MRP20-T2 LCD RESETABLE COUNTER FLOWMETER

FEATURES

- **Custom designed and built primarily for use on Concrete Transit Mixers.**
- **Unaffected by water hammer, compressed air, mild frozen or light recycle water.**
- **Robust Gunmetal housing for the harshest environments.**
- **Durable alloy paddlewheel rotor.**
- **Sealed IP65 digital display compartment.**
- **Hinged cover protects LCD from sunlight.**
- **Access for re-calibration.**
- **No damage to meter if run outside its flow range.**
- **No filters needed prior to meter.**
- **± 2% accuracy flow curve, with calibration certificate issued**

270 L x 110 H x 85 W (mm), 19mm ID bore

The MRP20-T2 resetable counter flowmeter is designed and manufactured by Manu Electronics for use on mobile concrete transit truck mixers (agitators). Constructed of the toughest materials, the MRP20-T2 can withstand the abuses experienced in the premix concrete industry.

The gun-metal pipe flow-tube has 20mm (¾") BSP male threaded ends.

The MRP20-T2 flowmeter is suitable for general medium to high flow range water flow measurement applications. With the MRP20-T2 being internally Lithium battery powered, it is ideal in situations where no external power supply is accessible, making it a totally portable flowmeter. A pulse output is optionally available for logging totalising applications.

The only moving part is an alloy rotor which turns as liquid flows past it, and the self-contained LCD counter registers flow in total Litres. The main body components are the flow tube casing and the electronic display head. The electronic counter board, mounted inside the robust metal housing of the display head, is visible through the tempered glass window and is sealed by a metal Lock Ring. The high impact ABS lid protects the LCD and glass from prolonged sun exposure, contaminants and breakage.

To operate, lift the hinged lid. This action automatically turns on power, and the LCD is zeroed and ready for measurement.
Liquid flow causes counting on the display in Litres. Closing the lid resets the digits and turns off battery power.
The internal Lithium battery has a typical life of 6-10 years.

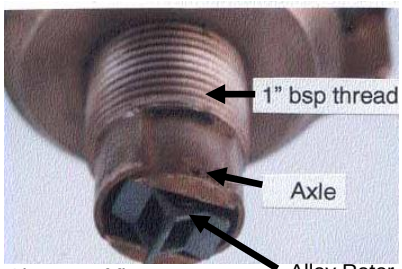
SPECIFICATIONS

Flow Range	15 to 150 Litres/minute
Accuracy	± 2% accuracy (10:1 flow curve)
Display Readout	5-digit LCD (10mm high) in Litres
Power Source	3.7v Lithium battery (6-10 year typical life)
Display capsule rating	IP65 water and flame resistant
Max. operating temperature	50 °C
Max. operating pressure	2000 kPa
Dimensions (mm)	270 L x 110 H x 85 W
Weight (max)	1.7 kg

ORDERING INFORMATION

Order Code	Description
MRP20-T2	¾" BSP(male) Threaded both ends. Gunmetal flowtube
-V1	Vertical pipe run, calibrated for upward flow.
-V2	Vertical pipe run, calibrated for downward flow.
-H	Horizontal pipe run.
-P	optional Pulse output (1 pulse/1 Litre) via IP67 plugset. 100 Hz maximum, 5 ms minimum pulsewidth.

For calibration purposes, please state installation position as part of order code.
Order code example: vertical flow up, and pulse output = MRP20-T2-V1-P



Closeup of flowmeter head without flowtube

INSTALLATION

1. To maintain the stated ±2% accuracy, a straight pipe section of 100mm length should be maintained on both the inlet and outlet flow sides, with a Internal Diameter (I.D.) of between 19-22 mm.
2. MRP20-T2 flowmeters **are factory calibrated for either vertical (upwards) or horizontal mounting (this must be specified when ordering).** If mounting contrary to the factory set calibration, you may need to access the internal electronic circuit board to change calibration setting (via 3 internally located pushbuttons). See the 'Re-Calibration' section below.
3. Body flowtube ends are 20mm (¾") BSP(male) thread.
   On each side of the flowtube housing, there are wing mounts with 1/4" drill holes for mounting to a bracket.
4. The flowmeter must measure in a full line of liquid. Valves can be fitted before or after the flowmeter.
5. Close lid after use, to prevent the LCD possibly fading due to prolonged exposure from direct sunlight, and to conserve power.

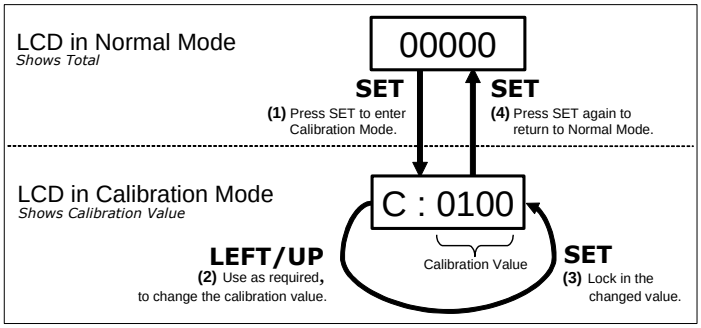
MAINTENANCE

1. If flowmeter ceases to count, the rotor may be blocked, so:
   - remove from the flow line, then insert a long implement to free up rotor; or
   - grasp the readout head and turn anti-clockwise, until it clears the threaded stem section. Examine, and if required clear debris from rotor. Spin the rotor and the display should count. Re-insert head and screw in clockwise to original position. If used with reclaimed water, over time a calcium buildup may deposit on the rotor, in which case flush in 1:4 HCL-acid:water to clear. To access the rotor, remove the shaft. A full complement of spare parts is available.
2. To access the electronic display board to change calibration or replace battery: with a pair of multi-grips, grasp the metal Lock Ring, turn it anti-clockwise to unscrew it. Lift off Lock Ring, then with screwdriver lift off glass window (don't lose the seal gaskets).
   - Three calibration buttons are now in view for re-calibration.
   - To access the 3.6V lithium battery (on underside), unscrew the two screws that secure the PCB, then remove the PCB.

   When finished, reassemble by re-securing the PCB, re-inserting the glass and seal gaskets, screw Lock Ring back in clockwise and, as a precaution, seal under the lock ring with silicon.

RE-CALIBRATION

- Note: The calibration (K-factor) characteristics can vary up to 6% between horizontal or vertical installations.
- **Recalibration is performed via three internal pushbuttons** (marked SET, LEFT and UP) mounted on the PCB. **To access the PCB**, open the hinged lid cover, and with a pair of multi-grips, grasp the metal Lock Ring and turn it anti-clockwise to unscrew it. Remove the Lock Ring, and then remove the glass window.
- Now run liquid through the MRP20 into a calibrated vessel or load cell, until at least 50 Litres is displayed on the MRPU5. For accuracy, keep flowrate continuous and above 15 Litres/minute.
- Compare the actual amount collected against what is displayed on the MRP20. If the amount collected matches the amount displayed within ±2%, then no adjustment to calibration is necessary.
- If the amount collected is less than that displayed, say only 45 Litres, yet the display shows 50 litres, this is 5 litres under or 10% (i.e. 5/50x100%). So, increase the set calibration value by 10% e.g. if set to 100, new value is 100 + 10% = 100 + 10 = 110.
- If the amount collected is more than that displayed, then decrease the calibration value e.g. if the amount collected is say 55 Litres, yet the display shows 50 litres, this is 5 litres over or 10% (i.e. 5/50x100%). So, decrease the set calibration value by 10% e.g. if calibration value is set to 100, then the new value is 100 - 10% = 100 - 10 = 90.
- To change the calibration value:
  1. Calibration Mode is entered by pressing the SET pushbutton and the Calibration Value is then shown. Write down the displayed Calibration Value to remember it.
  2. As required, use the LEFT button to select a digit to be changed (selected digit will flash), and use the UP button to change the value of the selected (flashing) digit.
  3. When all required digits have been changed, pressing SET will lock in the new Calibration Value.
  4. Pressing SET again will exit Calibration Mode.

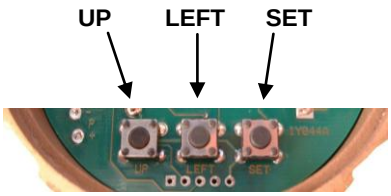


MATERIALS

Meter flow tube	Gunmetal
Meter display capsule	Cast gunmetal
Sealing lock ring	Cast gunmetal
Gasket	Nylon
Window	Tempered glass
Under glass Oring	Neoprene
Paddlewheel / Rotor	Marine alloy with Delron bushes
Axle	Tungsten Carbide
Lid, pin & magnet	ABS, Stainless Steel and Ferrite

Pulse Output cabling:
BLACK = pulse (Collector),
BLUE = 0v (Emitter)

Shown with optional IP67 Pulse Output plug set



Internal view of calibration buttons

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