressure-rise command, shutting off the Hydrometer. The downstream Cock Valve enables manual closing.





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

PR Pilot: PC-20-A-MP

Spring	Spring Color	Setting range
N	Natural	12-95 psi
V	Blue & White	15-150 bar

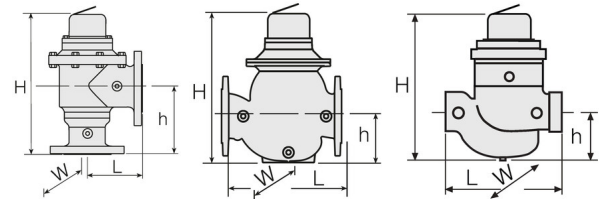
Standard spring - marked in bold

Tubing and Fittings:

Reinforced Nylon and Brass

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 Q @ (gpm)	Accuracy	DN40 1½"	DN50 2"	DN80R 3"R	DN80 3"	DN100 4"	DN150 6"	DN200 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		✓	✓	✓

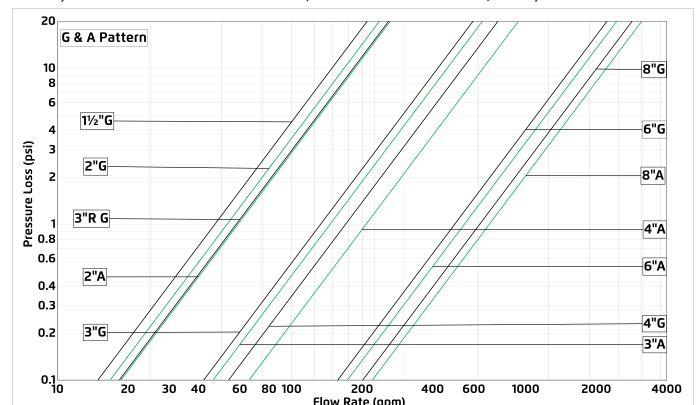
- 1 Gallon pulse (only available with electronic register) suitable for flows up to 790 gpm.
- Two parallel pulses are transmitted. other pulse rates are available on request.

Additional Features

Code	Description
ME	Electronic register (upgrade kit is available)

Flow Chart

2-Way circuit "Added Head Loss" (for "V" below 6.5 f/s): 4.5 psi



Differential Pressure & Flow Calculation

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

Cv = gpm @ ΔP of 1 psi

Q = gpm

ΔP = psi