

FLOW CONTROL & PRESSURE REDUCING HYDROMETER

Model IR-972-M0-55-2W-RV

The BERMAD flow control and pressure reducing Hydrometer with solenoid control combines a Woltman-type water meter with a hydraulically operated, diaphragm-actuated control valve. Functioning as both a mainline flow meter and a flow control & pressure reducing valve, it limits excessive demand and reduces higher upstream pressure to a preset maximum downstream pressure. It features a vacuum-sealed register for precise volume measurement. An optional pulse output is available to further enhance system capabilities.



- [1] BERMAD Model IR-972-M0-55-2W-RV opens in response to an electric command, limiting excessive demand, and establishing reduced pressure zones.
- [2] Kinetic Air Valve Model IR-K10
- [3] Combination Air Valve Model IR-C10
- [4] Smart Irrigation Controller-OMEGA
- [5] Strainer Model 70-F

Features & Benefits

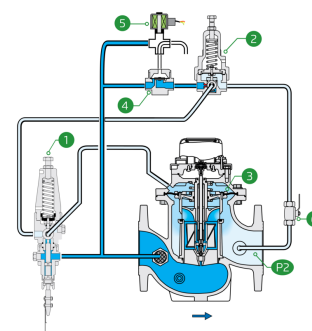
- Integrated "All-in-One" Control Valve & Flow Meter
 - Saves space, cost and maintenance
- Hydraulic Flow & Pressure Control with Solenoid Control
 - Limits fill-up rate and consumer excessive demand
 - Protects downstream systems
- Magnetic Drive with Vacuum-Sealed Register
 - Water-free gear train 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
- Paddle-Type Hydro-Mechanical Flow Pilot
 - Negligible head loss
 - Easy flow limit setting
 - Wide setting range

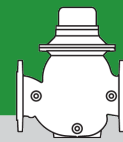
Typical Applications

- Automated Irrigation Systems
- Flow Monitoring & Leakage Control
- Multiple Independent Consumer Systems
- Pressure Reducing Stations
- Distribution Centers

Operation:

The Paddle-Type Flow Control Pilot (FCP) [1] hydraulically connects the Pressure Reducing Pilot (PRP) [2] to the Hydrometer's Control Chamber [3] via a Hydraulic Relay (2W-HRV) [4], controlled by a 3W Solenoid [5]. Activating the Solenoid initiates regulation: the FCP throttles the Hydrometer closed if demand exceeds the setpoint or to modulate-open when demand drops. The PRP limits downstream pressure (P2) to a preset max. When the Solenoid is Deactivated or by closing the downstream cock valve [6], the Hydrometer shuts. Solenoid's Manual Override enables manual operation.





Technical Data

Pressure Rating:

16 bar

Operating Pressure Range:

0.5-16 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-20-A-MP

Spring	Spring Color	Setting range
N	Natural	0.8-6.5 bar
V	Blue & White	1.0-10.0 bar

Standard spring - marked in bold

FC Pilot: PC-70-MP

Flow Control Pilot spring range:

Spring: E-Purple

Flow Velocity (m/sec): 1.5-3.5

**For other pilots and flow velocities range, please consult [BERMAD](#)*

Tubing and Fittings:

Reinforced Nylon and Brass

AC solenoid:

S-400-3W-24VAC-R

DC solenoid:

S-400-3W-24 V DC

DC latch solenoid:

S-402-3W-M.B.-9-40 V DC latch

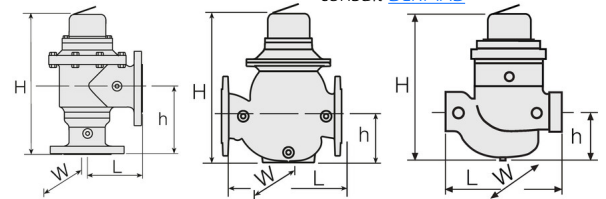
S-985-3W-M.B.-12-50 V DC latch

**For other solenoids 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
6" ; DN150	Globe	Flanged	71	500	602	216	380	3.8	430
6" ; DN150	Angle 90°	Flanged	76.7	250	585	306	380	3.8	473
8" ; DN200	Globe	Flanged	93	600	617	228	380	3.8	550
8" ; DN200	Angle 90°	Flanged	82.5	250	585	280	380	3.8	605

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	Accuracy	DN40	DN50	DN80R	DN80	DN100	DN150	DN200
Q @ (m³/h)		1½"	2"	3"R	3"	4"	6"	8"
Q1 Minimum Flow	±5%	0.8	0.8	1.2	1.2	1.8	4	6.3
Q2 Transitional Flow	±2%	1.3	1.3	3	3	4.5	10	15.8
Q3 Permanent Flow	±2%	25	40	100	100	160	250	400
Q4 Maximum Flow (Short Time)	±2%	31	50	125	125	200	313	500

*ISO 4604

Pulse Option

Register Type	Reed Switch - Single				Reed Switch - Combined				Electronic			
	One pulse per				One pulse per				One pulse per			
Size	10L	100L	1m³	10m³	10L+100L	1m³+10m³	10L	100L	1m³	10m³	10L	100L
1½"-4" ; DN40-100		✓	✓		✓		✓	✓	✓		✓	✓
6"-10" ; DN150-250			✓	✓		✓		✓	✓	✓		✓

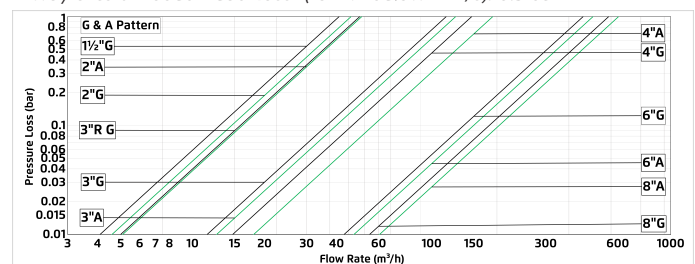
- 10L pulse (only available with electronic register) suitable for flows up to 180 m³/h.
- Two parallel pulses are transmitted. other pulse rates are available on request.

Additional Features

Code	Description
Z	Manual Selector
ME	Electronic register (upgrade kit is available)

Flow Chart

2-Way circuit "Added Head Loss" (for "V" below 2 m/s): 0.3 bar



Differential Pressure & Flow Calculation

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

$K_v = m^3/h \text{ @ } \Delta P \text{ of 1 bar}$
 $Q = m^3/h$
 $\Delta P = \text{bar}$