MES-R-FRT303 Internal Battery Powered

LCD Rate/Total/Reset Total Integral Flowmeters
Sizes: 20, 25, 32, 40 & 50mm

FEATURES

- Dual line display with flowrate and totaliser readings.
- Simple easy resettable total and grand total.
- Display can be positioned in 90° increments.
- Pulse output option.
- Display housed IP65 ABS enclosure.
- Positive Displacement nutating measuring chamber.
- Small impurities can pass chamber without jamming.
- Low hydraulic thrust minimises wear.

± 1.5 % full flow range accuracy curve.

- ± 0.2 % repeatability.
- Conforms to AS3565-1988,
  Designed to meet AS3901.

The MES range of nutating disc, magnetically-coupled, positive displacement flowmeters are now available with an integral head readout mounted display version using the FRT303 battery powered indicator.

They are available in sizes 20,25,32,40 & 50mm for a wide range of precision flowrate monitoring, resettable total display and grand totaliser batching applications, operating from very low to high flowranges. The dual display LCD screen has large digits and is easy to read and can be programmed to suit desired measurement units. A pulse output option is also available for datalogging.

These flowmeters are popular for water authorities who test various water mains throughput applications. The meters are supplied with a calibration certificate to NMI-NSS1671 standard.

Unlike rotary piston and oval rotor principle meters, the nutating disc flow chamber can pass small impurities without jamming, whilst maintaining exceptional measurement accuracy with only minimal headlosses. Measurement of concrete admixtures and water-based chemicals with varying specific gravities up to 1.4 is achieved with only slight calibration variations. The flow chamber is easily accessed for cleaning.

The Display head is a self-contained unit which couples to the meter body with a bayonet lock and turn fitting connection, while being fully isolated from the fluid measuring chamber. The display can be re-postioned in 90deg angles to the preferred viewing position. The unit is powered by a 5-10yr life internal battery. The unit is rated to IP65 protection.

FLOWMETER PERFORMANCE SPECIFICATIONS

Order Code	MES20R-FRT303	MES25R-FRT303	MES32R-FRT303	MES40R-FRT303	MES50R-FRT303
Size	20mm (3/4")	25mm (1")	32mm (1¼")	40mm (1½")	50mm (2")
Start flow @ ±5% (Litres/min)	0.6	1.1	1.5	3.0	4.0
Minimum accurate flow @ ±1.5% (Litres/min)	1.5	2.7	3.8	7.5	9.5
Nominal flow (Litres/min)	45	65	125	200	360
Maximum flow (Litres/min)					
Admixture (Specific Gravity 1.4)	54	80	132	268	428
Admixture (Specific Gravity 1.1)	68	102	168	340	545
Water (Specific Gravity 1.0)	75	112	185	375	600
Accuracy (Repeatability)	± 1.5% (± 0.2%)	± 1.5% (± 0.2%)	± 1.5% (± 0.2%)	± 1.5% (± 0.2%)	± 1.5% (± 0.2%)
Weight (# including connectors)	1.8 kg	2.6 kg	4.7 kg	17 kg #	21 kg #
Connection type	¾" BSP (male)	1" BSP (male)	1¼" BSP (male)	1½" oval flanged kit BSP (female)	2" oval flanged kit BSP (female)
Max. working pressure	1160 kPa	1160 kPa	1160 kPa	1034 kPa	1034 kPa
Headloss at nominal flow	25 kPa (3m)	25 kPa (3m)	25 kPa (3m)	25 kPa (3m)	25 kPa (3m)
Max. liquid temperature	50ºC	50ºC	50ºC	50ºC	50ºC

DISPLAY/READOUT - TECHNICAL/ELECTRICAL SPECIFICATIONS

| Display	Power	Output Options	Display Enclosure
• Flowrate • Total (resetable) • Grand Total • LCD • 6 digits, up to 3 decimal places, in Litres, Kilolitres per sec, min, hr • up to 7 digits, up to 3 decimal places, in Litres, Kilolitres, Megalitres • 7 digits up to 3 decimal places, in Litres, Kilolitres, Megalitres	• Battery • 3.6v Lithium battery (typical 5-10yrs life), 10µA dormant state, with automatic sleep mode to preserve battery power	• Pulse output • open collector 5-25 VDC. 50% duty cycle @ 100 Hz • 100Hz maximum. 5ms fixed pulsewidth via M12 plugset	• Dimensions (mm) • Rating IP65 waterproof • 120 W, 95 H, 60 D • Sealed Polycarbonate enclosure with hinged lid and screw lugs for mounting • 4 stainless steel screws to access internal programming and wire-up

The FRT303 provides an instantaneous flowrate reading with a resetable Total display and Grand Total display. To toggle the display between the Total and the Grand Total, simply touch the front panel button once. To reset the Total, touch the front panel button twice.

The unit has other fully programmable optional features including pulse output.

The LCD can be programmed to show flowrate and totals in a number of different units. All application parameters will be pre-programmed according to your requirements, including display unit preferences.
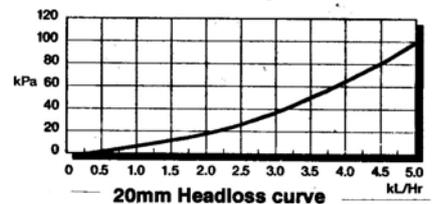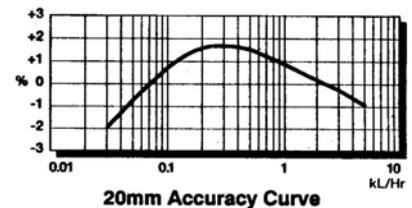
All functions are entered via internal keypads and a menu display.

The FRT303 is provided in a compact IP65 Polycarbonate enclosure with molded mounts, allowing it to be used in a wide range of field applications.
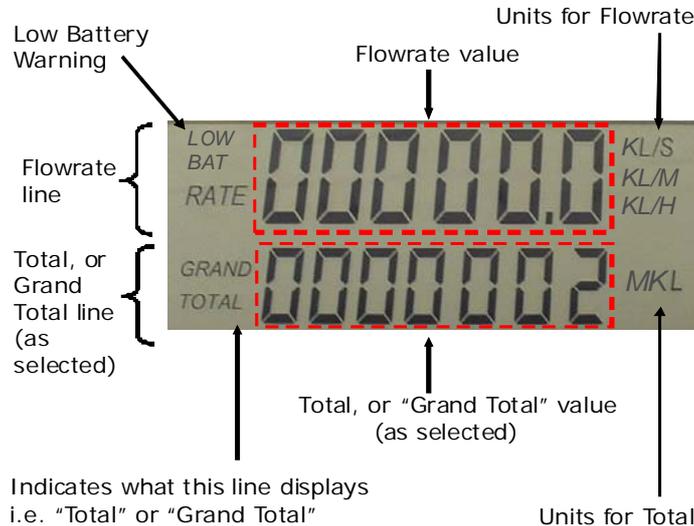

MATERIAL SPECIFICATIONS

1.   LCD-head IP65   - Polyacetal / Polycarbonate
2A. Meter body   - Cast gunmetal.
3.   Strainer   - Polyacetal.
4.   (not used)
5.   Measuring chamber - Nepton (synthetic polymer), SS316, Polymer barium ferrite magnet.
6.   Chamber O-ring   - NBR rubber.
7.   Base sealer ring   - NBR rubber.
8.   Base plate   - 20mm ABS plastic.
8M. Base plate   - 25 & 32mm: Cast Iron, powder coated.
9.   Base body screws   - Stainless steel.
14. Top Plate   - 40 & 50mm: Gunmetal.

20mm Accuracy Curve

20mm Headloss curve

ManuFlo ®™
Flow Measurement Products

a division of

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FLOWMETER DIMENSIONS

Meter Size	mm	20 mm	25 mm	32 mm	40 mm	50 mm
Length of threaded end meter	L	191	229	273	330	432
Overall Height of meter	H1	188	198	218	272	23
Height –underface to centreline	H2	41	48	54	65	79
Overall Width	W	92	111	165	205	240
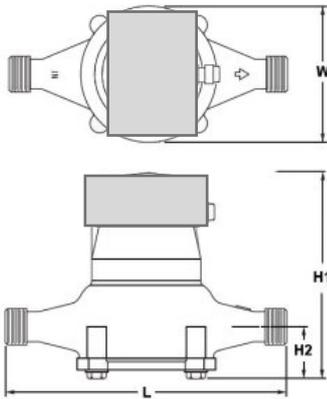
Sizes 20,25,32mm
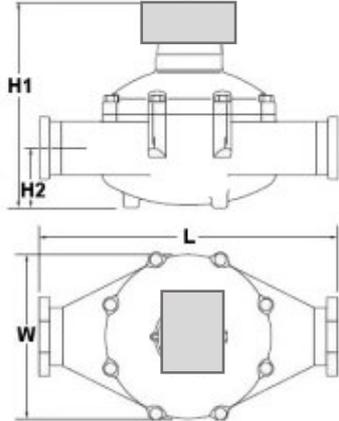
Sizes 40, 50mm

SIZE- FRT

95mm

60mm

INSTALLATION
1. Install the meter in an area where the display is readable.
2. You can re-position the display on the flowmeter body to your desired reading angle at 90.deg.
3. Consider an accessable area for any future service. Flush out pipes thoroughly before connecting flowmeter in pipework.
4. Flowmeters may be installed in any position without affecting accuracy (but not upside down if particles are present).
5. **Ensure arrow on meter body coincides with forward flow direction.**
6. Although chamber can pass small impurities, if the fluid contains large impurities, a 1000 micron filter should be fitted prior to meter.
7. Any flow restriction or regulation valve should be fitted preferably before the flowmeter. Quick-closing valves should be fitted before the meter if used for higher-end flowrates (thus avoiding sudden pressures on the flowmeter chamber) provided that the plumbing configuration allows the pipe to remain full where the flowmeter is located.
8. Never exceed the rated maximum flow of the meter, as this could cause damage to the measuring chamber components and/or cause overdosing of liquid. Once installed, the flowmeter must measure a full pipe of liquid at all times.
9. Slowly purge the flowline if installed for first time.

MAINTENANCE
If flow becomes excessively restricted, or meter is out of calibration, then:
1. Push in the LCD-head locking pin; hold LCD-head and turn it anti-clockwise, then pull up and remove LCD-head from the meter body.
2. To access measuring chamber (Meter sizes 20, 25 and 32mm) rotate or remove meter body. Remove the base screws, base plate and base sealing ring. Using pliers, pry and pull out the white strainer to free the measuring chamber unit for removal and inspection.
3. If required, clean chamber parts in warm water or dilute acid (4:1 Water:Hyrochloric-acid). Remove any solids which may be impeding rotation. Make sure internal nutating disc roller pin is in place and that shutter plate is refitted. Test to see that the chamber works freely. Reassemble meter by reinserting measuring chamber and reposition it with strainer. Re-fit other componets and test the meter.
4. If the MES meter runs dry after measuring chemicals, make sure to flush out the meter chamber with water.
5. **IMPORTANT: AFTER ANY SERVICE, MUST PERFORM A CALIBRATION CHECK OF THE FLOWMETER.**

ORDER CODES - LCD RATE/TOTAL/RESET TOTAL INTEGRAL FLOWMETERS

Order Code	Flowmeter Size
MES20R-FRT303	20mm
MES25R-FRT303	25mm
MES32R-FRT303	32mm
MES40R-FRT303	40mm
MES50R-FRT303	50mm
Options:	
-P	Pulse output, with M12 plug-set.
-CSM	Ceramic magnet for higher resistance to chemicals
-T	Teflon-lined body (20mm size only).

Due to continuous product improvement, specifications are subject to change without notice.