

MES20-S PULSE OUTPUT (-DSP) & LCD RESET FLOWMETER

MES20-S-T Size 20mm - Positive Displacement

SPECIAL FEATURES

- Ryton-MTL Nutating (wobbling) disc measuring chamber measures aggressive chemical admixtures and petroleum/oil liquids to 1.4 Specific Gravity.
- Interchangeable pulseheads with standard MES20s.
(Note: Pulserate could change –perform a cal-check).
- Small impurities can pass chamber without jamming.
- Head options: Pulse output, or 4 or 6 digit LCD
(Resetable Total Litres, orFlowrate Litres/min or both).
- accuracy: $\pm 2.5\%$ Total; $\pm 3\%$ Flowrate.
- $\pm 0.3\%$ repeatability.
- Low hydraulic thrust minimises wear.
- Designed to meet AS3901.
- **Optional Teflon-lined body (MES20-S-T).**



MES20LCD6-S

with Ryton chamber and LCD display (yellow body)



MES20-S

with Ryton chamber and Pulse Output (yellow body)



MES20-S-T

with Teflon-lined body (black body)

The MES20-S magnetically coupled 20mm positive-displacement pulse output flowmeter with its Ryton-MTL nutating disc measurement flow chamber, is suitable for a wide range of precision process liquid measurement applications. The Ryton chamber was specially developed for compatibility with aggressive admixtures and petroleum-based liquid chemical mixes, with operating ranges from low to high flowrates. Optionally, for chemicals aggressive to CAC406 gunmetal, the cast body can be Teflon-coated (when ordering, add -T suffix to any MES20-S flowmeter Order Code). Teflon-coated meters have a black body to identify them.

The head is available as either Pulse Output, or resetable LCD Total display, or as a LCD Flowrate display. The IP54-rated Pulse version is available with either a high-resolution Digital pulse, or a Reed Switch contact closure pulse. The IP65-rated LCD display head is internal Lithium battery powered, and is available either as a resetable Litres display (to either zero, 1 or 2 decimal places), the top line Flowrate display is in LPM 1 decimal place. (now also available as a large 4 digit display in Total LTRS or Flowrate).

The Pulse and LCD heads are each self-contained units, and attach to the meter body with a bayonet turn and lock fitting mechanism. The nutating (wobbling) disc measurement flow chamber used in the MES20-S means that the meter operates with minimal head-losses, and is able to pass small impurities without jamming. Measurement with a wide range of varying viscosity and specific gravity liquids is possible. A full compliment of spare parts is available.

TECHNICAL SPECIFICATIONS

Type	Pulse Output Version (IP54)		LCD Resetable Display (IP65)
Size	20mm (optionally 25mm connection)		20mm (optionally 25mm connection)
Pulse output rate (pulses/Litre): • Digital Transistor NPN/PNP • Reed Switch Contact Closure	Specific Gravity ≥ 1.1	Specific Gravity = 1.0	n/a n/a
	1000 60.6	900 approx. 55	
	Now –DSP head can scale K-factor prog.		DISPLAY: Litres to 999999, or to 99999.9
Voltage Supply	5 to 30 VDC		Internal 8-10 year 3.6v Lithium battery
Supply current	5-30 mA proportional to supply voltage		10-25 μ Amps (internal current draw)
Accuracy min-max range	$\pm 2.5\%$ (repeatability 0.3%)		$\pm 1.5\%$ Total, $\pm 2\%$ Flowrate (repeatability 0.3%)
Minimum flow	10 litres/min.	20 litres/min.	=
Nominal flow	35 Litres/min.	40 litres/min.	=
Maximum flow - spec. gravity 1.4 spec. gravity 1.1	54 Litres/min.	75 Litres/min.	=
	75 Litres/min.	(1.0 sg.)	
Maximum working pressure	1160 kPa		1160 kPa
Maximum fluid temperature	65 C		50 C
Weight	1.4 kg		1.4 kg
Order Codes:	MES20-S	(-DSP) NPN/PNP pulse.	MES20LCD6-S Reset Litres to 999999
	MES20-S-T	(-DSP) NPN/PNP pulse, Teflon coated body.	MES20LCD6-S-T Reset Litres to 999999, Teflon coated.
	MES20R-S	Contact Closure pulse.	MES20LCD6DP-S Reset Litres to 99999.9
	MES20R-S-T	Contact Closure pulse, Teflon coated body.	MES20LCD6DP-S-T Reset Litres to 9999.9, Teflon coated.
-EPDM	EPDM special seals option	Now also: MES20LCD4 or 4DP or 4DP-F	
-HP	Hammer Paint Blue spray finish to housing		

Note: Dual line LCD display –1st line is flowrate in LPM and 2nd line is total 6digits .

INSTALLATION

MES20-S, MES20-S-T

1. Meter body end threads: male 20mm 3/4" BSP. **(or 25mm 1" BSP)**
2. Install pulse version meter undercover as the pulsehead is splashproof only (rated IP54).
3. Consider an accessible area for any future service. Flowmeters may generally be installed in any plane without affecting accuracy (but not upside down if particles are present, as mag-drive assembly may be obstructed).
4. Flush out pipes thoroughly before connecting flowmeter. Ensure arrow on meter body coincides with forward direction of flow.
5. Although meter can pass small impurities, a filter box or strainer should be fitted prior to flowmeter (1000-micron cartridge filter is recommended), especially if liquid contains granules or many impurities
6. 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.
7. In high vibration areas, if the NPN version pulse output meter emits stray pulses, then avoid vibration areas or install rubber dampeners or consider the Reed Switch version. **(Note: NOT applicable with new "-DSP" digital pls head)**
8. The LCD digital head can be repositioned in 4 x 90° viewing positions. Avoid prolonged direct sunlight on the LCD display.
9. Once installed, flowmeter must be full of liquid at all times.
10. **AS LAST STEP OF INSTALLATION, A CALIBRATION CHECK OF FLOWMETER MUST BE PERFORMED.**

MATERIAL SPECIFICATIONS

- | | |
|---|---|
| 1. Pulse Head | - Polyacetal, PVC |
| 1A LCD Head – Litres | - Bronze and glass |
| 1B LCD Head - Litres with decimal place | - Bronze and glass |
| 2A. Meter body | - Gunmetal CAC406
- optionally Teflon coated |
| 3. Spacer | - Teflon |
| 5. Measuring chamber | - Ryton-MTL with CSM
Ceramic Magnet |
| * 6. Chamber O-ring | - Viton (optionally EPDM) |
| * 7. Base sealer ring | - Viton (optionally EPDM) |
| 8. Base plate | - ABS Plastic |
| 9. Base body screws | - Stainless Steel 316 |



Chamber parts and spacer.

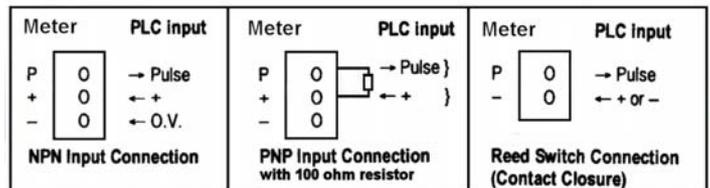


LCD Head (left) & Pulse Head (right).

****NOTE: #6 & #7 ALSO AVAILABLE IN EDPM.**

PULSE OUTPUT SPECIFICATIONS

1. **Standard NPN/PNP transistor 1 ml/1pulse 5-25VDC**
The internal transistor will drive upto 250mA.
For **PNP input (12-24VDC)**, fit a 1.5 to 1.8K resistor (value depends on input impedance) - see diagram.
Re-transmission distance upto 1000 metres.
USE SHIELDED CABLE ONLY.



2. **Reed switch contact closure 60.6 pulses/Litre.** 0-24 VDC, 2-wire connection square junction box.
Switching current upto 100mA. 470Ω current limiting resistor and debounce capacitor fitted.

FOR 24 to 240 vac PULSE-OUTPUT USE **UIC/A**.

FULLY SCALABLE DIVIDED PULSE INTERFACE CARD (see UIC datasheet). **NEW "-DSP" pulsehead allows pulse K-factor scaling.**

LCD DIGITAL RESETTABLE TOTAL DISPLAY OPERATION

The LCD display is powered by a long life Lithium battery, making the meters totally portable for a wide range of liquid chemical and petroleum measurement transfer applications. The digital capsule is fully self-contained, with an impact resistant glass window for easy reading and cleaning. Display digits 14mm high.

To operate: open the hinged lid. LCD digits are zeroed ready for measurement.

Display counts in either Litres to 999999, or decimal place increments to 99999.9 . **Special is -large 4digits 999.9 litres**

Closing the lid resets the digits and turns off battery power.

To replace battery (after 8-10 years), return to the point of purchase for a battery-replacement/calibration/maintenance check at minimal charge.

MAINTENANCE If flow becomes excessively restricted, meter is out of calibration, does not count, or pulses stop under flow, then:

1. With a screwdriver, push in the locking pin located at the rear of the pulse/LCD head. Holding the pulse or LCD head, turn the head anti-clockwise, pull up and remove. **CAUTION: Do not press on, or impact, the copper base of the head.** For Pulsehead (NPN/PNP), shake it left-right, this should generate some pulses. If not, check wiring. If still no pulses, replace pulsehead. If pulsehead pulses, then problem may be in the flow chamber - proceed to step 2. **(-DSP head use a magnet)**
2. To access measuring chamber: rotate flowmeter or remove flowmeter from pipe. Unscrew 4 x base screws; remove base plate and base seal ring. Remove the white spacer and then the measuring chamber assembly. Open the measuring chamber and inspect nutating disc, magnet roller and magnet.
3. If required, clean chamber parts in solvent or dilute acid (5:1 Water:Hydrochloric-acid or use warm soapy water).
Re-assemble chamber and reseal carefully with locator notch and spacer.
IMPORTANT: AFTER ANY SERVICE, MUST PERFORM CALIBRATION CHECK OF METER.
4. After use with admixture chemicals, if MES20-S is removed from pipeline, be sure to flush out working chamber with solvent.
Always perform a calibration check of the flowmeter upon re-installation.

