MES20-S *PULSE OUTPUT (-DSP-OC) 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 (-S version) –perform a cal-check).
- **Small impurities can pass chamber without jamming.**
- **Pulse output:- open collector or contact closure**
- **accuracy: ± 2.5% Total; ± 0.3% Repeatability**
- **Low hydraulic thrust minimises wear.**
- **Designed to meet AS3901.**
- **Optional Teflon/Tefzel-lined body (MES20-S-T).**

MES20-S
with Ryton chamber and Pulse Output (yellow body)

MES20-S-T
with Tefzel-lined body (green 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 IP54-rated Pulse version is available with either a high-resolution Digital pulse, or a Reed Switch contact closure pulse.

The Pulsehead is a 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)**		
Size	20mm (optionally 25mm connection)		
Pulse output rate (pulses/Litre):	Specific Gravity >= 1.1	Specific Gravity = 1.0	
• Digital Transistor NPN/PNP	990	900 approx.	
• Reed Switch Contact Closure	60.6	55	
	Now –DSP head can scale K-factor prog.		
Voltage Suppy	5 to 30 VDC		
Supply current	5-30 mA proportional to supply voltage		
Accuracy min-max range	± 2.5% (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	54 Litres/min.	75 Litres/min.	
spec. gravity 1.1	75 Litres/min.	80 litres/min.	
Maximum working pressure	1160 kPa		
Maximum fluid temperature	65 C		
Weight	1.4 kg		
Order Codes:	**MES20-S** (-DSP) NPN/PNP pulse.		
	MES20-S-T (-DSP) NPN/PNP pulse, Teflon coated body.		
	MES20R-S Contact Closure pulse.		
	MES20R-S-T Contact Closure pulse, Teflon coated body.		
	-EPDM EPDM special seals option (in lieu of VITON)		

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INSTALLATION

MES20-S, MES20-S-T

1. Meter body end threads: male 20mm ¾" BSP. **(or 25mm 1" BSP)**
2. Install pulse version meter undercover as the pulsehead is splashproof only (rated IP54).
3. Consider an accessable 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 if new "-DSP" digital pls head employed)
8. Once installed, flowmeter must be full of liquid at all times.
9. **AS LAST STEP OF INSTALLATION, A CALIBRATION CHECK OF FLOWMETER MUST BE PERFORMED.**

MATERIAL SPECIFICATIONS

1.	Pulse Head	- Polyacetal, PVC
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

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

Chamber parts and spacer.

TEFZEL coated(Green)

PULSE OUTPUT SPECIFICATIONS

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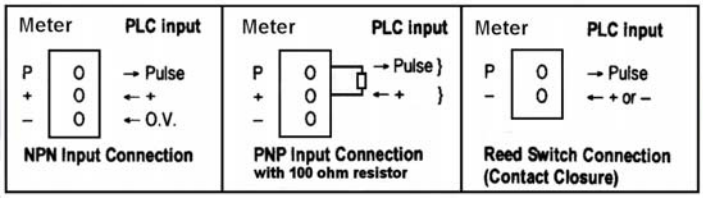
. Standard NPN/PNP transistor 1 ml/1pulse 5-25VDC
The internal transistor will drive upto 250mA.
For PNP input (12-24VDC), fit a 1.5 to 1.8K resistor
(value depends on input impedence) - see diagram.
Re-transmission distance upto 1000 metres.
USE SHIELDED CABLE ONLY.



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.**

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 reseat 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.**

41 Carter Rd, Brookvale
Sydney NSW 2100 Australia
Ph: + 61 2 9905-4324, 9938-1425
Web: www.manuelectronics.com.a
Email: sales@manuelectronics.com.au