PRESSURE REDUCING HYDROMETER, SOLENOID CONTROLLED

Model IR-920-M0-55-3W-KX

The BERMAD pressure reducing Hydrometer with solenoid control combines a Woltman-type turbine water meter with 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 an electric command and reducing higher upstream pressure to lower constant downstream pressure or opening fully when pressure drops below setpoint. It features a vacuum-sealed register for precise measurement of accumulated volume. An optional pulse output is available, further enhancing system capabilities.

[1] BERMAD Model IR-920-M0-55-KX opens or shuts in response to electric signal, establishes reduced pressure zone and controls irrigation shifts

Features & Benefits

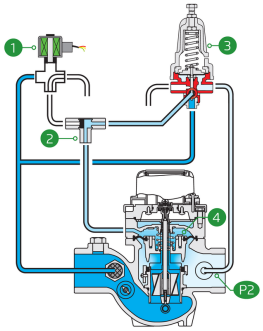
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Line Pressure Driven, Electrically Controlled On/Off
  - Protects downstream systems
- Magnetic Drive with Vacuum-Sealed Register
  - Water-free gear train mechanism
  - Reed-switch tension free pulse output
  - 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
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- Distribution Centers

Operation:

When the Solenoid [1] is activated, the Shuttle Valve [2] hydraulically relays the Pressure Reducing Pilot (PRP) [3] to the Hydrometer's Control Chamber [4]. The PRP regulates the Hydrometer, throttling it closed if the downstream pressure [P2] rises above the setpoint and opening it fully when it drops below the setpoint. When the Solenoid is deactivated, the Shuttle Valve switches, directing command pressure into the control chamber, which closes the Hydrometer. The solenoid also features an opening and closing manual override.



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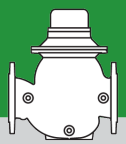


Technical Data

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

PR Pilot: PC-SHARP-X-P

Spring	Spring Color	Setting range
J	Green	0.2-1.7 bar
K	Gray	0.5-3.0 bar
N	**Natural**	**0.8-6.5 bar**
V	Blue & White	1.0-10.0 bar

Standard spring - marked in bold

Tubing and Fittings:
Polyethylene and Polypropylene

AC solenoid:
S-390-T-3W

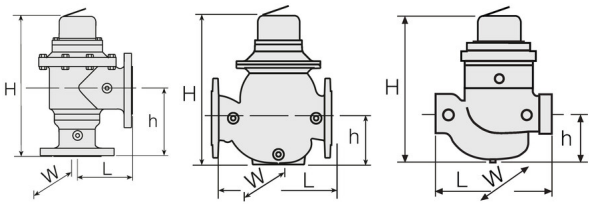
DC solenoid:
S-390-T-3W

DC latch solenoid:
S-392-T-3W P.B

**For other solenoids and pilots please consult BERMAD*

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

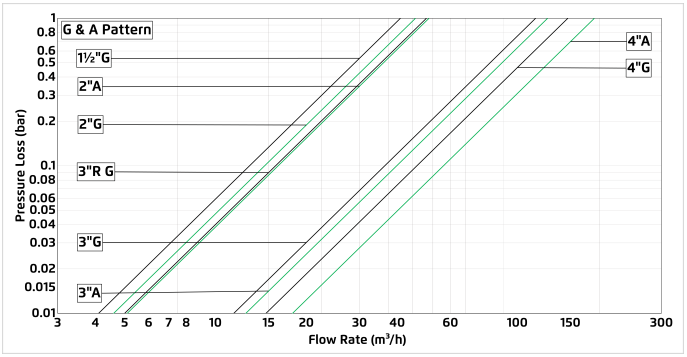
CCDV = Control Chamber Displacement Volume • Threaded = BSP & NPT are available.
• Extra length for male Threaded: 1½" Globe= 67(mm) ; 2" Globe & Angle= 77(mm)

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*

Flow Chart



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)

Differential Pressure & Flow Calculation

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

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