

## FEATURES

- Nutating piston positive displacement.
- MEA15 : NPN Opto 1000 pulses/Litre (1ml / 1pulse)
- MEA15R : Reed Switch 122 pulses/Litre (8.2 mls/pulse)
- High pulse rate for flowrate & precision batching.
- Designed for low flow measurement.
- Accuracy :  $\pm 1.5\%$  flow curve.  
Repeatability:  $\pm 0.15\%$
- Junction entry electrical connection.
- Coupling connectors supplied.



The MEA15 15mm pulse output, nutating piston, positive displacement flowmeter is designed for use in low-dose/low-quantity batching of water-based liquids. With 1000 pulses/Litre output, the MEA15 flowmeter is ideal for precision batching and flowrate indication applications. The MEA15 will accurately measure down to 4 mls/sec (0.25 Litres/min). Ideal for use with *ManuFlo* Batch Controllers, reset counters, flowrate indicators or interface cards.

The meter can be used with a range of construction chemical additives and other liquids. The chamber parts used are dense thermoplastics with a isotropic magnet, resisting temperatures up to 60°C. The expected working life of the measuring chamber should exceed 15 years.

## SPECIFICATIONS

|                          |   |                      |                      |   |
|--------------------------|---|----------------------|----------------------|---|
| <b>Size</b>              | 15mm port, ½" BSP(male) threaded connectors   |                      |                      |   |
| <b>Flowranges</b>        | <b>Litres/hour</b>  | <b>Litres/minute</b> | <b>Litres/second</b> |   |
| <b>Qmin</b>              | 15.0  | 0.250                | 0.004                | Qmin = minimum accurate flow            |
| <b>Qt</b>                | 22.5  | 0.375                | 0.006                | Qt = transitional very accurate flow    |
| <b>Qn</b>                | 1500.0  | 25.000               | 0.416                | Qn = nominal flow (maximum continuous)  |
| <b>Qmax</b>              | 2400.0  | 40.000               | 0.666                | Qmax = maximum flow (intermittant runs) |
| <b>Accuracy</b>          | +/- 1.5% Qt to Qmax, repeatability better than 0.2%   |                      |                      |   |
| <b>Elect. Connection</b> |   |                      |                      |   |
| Transistor pulse         | Round junction box cable gland entry to IP65, 3 wire connection ( pulse / + / 0.v.) via terminal.   |                      |                      |   |
| Reed Switch pulse        | Square junction box cable gland entry to IP65, 2 wire connection ( pulse / 0.v. ) via terminal.   |                      |                      |   |
| <b>Transistor Pulse</b>  | 1ml/1pulse (1000ppl) NPN sink pulse 5 to 25VDC supply, square wave 50% duty cycle   |                      |                      |   |
| <b>Reed Switch Pulse</b> | 122 pulses/Litre, contact closure, 0-24VDC, 2-wire connection square junction box.<br>Max. switching current: 100mA. Fitted with internal 470Ω current limiting resistor. |                      |                      |   |
| <b>Pipe Connection</b>   | Body thread ends ¾" BSP(male), coupling connectors taper to ½" BSP(male).   |                      |                      |   |
| <b>Max. pressure</b>     | 16 bar operating, Max.pressure loss at Qmax = 1 bar.  |                      |                      |   |
| <b>Max. temp.</b>        | MEA15 = 60 °C, MEA15R = 90 °C   |                      |                      |   |
| <b>EEC approval No.</b>  | F9001399  |                      |                      |   |
| <b>Dimmensions (mm)</b>  | 145 H, 95 W, 190 L (including connectors)   |                      |                      |   |
| <b>Weight</b>            | 1.1 kg (including connectors)   |                      |                      |   |

## INSTALLATION

**MEA15**

1. Consider an accessible area for future service of chamber. Before installing flowmeter, flush out pipes thoroughly.
2. Install the meter under a cover, as the pulsehead is rated to IP55 (splash proof only).
3. Due to the fine tolerances of the measuring chamber, an Amiad filter of 300 micron or smaller should be fitted prior to meter. This will eliminate blockages to the meter chamber.
4. MEA15 flowmeters may be installed in any position without affecting accuracy (horizontal position for optimum results). Ensure arrow on meter body coincides with forward flow direction. Meter must only measure in a full pipe flow.
5. A pair of connector couplings are supplied tapering to 1/2" BSP(male) thread. The body of the meter has 3/4" BSP(male) threads.
6. Never exceed the rated maximum flow of the meter flow range, as this may cause damage to the measuring chamber and/or cause overdosing of liquid

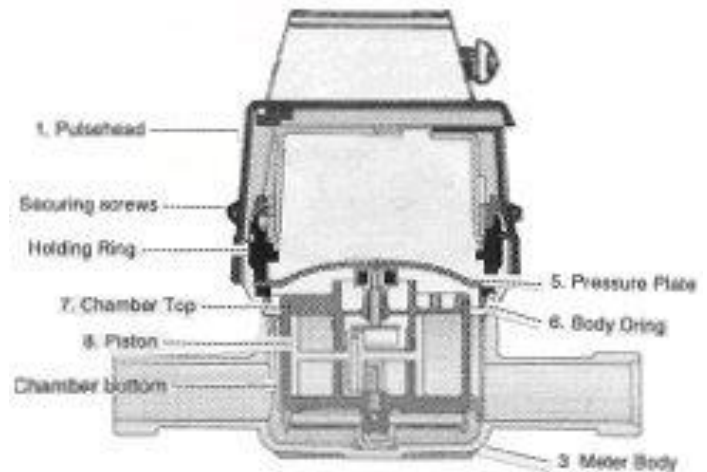
## MAINTENANCE

If flow becomes excessively restricted, or meter is out of calibration, or a cessation of pulse signals is detected, then:

1. Check voltage supply and cable connections at junction terminal. Remove the two screws securing the pulsehead to the main meter body. Hold the pulsehead and shake it in a left-right motion - this should generate pulses on whatever counter you have connected the flowmeter to. If all is OK, then proceed to step 2.
2. To access the measuring chamber, remove the black lock ring, then unscrew anti-clockwise the plastic holding ring. Remove the stainless steel pressure plate. Chamber is now in view.
3. Remove the body O-ring sitting above the chamber. With a pair of pliers, remove the complete chamber body. Pry open the chamber's top plate, then clean parts as required with warm water or dilute acid, or replace chamber as required.
4. Reassemble in reverse order, noting the chamber assembly alignment notch.

## ELECTRICAL CONNECTION and PULSE SPECS.

- The pulsehead is a NPN transistor with 1000 pulses/Litre output, sinking 5-25 VDC up to 150mA load, up to 900 metres transmission distance.
- An optional pulse divider can be internally fitted with 10, 20, 50, 100 mls per pulse options, 5-15 VDC only.
- For 24-240VAC pulse switching or pulse scaling, use the UIC/A interface card.
- Reed pulse: 122 pulse/Litre contact closure 2-wire connection.
- To connect to meter, remove the blue housing cover, unscrew junction cover. Pass the two core shielded signal cable through the IP67 entry gland, and connect to the terminal strip connector. Note the Pulse, +, 0V(shield) connections. Tighten gland and refit junction lid and housing cover. ■ Loop the cable downwards from the flowmeter, so that water cannot run down the cable and enter the junction box through the gland.



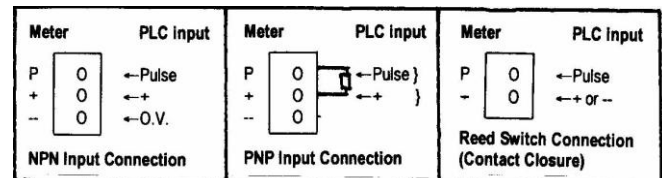
## MATERIAL SPECIFICATIONS

- |                    |                   |
|--------------------|-------------------|
| 1. Pulsehead       | - ABS & PVC       |
| 2. Securing screws | - Stainless steel |
| 3. Meter Body      | - Brass/gunmetal  |
| 4. Holding ring    | - Polysulfone     |
| 5. Pressure plate  | - Stainless steel |
| 6. Body Oring      | - Nitrile         |

### Measuring chamber parts:

- |                   |                               |
|-------------------|-------------------------------|
| 7. Chamber top    | - Graphited Polystyrene       |
| + Magnet          | - Hardened Ferrite & Polyamid |
| 8. Piston         | - Graphited Polystyrene       |
| 9. Chamber bottom | - Graphited Polystyrene       |
| + Oring           | - Ethylene Propylene          |
| 10. Couplings     | - Brass, Nitrile washers      |

## WIRING CONNECTION DIAGRAMS:



For **PNP input (12-24 VDC)** fit a 1.5 to 1.8K resistor.  
(Value depends on input impedance).  
Re-transmission distance up to 900 metres.

| ORDER CODE | Description              | Pulses/Litre |
|------------|--------------------------|--------------|
| MEA15      | Transistor pulse output  | 1000         |
| MEA15R     | Reed Switch pulse output | 122          |

Due to continuous product improvement, specifications may change without notice.

**ManuFlo**®™

Flow Measurement & Control Products

a division of

**MANU ELECTRONICS PTY LTD**

Ph: + 61 2 9938 1425, 9905 4324

Fax: + 61 2 9938 5852

Email: sales@manuelectronics.com.au

Web: [www.manuelectronics.com.au](http://www.manuelectronics.com.au)