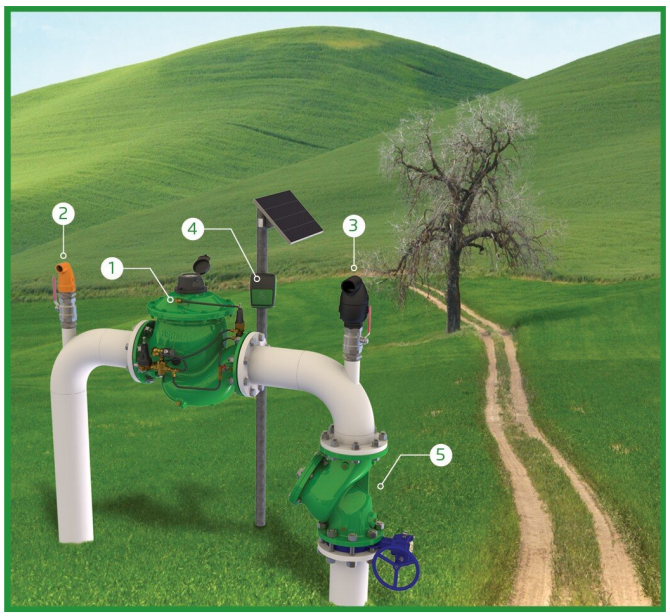
FLOW CONTROL & PRESSURE REDUCING HYDROMETER

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

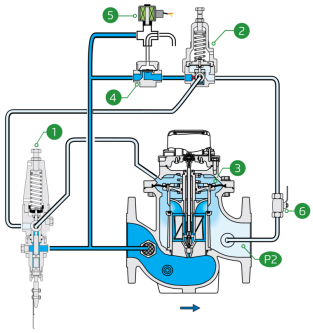
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Hydraulic Flow & Pressure Control with Solenoid Control
  - Limits fill-up rate and consumer excessive demand
  - Protects downstream systems
- Magnetic Drive with Vacuum-Sealed Register
  - Water-free gear train 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.



All images in this catalog are for illustration only

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

FC Pilot: PC-70-MP

Flow Pilot spring range:
Spring: *E-Purple*
Flow Velocity (ft/sec): *5-11.5*
**For other pilots and flow velocities range, please consult BERMAD*

Tubing and Fittings:
Reinforced Nylon and Brass

AC solenoid:
S-400-3W-24VAC-R

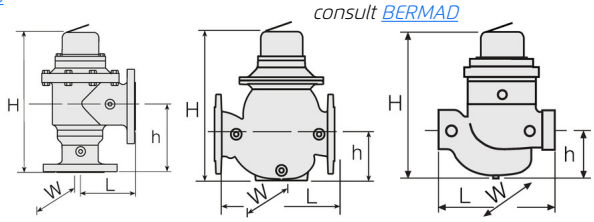
DC solenoid:
S-400-3W-24 V DC

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 (Lb)	L (In)	H (In)	h (In)	W	CCDV (Gal)	CV
1½" ; DN40	Globe	Threaded	15.9	9⅞	10⅝	3¾	5⅝	0.04	47
2" ; DN50	Globe	Threaded	16.1	9⅞	10⅞	3¾	5⅝	0.04	53
2" ; DN50	Angle 90°	Threaded	17.8	4¾	13⅞	6⅛	5⅝	0.04	59
3"R ; DN80R	Globe	Threaded	16.1	9⅞	10⅞	3⅛	5⅝	0.04	58
3"R ; DN80R	Globe	Flanged	35.3	12¼	11¾	4	7⅞	0.04	58
3" ; DN80	Globe	Flanged	50.7	11⅞	15	4⅞	8¼	0.13	133
3" ; DN80	Angle 90°	Flanged	56.9	6	15⅞	7¾	8¼	0.13	146
4" ; DN100	Globe	Flanged	68.3	13¾	17⅝	5⅜	9⅞	0.26	170
4" ; DN100	Angle 90°	Flanged	79.6	7⅛	19	8⅞	9⅞	0.26	208
6" ; DN150	Globe	Flanged	156.5	19¾	23¾	8½	15	1	497
6" ; DN150	Angle 90°	Flanged	169.1	9⅞	23	12	15	1	547
8" ; DN200	Globe	Flanged	205	23⅝	24⅜	9	15	1	636
8" ; DN200	Angle 90°	Flanged	181.8	9⅞	23	11	15	1	699

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 @ (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		✓	✓	✓

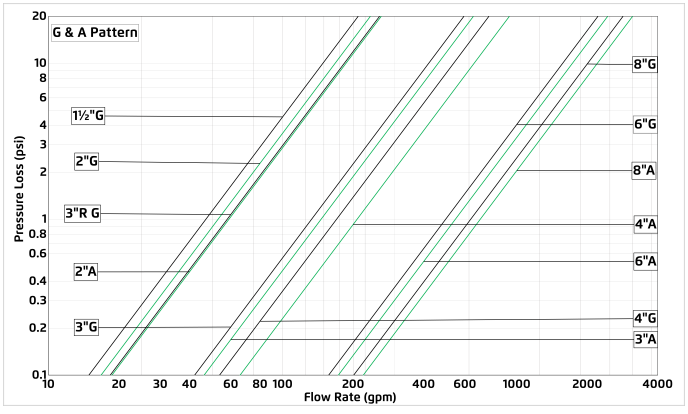
- *1 Gallon pulse (only available with electronic register) suitable for flows up to 790 gpm.*
- *Two parllel pulses are transmitted. other pulse rates are avaiable on request.*

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 6.5 f/s): 4.5 psi



Differential Pressure & Flow Calculation

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

Cv = gpm @ ΔP of 1 psi
Q = gpm
ΔP = psi