

# BERMAD TURBO-IR WATER METER SERIES

The TURBO-IR-E/M uses a multi-blade plastic paddle mounted at the top of the water passage, where disturbance from solids suspended in the water is minimal, providing:

- Accurate metering in water containing solid debris
- Low head loss
- Magnetic drive

## Water Meter with Electronic Register

### TURBO-IR-E

#### Features and Benefits

- Universal E-Register - suits all water meters types and sizes made by BERMAD
- Instant flow rate
- Forward and reverse flow indication
- 12 digits LCD display
- Data logging capabilities
- Fast pulse output rate
- Dry, IP68, NEMA 6P Sealed Register
- Battery lifetime - 8 years



## Water Meter with Magnetic Register

### TURBO-IR-M

#### Features and Benefits

- Magnetic drive
- Dry, IP68; NEMA 6P SEALED REGISTER
- "Reed switch" sensor allow one or two pulse outputs option
- Easy maintenance

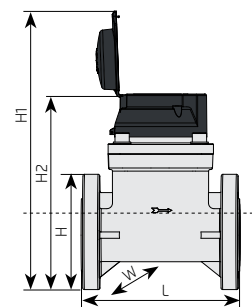




**Turbo-IR-E/M**

## Dimensions and Weights

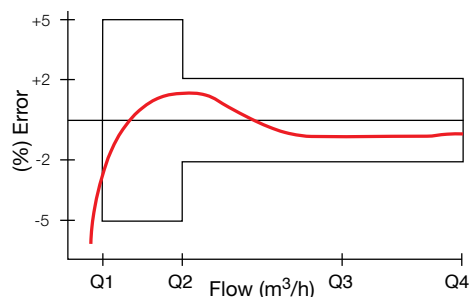
| Nominal Size    | mm   | 50    | 65    | 80   | 100  | 125  | 150  | 200  | 250 | 300  |
|-----------------|------|-------|-------|------|------|------|------|------|-----|------|
|                 | Inch | 2"    | 2½"   | 3"   | 4"   | 5"   | 6"   | 8"   | 10" | 12"  |
| L, Length (mm)  |      | 200   | 200   | 225  | 250  | 250  | 300  | 350  | 450 | 500  |
| H, Height (mm)  |      | 172.5 | 182.5 | 200  | 215  | 245  | 314  | 372  | 450 | 504  |
| H1, Height (mm) |      | 353.5 | 363.5 | 381  | 391  | 406  | 434  | 491  | 544 | 599  |
| H2, Height (mm) |      | 281.5 | 291.5 | 309  | 319  | 334  | 362  | 419  | 472 | 527  |
| W, Width (mm)   |      | 125   | 140   | 160  | 180  | 200  | 240  | 295  | 350 | 400  |
| Weight (kg)     |      | 10.5  | 11.8  | 15.5 | 17.5 | 19.5 | 30.5 | 42.5 | 60  | 82.5 |



## Metrological Data

|                                    | Accuracy | DN50                                               | DN65 | DN80 | DN100 | DN125 | DN150 | DN200 | DN250 | DN300 |
|------------------------------------|----------|----------------------------------------------------|------|------|-------|-------|-------|-------|-------|-------|
|                                    |          | 2"                                                 | 2½"  | 3"   | 4"    | 5"    | 6"    | 8"    | 10"   | 12"   |
| Qmin (Minimum flow), m³/h          | ±5%      | 2.8                                                | 4    | 6    | 10    | 14    | 20    | 36    | 48    | 64    |
| Qt (Transitional flow), m³/h       | ±2%      | 10.5                                               | 15   | 22.5 | 37.5  | 52.5  | 75    | 135   | 180   | 240   |
| Qn (Permanent flow), m³/h          | ±2%      | 35                                                 | 50   | 75   | 125   | 175   | 250   | 450   | 600   | 800   |
| Qmax (Peak flow, short time), m³/h | ±2%      | 70                                                 | 100  | 150  | 250   | 350   | 500   | 900   | 1,200 | 1,600 |
| Min reading unit (m³)              |          | 0.01                                               | 0.01 | 0.01 | 0.01  | 0.01  | 0.01  | 0.1   | 1     | 1     |
| Max register capacity (m³)         |          | 99,999.999 - 999,999.99 - 9,999,999.9 - 99,999,999 |      |      |       |       |       |       |       |       |
| Kv=Q/√Δp                           |          | 115                                                | 192  | 219  | 402   | 584   | 1,059 | 1,826 | 2,373 | 4,017 |

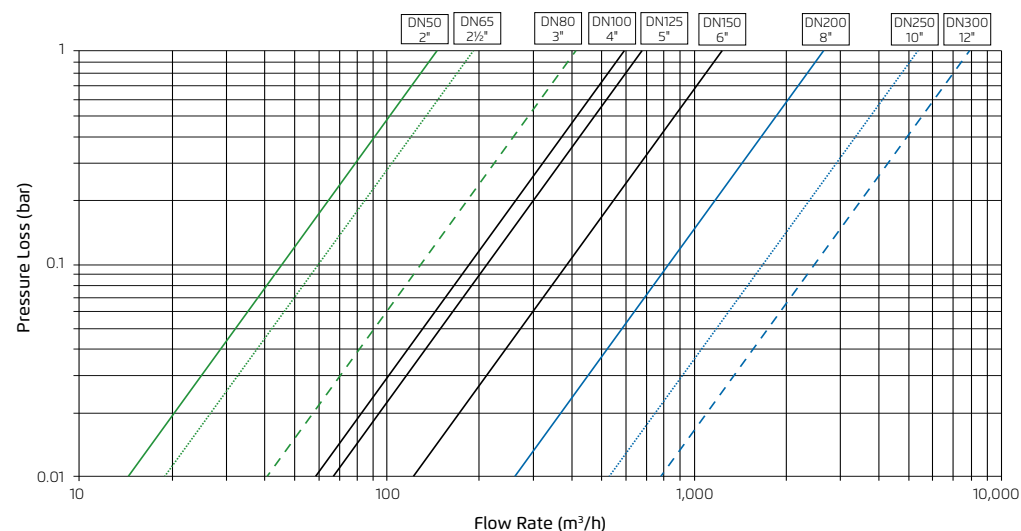
## Accuracy Curve



## Technical data

- **Body, Cover:** Ductile Iron
- **Coating:** Polyester Green
- **End Connections - Flanged:** ISO PN16, ANSI Class 150
- **Pressure Rating:** ISO PN 16
- **Operating Temperature:** water up to 50°C / 122°F

## Turbo-IR-E/M Flow Chart





## Turbo-IR-E/M

## Data Output Options

Irrigation system management requires on line accurate flow data.

BERMAD Turbo-IR-E/M provides accurate data metering with all common pulse output specifications.

## Electronic register

| Output Type                                   |
|-----------------------------------------------|
| Programmable open collector pulse output Data |

| Cable Characteristics |       |            |
|-----------------------|-------|------------|
|                       | Wire  | Function   |
| Output Cable          | Red   | Pulse Out  |
|                       | Black | GND/COMMON |



Turbo-IR-E Register

| Output Characteristics  |     |       |
|-------------------------|-----|-------|
| Cable Length - supplied | 1.5 | meter |
| Maximum Cable Length    | 50  | meter |
| Maximum Applied Voltage | 35  | Vdc   |

## Magnetic register

| Output Type        |
|--------------------|
| Dry contact output |

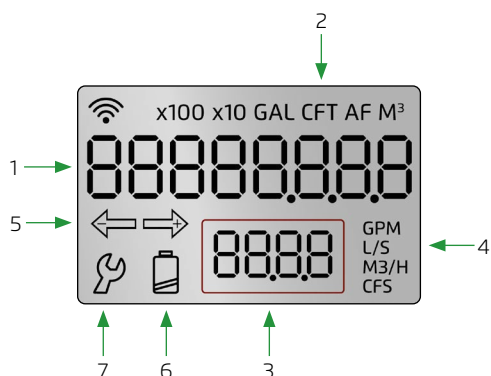
| Cable Characteristics |       |            |
|-----------------------|-------|------------|
|                       | Wire  | Function   |
| Output Cable          | Red   | Pulse Out  |
|                       | Black | GND/COMMON |



Turbo-IR-M Register

| Output Characteristics  |      |           |
|-------------------------|------|-----------|
| Cable Length - supplied | 1.5  | meter     |
| Maximum Cable Length    | 50   | meter     |
| Maximum Applied Voltage | 24   | AC/DC Max |
| Switch Current          | 0.01 | A max     |

## E-Register Display



## Applicable Icons

1. Volume
2. Volume units
3. Flow Rate
4. Flow Rate units
5. Volume direction
6. Battery level indication
7. General warning

## Pulse Output Option - Electronic Register

## Cubic Meter Pulse Output Electronic transmission

| Model      | Size    |        | Open Collector   |           |                  |                   |                    |
|------------|---------|--------|------------------|-----------|------------------|-------------------|--------------------|
|            |         |        | 1 Pulse for Each |           |                  |                   |                    |
|            | In      | mm     | 10 liter *       | 100 liter | 1 m <sup>3</sup> | 10 m <sup>3</sup> | 100 m <sup>3</sup> |
| Turbo-IR-E | 1½"-2½" | 40-65  | ✓                | ✓         | ✓                | ✗                 | ✗                  |
|            | 3-10"   | 80-250 | ✗                | ✓         | ✓                | ✓                 | ✗                  |
|            | 12"     | 300    | ✗                | ✗         | ✓                | ✓                 | ✓                  |

## Gallon Pulse Output Electronic transmission

| Model      | Size    |        | Open Collector   |        |         |           |            |
|------------|---------|--------|------------------|--------|---------|-----------|------------|
|            |         |        | 1 Pulse for Each |        |         |           |            |
|            | In      | mm     | 1 gal            | 10 gal | 100 gal | 1,000 gal | 10,000 gal |
| Turbo-IR-E | 1½"-2½" | 40-65  | ✓                | ✓      | ✓       | ✗         | ✗          |
|            | 3-10"   | 80-250 | ✗                | ✓      | ✓       | ✓         | ✗          |
|            | 12"     | 300    | ✗                | ✗      | ✓       | ✓         | ✓          |



## Pulse Output Option - Magnetic Register

### Cubic Meter Pulse Output Magnetic transmission

| Models     | Size    |         | Dry contact Reed Switch |      |       |        | Dual pulse output |
|------------|---------|---------|-------------------------|------|-------|--------|-------------------|
|            |         |         | 1 Pulse for Each        |      |       |        |                   |
|            | In      | mm      | 100 liter               | 1 m³ | 10 m³ | 100 m³ |                   |
| Turbo-IR-M | 1½"-5"  | 40-125  | S3                      | S2   | -     | -      | S23               |
|            | 6"-8"   | 150-200 | -                       | S2   | S1    | -      | S12               |
|            | 10"-12" | 250-300 | -                       | -    | S1    | S8     | S81               |

### Gallon Pulse Output Magnetic transmission

| Model      | Size    |         | Dry contact Reed Switch |         |           |            | Dual pulse output |
|------------|---------|---------|-------------------------|---------|-----------|------------|-------------------|
|            |         |         | 1 Pulse for Each        |         |           |            |                   |
|            | In      | mm      | 10 gal                  | 100 gal | 1,000 gal | 10,000 gal |                   |
| Turbo-IR-M | 1½"-5"  | 40-125  | S3                      | S2      | -         | -          | S23               |
|            | 6"-8"   | 150-200 | -                       | S2      | S1        | -          | S12               |
|            | 10"-12" | 250-300 | -                       | -       | S1        | S8         | S81               |

## Installation Recommendations

- The water meter can be installed in any orientation without interfering with metering performance.
- The arrow on water meter body must be in the same direction with the flow.
- To avoid turbulence that may interfere with accurate measurement, it is recommended to have 10 diameters of straight pipe upstream and 5 diameters downstream from the water meter.
- Prior to installation, flush the line to remove debris.
- The TURBO-IR-E/M must be filled with water to operate.

