

AMM - ADMIX MINI MAG-v2 Sizes: 15mm (1/2"), 20mm (3/4"), 25mm (1")

Magnetic Flowmeter

New improved model with virtual empty pipe detection

FEATURES

- Very compact and light weight design in sizes 15mm (1/2"), 20mm (3/4") & 25mm (1").
- 1000 pulses/Litre (15, 20mm sizes), 500 pulses/Litre (25mm size).
- 15 and 20mm models are directly interchangeable with MES20 20mm flowmeters.
- Measurement range 0.2 to 10 m/s @ +/- 2%.
- PVDF lined sensor, Stainless Steel 316 electrodes with integrated grounding rings.
- BSP (male) threaded end connections. Supplied with BSP (female) couplings.
- Virtually maintenance free, with no moving parts.
- Measures liquids with conductivity > 20µS/cm, to 40°C.
- Accuracy is unaffected by varying viscosity or specific gravity of liquids.
- 12 to 24 VDC powered (can be directly powered from ManuFlo devices, has LEDs for pulse and power indication)
- Easy plug-in wiring connections via M12 plug and socket set, 5m cable & IP65 rating.



INTRODUCTION

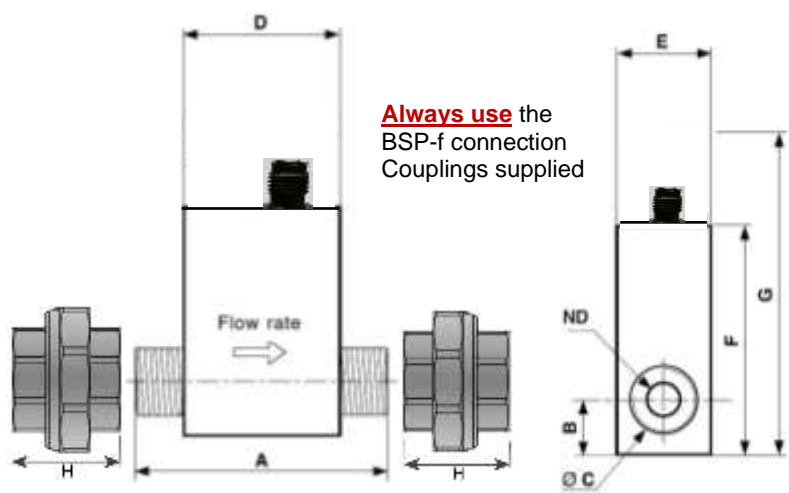
The Admix Mini Mag is a low-cost Electromagnetic Flowmeter designed for the economical measurement of chemical liquid admixtures and any other conductive liquid. The 15 and 20mm sizes output 1000 pulses per Litre (1 pulse / 1 ml), making them a direct replacement option for MES20 admixture flowmeters in applications where there is a high content of solids in the measured liquid. Liquids with an electrical conductivity of at least 20µS/cm can be measured. The processor/electronics is integrated with the flowmeter sensor, so these two elements form a very compact package.

The Admix Mini Mag is available in three sizes: 15, 20 and 25mm connections i.e. 1/2", 3/4", 1" with 8mm, 12mm and 20mm bores respectively. With no moving parts, and an obstruction-free bore, this type of flowmeter is ideal for measuring a wide range of liquids up to a temperature of 40°C, with no head losses and virtually no ongoing maintenance. The Admix Mini Mag is ideal for measurement of admixtures in concrete batch plants, flowrate and total and general process batching applications. Density of the liquid, its temperature or its pressure have virtually no influence on the measurement accuracy.

Admix Mini Mag is powered by +12 to 24VDC supply, and can be used directly with the complete range of ManuFlo or any other Instrumentation e.g. ManuFlo ME995 and ME3000 Batch Controllers, ME2008 and UIC interface boards, FRT303 and ME5 indicators.

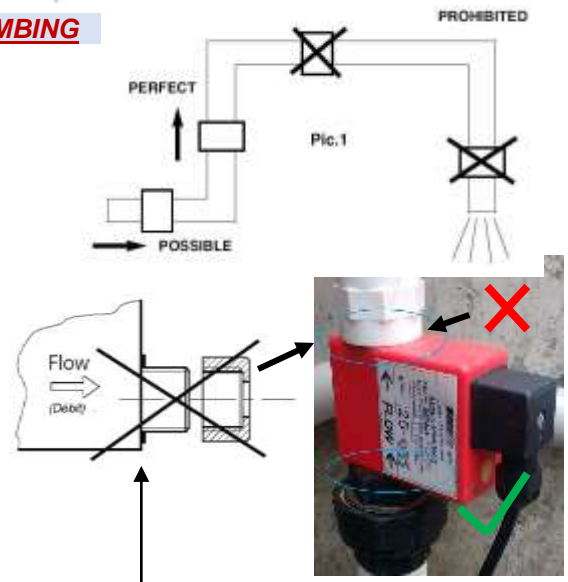
The operation of electromagnetic flow meters is based on Faraday's Law of Induction. A voltage is induced in a conductor as it moves through a magnetic field. This principle is applied in the Admix Mini Mag design. The voltage induced in the flowing liquid, is measured at two electrodes & is proportional to average flow velocity. The microprocessor then scales this signal voltage to read in digital units.

DIMENSIONS (mm)



Model	A	B	Ø C	D	E	F	G	H	ND
1/2"	84,5	18,5	1/2" MG	80	36	88	100	40	8
3/4"	90	20	3/4" MG	80	36	88	100	43	14
1"	90	22	1" MG	80	36	88	100	50	18

PLUMBING



WARNING: Always use the Poly coupling connectors supplied by ManuFlo. Never screw up pressing against the body housing as can cause stresses damaging the product. (Allow min. 5mm gap distance).

Flow meter size	Weight	Measuring Range	Fixed Pulse Value	Order Code
15mm (08mm bore)	0.4 kg	1.0 - 45 Litres/min	1000 pulses/Litre	AMM15
20mm (12mm bore)	0.4 kg	3.0 - 100 Litres/min	1000 pulses/Litre	AMM20
25mm (20mm bore)	0.4 kg	5.0 - 180 Litres/min	500 pulses/Litre	AMM25

The pin designations are:
 NPN Pulse output, passive, optocoupler
Pin 1 = + 12-24VDC (+) supply
Pin 2 = not used
Pin 3 = Ground (0v)
Pin 4 = Pulse (Collector)

Accuracy ±2% of range, <1.0% of rate
Body Housing ABS
Liner Material PVDF with EDPM seals.
Electrodes S/S316
Grounding Rings S/S316
Protection class IP67
Max. Fluid Temp. -10 °C to +60 °C
Max. Pressure 8 bar @ 40°C, 10 bar @ 20°C
Conductivity Minimum 20µS/cm
Supply power +12 to 24 VDC (+/-10%) @ 40mA (3.6W max.)

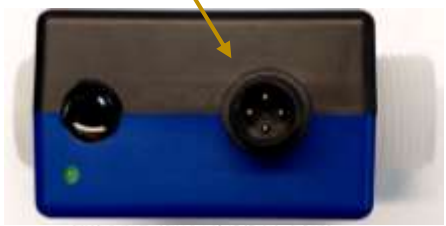
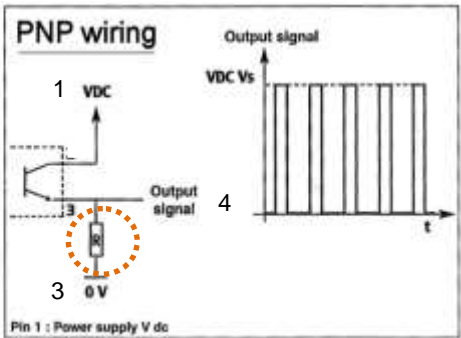
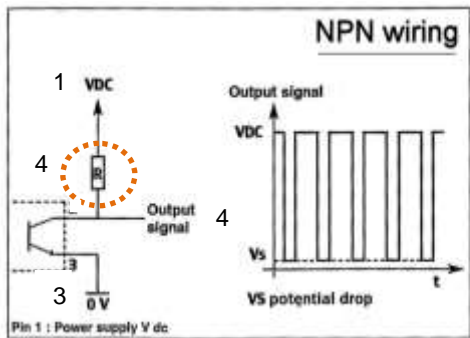
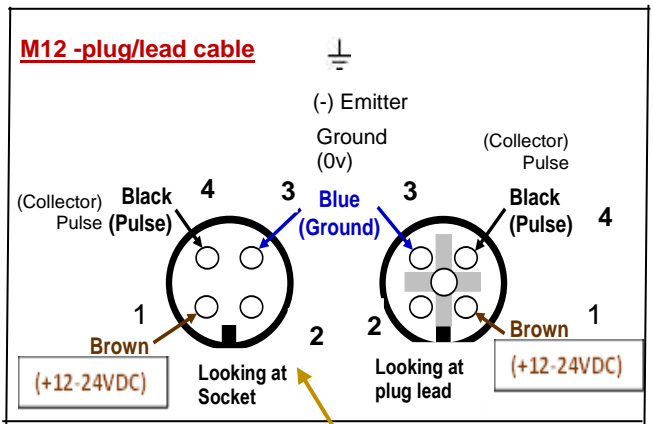
Pulse output NPN pulse, VDC max: 28V, I max: 50mA, Diode and poly-switch protected.

ELECTRICAL CONNECTIONS

Electrical Connection: M12 plug set (4pin) IP67 when tightened.
 To wire: Assure to screw tighten the matching m12 plug-set connectors.
 Use 2 core shielded cable for any extra cable lengths.,

CONNECTION

Caution: For non-ManuFlo devices never use the instrument without a load resistance. Check the load resistance "R" before connecting the power.
 *** Note: All ManuFlo devices (e.g. ME995, ME2008, UIC, FRT) have an inbuilt pull-up resistor so "R" is not required/applicable.



Green LED = output (pulses)



Recommendation: Resistance RL ~2.5 kΩ (12 V) or ~5 kΩ (24 V) for versions NPN and PNP.

INSTALLATION & CONDITIONS OF USE

- **The flowmeter tube must be always completely filled with liquid when measuring.**
 Unlike the previous model, the new v2 model (blue/blk case) is now standard with virtual empty pipe (therefore if the pipe was to empty, the unit will not pulse).
- The flowmeter will transmit pulses in the forward flow direction only. Reverse flow (backflow) will not be measured.
- The installation orientation is arbitrary. The flowmeter should not be installed in the vicinity of strong electromagnetic fields.
- Valves or other shutoff devices should not be installed immediate to the flowmeter. Allow some **straight pipe before and after the flowmeter (length upstream: 5x diameter, length downstream: 3x diameter)** before fitting elbows, valves etc.
- For accurate measurement, the diameter difference of the transition from the pipeline to the flowmeter should be kept to a minimum.
- Flowmeter has inbuilt Stainless Steel grounding rings.
- Fluid temperature range of -10 to +40 °C. Pressure up to 10bar @20°C. Conductivity of fluid must be > 20 µS/cm.
- After prolonged period of use, if the calibration is found to be significantly inaccurate then the flowmeter probes may be excessively coated, so remove and wipe the inside of the flowmeter tube. The flowmeter is rated to IP67, but as a safeguard after installation, place a cover over the flowmeter and make sure signal cable is looped downward to avoid trailing water ingress.
- **WARNING:** Do not exceed the maximum recommended flowrate as overdose could occur and exert undue pressures on the probe seals. (Generally the correct size flowmeter for the flowrate should be selected to avoid this). Flowmeter will measure below minimum flowrate but at a reduced accuracy (e.g. ±10%).