

# PRESSURE REDUCING HYDROMETER, SOLENOID CONTROLLED

## Model IR-920-ME-55-3W-KX5

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 an electronic register for precise volume and flow measurement and a pulse output for enhanced monitoring and control.



- [1] BERMAD Model IR-920-ME-55-3W-KX opens in response to electric signals establishes reduced pressure zone, and controls irrigation shifts.
- [2] Combination Air Valve Model C30
- [3] Quick Pressure Relief Valve Model IR-13Q-2W
- [4] Pressure Reducing Valve (Top Pilot) Model IR-12T-55-3W-X
- [5] Kinetic Air Valve Model K10
- [6] Smart Irrigation Controller-OMEGA

### Features & Benefits

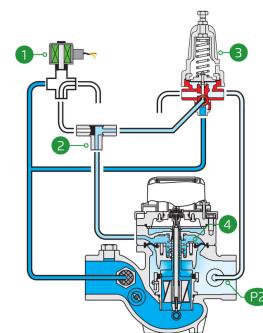
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Line Pressure Driven, Electrically Controlled On/Off
  - Protects downstream systems
- Magnetic Drive with BERMAD Universal E-Register
  - Support metric & imperial units of measurement
  - Instant flow rate display
  - Forward and reverse flow indication
  - Data logging capabilities
  - Fast pulse output rate
- Internal Inlet & Outlet Flow Straighteners
  - Saves on straightening distances
  - Maintains accuracy
- User-Friendly Design
  - Easy pressure setting
  - Simple in-line inspection and service

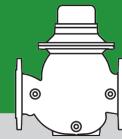
### Typical Applications

- Automated Irrigation Systems
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Pressure Reducing Systems
- Systems Subject to Varying Supply Pressure
- Distribution Centers

### Operation:

The Shuttle Valve [1] hydraulically connects the Solenoid [2] or the Pressure Reducing Pilot (PRP) [3] to the Hydrometer Control Chamber [4]. When the solenoid is Activated, the PRP commands the Hydrometer to throttle closed should Downstream Pressure [P2] rise above setting, and to open fully when it drops below setting. In response to an electric signal, the solenoid switches, directing line pressure through the Shuttle Valve into the control chamber. This causes the Hydrometer to shut. The solenoid also features manual override for opening or closing.





## 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
<b>N</b>	<b>Natural</b>	<b>0.8-6.5 bar</b>
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-NC-P.B.

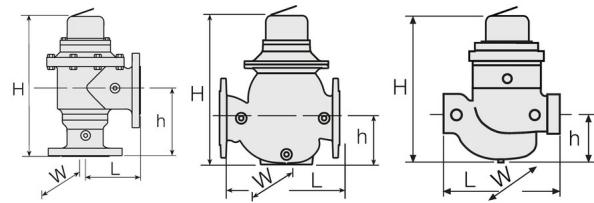
**DC solenoid:**  
 S-390-T-3W-NC-P.B.

**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

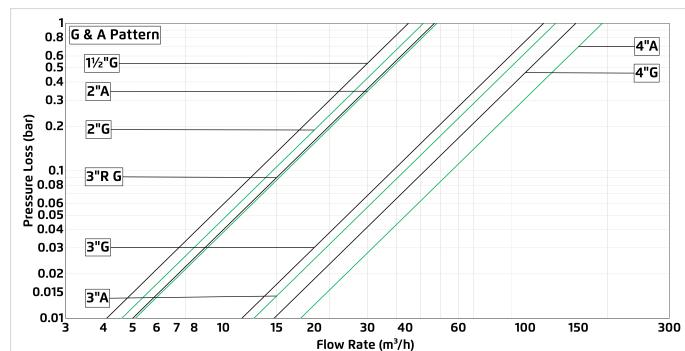
\*ISO 4604

## Pulse Option

Register Type	Electronic			
	One pulse per			
Size	10L	100L	1m³	10m³
1½"-4" ; DN40-100	✓	✓	✓	

• 10L pulse suitable for flows up to 180 m³/h.

## Flow Chart



## Differential Pressure & Flow Calculation

$$\Delta P = \left( \frac{Q}{Kv} \right)^2 \quad Kv = m^3/h @ \Delta P \text{ of 1 bar}$$

$$Q = m^3/h \quad \Delta P = \text{bar}$$