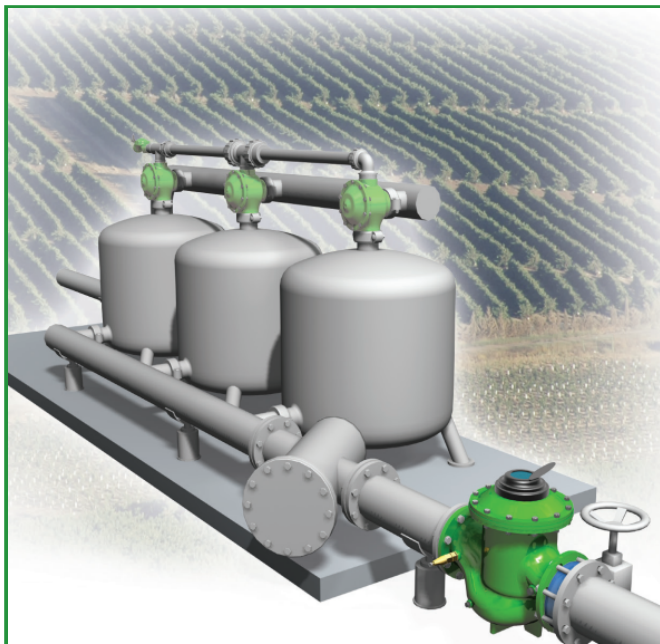


# FLOW CONTROL HYDROMETER, SOLENOID CONTROLLED

## Model IR-970-M0-55-2W-RV

The BERMAD flow control Hydrometer with solenoid control combines a Woltman-type turbine water meter with a hydraulically operated, diaphragm actuated control valve. Functioning as both a mainline flow meter and a flow control valve, the Hydrometer opens or closes in response to an electric signal and limits the demand to a preset max. The Hydrometer features a magnetically coupled, vacuum-sealed register for precise accumulated volume measurement. An optional pulse output is available to further enhance system capabilities.



**[1]** BERMAD Model IR-970-M0-55-2W-RV opens in response to an electric signal, limits fill-up rate and consumer over-demand, and measures flow.

### Features & Benefits

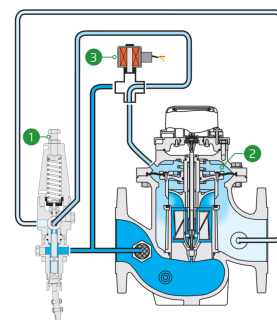
- Integrated "All-in-One" Control Valve & Flow Meter
  - Saves space, cost and maintenance
- Line Pressure Driven, Electrically Controlled On/Off
  - Limits fill-up rate and consumer excessive demand
- Magnetic Drive with Vacuum-Sealed Register
  - Water-free gear train mechanism
  - Reed-switch tension 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
  - Wide setting range
- User-Friendly Design
  - Easy pressure setting
  - Simple in-line inspection and service

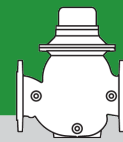
### Typical Applications

- Automated Irrigation Systems
- Remote Flow Data Read-Out
- Flow Monitoring & Leakage Control
- Multiple Independent Consumer Systems
- Line Fill-Up Control

### Operation:

The Paddle Flow Control Pilot (FCP) **[1]** is hydraulically connected to the Hydrometer Control Chamber **[2]** through the Solenoid **[3]**. When the Solenoid is activated by an electric signal, enabling regulation mode, the FCP throttles the Hydrometer closed if demand exceeds setpoint and modulates it open if demand is lower than setpoint. Deactivating the Solenoid shuts the Hydrometer. The Hydrometer can be manually opened or closed using Solenoid's override feature.





### 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

**FC Pilot:** PC-70-MP

**Flow Pilot spring range:**

**Spring:** E-Purple

**Flow Velocity (m/sec):** 1.5-3.5

#### Tubing and Fittings:

Reinforced Nylon and Brass

**AC solenoid:**

S-400-3W

**DC solenoid:**

S-400-3W

**DC latch solenoid:**

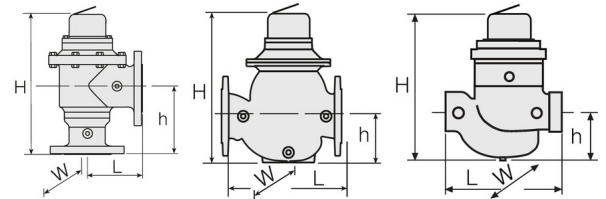
S-402-3W M.B.

*\*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 |                      |      | ✓   | ✓    |                        | ✓        |     | ✓    | ✓             |      | ✓   | ✓    |

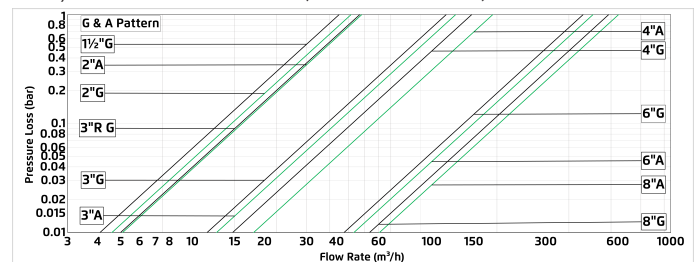
- 10L pulse (only available with electronic register) suitable for flows up to 180 m³/h.
- Two parallel pulses are transmitted. other pulse rates are available on request.

#### Additional Features

| Code | Description                                    |
|------|------------------------------------------------|
| 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

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

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

$Q = m^3/h$

$\Delta P = \text{bar}$