

FEATURES

- Flow direction detection
- Selectable number of pulses per litre
- Vibration resistant
- 5 – 30 V DC input voltage range
- New lower profile body & chamber
- Measures Admixtures (Specific Gravity ≤ 1.4)
- Nutating disc measuring chamber.
- Small impurities can pass chamber without jamming.
- Low hydraulic thrust minimises wear.
- Exclusive 1 pulse per 1 millilitre output.
- ± 1.5 % accuracy curve.
- ± 0.2 % repeatability of rate.
- Conforms to AS3565-1988,
Designed to meet AS3901.



MES20-N (with new Digital Smart Pulse)



The MES20-N compact body magnetically-coupled positive displacement pulse output flowmeter, with its nutating disc measurement principle flow chamber, provides a high resolution pulseout, making it suitable for an extensive range of precision batching and flowrate monitoring applications, operating over a wide flow range.

The original MES20 was introduced in 1995 and is used throughout the world. It is the primary choice for most construction chemicals suppliers throughout Australasia and other parts of the world for measuring and dispensing liquid admixture chemicals. The new MES20-N is now available with a lighter weight body and dynamic flow measuring chamber.

The new nutating (wobble) disc measurement flow chamber employed in the MES20-N, makes the meter operate with only minimal headlosses and can pass small impurities without jamming. Measurement with a wide range of varying viscosity and specific gravity liquid water based admixtures is possible with negligible calibration variations. The optimum operating flow rate is at nominal (Nom) flow, expect at least 15> years operating life of the chamber with standard admixture liquids.

The electronic pulsehead is a fully self contained unit, which attaches to the main meter body with a bayonet turn and lock fitting mechanism. Although the MES20-N was designed primarily for economical measurement of concrete admixtures, it is also used for a wide range of other water based liquid measurement applications.

The newest MES flowmeter model (*Digital Smart Pulse*) -DSP, uses magnetic sensors and a microcontroller unit to process and sample the signals which provides the latest technology pulse output that is virtually vibration free.

In addition this new design is able to determine the direction of the flow, through three separate, live output channels. Different factor values of pulses per litre can be selected on the output as well, to make it suitable for an extended range of applications.

To make this design completely interchangeable with previous models, the default output mode is set at bi-directional pulse (Pulse output regardless of the direction of flow) and 1000 pulses per litre.

While different number of pulses or output modes can be selected at the time of purchase.

Flow Direction sensing:

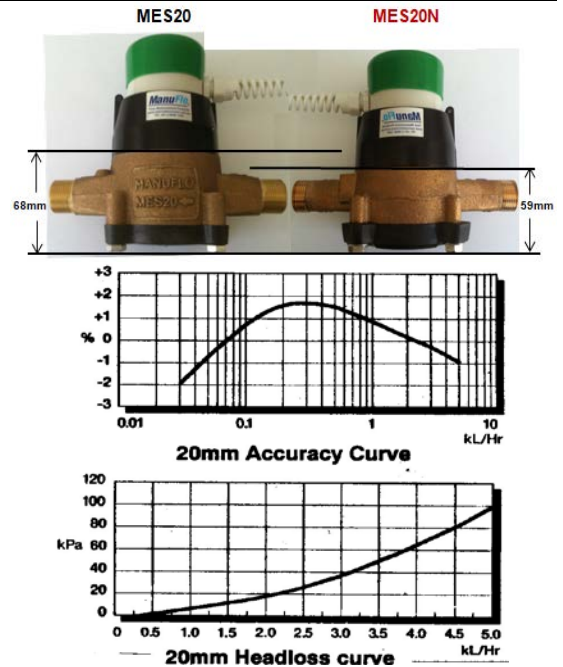
The new digital pulse head has the ability to determine the direction of the flow.

To make the new design completely interchangeable with the previous models, 3 separate live pulse output channels are provided on this model:

1. Bi-directional pulse output:
Generates pulses on the output regardless of the direction of the flow.
(This is the default configuration).

Forward flow pulse output:
Generates a pulse train on the output as long as the direction of the flow matches the arrow on the measuring body.

2. Reverse flow pulse output:
The output is normally deactive unless the fluid starts to flow back through the flowmeter.
(Can be used to count the actual back flow).



Specification for Size: 20mm		
Pulse head model		Ratings
Digital	Output rate (Pulses Per Litre)	1000 PPL (is standard). Available options: 1, 10, 20, 50, 100, 250, 500 & 1000 PPL
	Supply voltage / current consumption	+ 5 – 30V DC / 3 – 17mA proportional to input voltage.
	Maximum switching capacity	+ 30V DC, 950mA
Transistor	Output rate (Pulses Per Litre)	Fixed 1000 pulses per litre. (1 pulse per 1 millilitre)
	Supply voltage / current consumption	+ 5 – 25V DC / 5 – 25mA proportional to input voltage.
	Maximum switching capacity	+ 25V DC, 500mA
Contact closure	Output rate (Pulses Per Litre)	60.6 pulses per litre (2Wire connection, internal 470Ω)
	Supply voltage / current consumption	No power supply needed.
	Maximum switching capacity	+40V, 400mA
Accuracy (min – max range)		± 1.5% (repeatability ± 0.2%)
Start Flow @ 5%		0.6 Litres per minute
Minimum Flowrate		1.5 Litres per minute
Nominal Flowrate		45 Litres per minute
Maximum Flowrate		54 Litres per minute (Admix s.g. 1.4) 70 Litres per minute (Admix s.g. 1.1) 80 Litres per minute (Admix s.g. 1.0)
Maximum Working Pressure		1160 kPa
Head loss at nominal flowrate		25 kPa
Maximum fluid temperature		50 °C
Weight		1.3 kg

MATERIAL SPECIFICATIONS:

- Meter body end threads are male 20mm 3/4" BSP. **Arrow on meter body indicates direction of flow.**
- Install meter undercover, as the pulsehead is splashproof only (rated IP54). NOTE: use only shielded cable for all wiring
- 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 eventually obstructed).
- Transistor Meter model may emit stray pulses in high vibration areas, so avoid high vibration areas, or install dampeners, or use either the DSP digital smart pulsehead or MES20R Contact Closure version which are immune to vibration.
- Flush out pipes thoroughly before connecting flowmeter. Ensure arrow on meter body coincides with forward direction of flow.
- Although meter passes small impurities, a filter box or strainer (800 micron cartridge filter recommended) may be fitted prior to flowmeter, especially if fluid contains granules or many impurities.
- 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.
- Once installed, flowmeter must be full of liquid at all times.
- IMPORTANT: AS LAST STEP OF INSTALLATION, A CALIBRATION CHECK OF FLOWMETER MUST BE PERFORMED.**

MATERIAL SPECIFICATIONS:

- | | |
|---------------------------|----------------------------|
| 1. Pulsehead | - Polyacetal with PVC. |
| 2. Meter body | - Gun metal AS1565 C83810. |
| 3. Strainer | - Polyolefin. |
| 4. Wobble Disc/Shutter | - Graphite Compound |
| 5. Measuring chamber | - Nepton |
| 6. Chamber gasket | - NBR rubber |
| 7. Base sealer cap gasket | - NBR rubber |
| 8. Base plate | - PVC or Synthetic Polymer |
| 9. Base body hex screw | - Stainless steel 316 |



NOTE: With Ceramic-Barium shrouded magnet.

PULSE OUTPUT SPECIFICATIONS

1) Standard NPN/PNP transistor 1 ml/1pulse 5-25VDC

The internal transistor will drive upto 500mA.
For PNP input (12-24VDC) fit a 1.5 to 1.8K resistor
(Value dedends on input impedance).

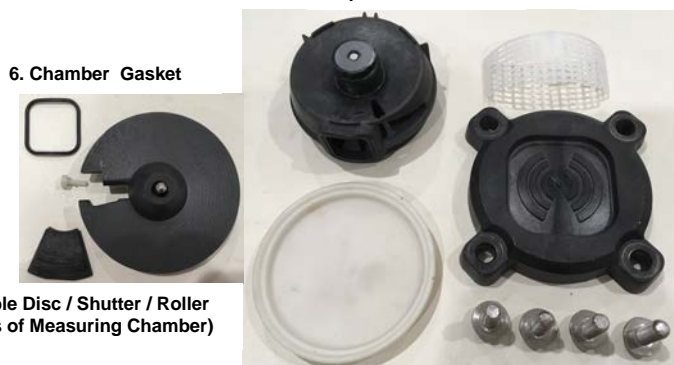
Fixed pulse output options via PCB card insert available as:
10 and 100 mls./pulse (Voltage supply limited +5 to15VDC).

Re-transmission distance upto 1000 metres.

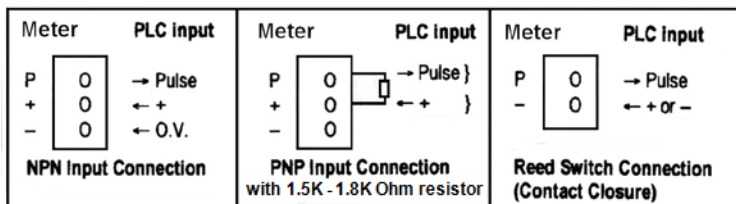
USE SHIELDED CABLE ONLY.

2) Contact closure 60.0 pulses/ Litre

Switching current upto 400mA.
Current limiting resistor & debounce capacitor fitted.



FOR 24 to 240 VAC PULSE OUTPUT SWITCHING USE UIC/A2 Or UIC/D for 5-24VDC
FULLY SCALABLE & VARIABLE DIVIDED PULSE INTERFACE CARD (see its datasheet).



MES20-N	Transistor pulse 1000 pulses/Litre
MES20-NR	Contact closure 60.0 pulses/Litre
-T	Teflon coated body

MAINTENANCE

If flow becomes excessively restricted, or meter is out of calibration, or pulsehead stops pulsing, then:

- Where fitted, push in the locking pin. Hold the pulsehead, turn it anticlockwise, pull up and remove. **CAUTION: Do not press on, or impact, the copper base of the pulsehead.** Shake pulsehead in left-right motion - this should generate some pulses. If not, check wiring cable connector. If still no pulses, replace the pulsehead with DSP type. If pulsehead does pulse, then problem may be in flow chamber, so proceed to step 2.
- To access the measuring chamber, first rotate or remove meter body to access the base screws. Unscrew the 4 x hex bolts in the base, remove base plate and base seal ring. Using long nose pliers, pry and pull out white strainer screen thus unlocking measuring chamber assembly. Remove chamber and inspect.
- If required, clean chamber parts in warm water or dilute acid (4:1 Water:Hydrochloric-acid). Make sure internal chamber wobble disc roller pin is in place and shutter plate is refitted. Re-assemble meter by reinserting measuring chamber; secure in position with strainer. Refit other components and test meter.
- After use with chemicals, if MES20 is removed from pipeline, be sure to flush out working chamber with water.
- To avoid moisture ingress to electronics, always make sure all cable entry glands are secure, cables are looped downwards and the meter is under cover. **IMPORTANT: AFTER ANY SERVICE, A CALIBRATION CHECK OF THE FLOWMETER MUST BE PERFORMED.**

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