

**FEATURES**

- Unsurpassed accuracy to  $\pm 0.2\%$
- Process temperature to 70°C or 130°C.
- Widest possible flow ranges.
- Fully bi-directional operation.
- Virtually maintenance free with no moving parts.
- Eliminates headlosses and need for filters.
- Handles widest range of aggressive liquids.
- Robust construction for industrial use.
- Frequency, analogue and alarm outputs.
- Empty pipe detection.
- Fully programmable via hyperlink.
- Flowrate and easy resettable totaliser with multi-function display.



The ABB Magmaster™ electromagnetic flowmeter (specially configured in Australia - wired, programmed and tested by ManuFlo) is capable of operating over the widest possible flow ranges. It offers reference meter quality performance with  $\pm 0.2\%$  of reading, being ideal for measurement of water-based admixtures, wastewater, chemical and pharmaceutical, metallurgical and food applications. With no moving parts and an obstruction-less bore, this type of flowmeter guarantees the highest level of performance, virtually unaffected by specific gravity or viscosity variations, or the most contaminated of fluids, whilst maintaining a high degree of accuracy.

Application examples include use in bulk chemical delivery tanker loading and transfers, shotcrete and liquid-grout applications, tradewaste applications, plant and process measurement, totaliser, flowrate or batching applications. Also proportional speed control via the current output signal. The uses are wide and far reaching.

**Magmaster™ is available in sizes 15 to 150mm. It has a ANSI-150 flanged carbon steel sensing tube lined with Teflon, with Hastelloy-C electrodes with inbuilt earth electrode**

The IP65-rated transmitter display box is remotely wired to the sensor tube by a low voltage 2-metre signal cable (can be extended). Power is by standard 85-265 vac or optional 11-40 VDC.

**FLOWRANGE PERFORMANCE and SIZING TABLE**

size (mm)	MINIMUM Flowrate (Litres/minute) for Accuracy of						MAXIMUM* Flowrate (Litres/min)
	$\pm 10\%$	$\pm 5\%$	$\pm 2\%$	$\pm 1\%$	$\pm 0.5\%$	$\pm 0.2\%$	
15	0.1	0.2	0.5	1.1	2.1	5.3	106
25	0.3	0.6	1.5	2.9	5.9	14.7	295
40	0.8	1.5	3.8	7.5	15.1	37.7	753
50	1.2	2.4	5.9	11.8	23.6	58.9	1178
80	3.0	6.0	15.1	30.1	60.3	150.7	3014
100	4.7	9.4	23.6	47.1	94.2	235.6	4711
150	10.6	21.2	53.0	106.0	212.0	530.1	10600

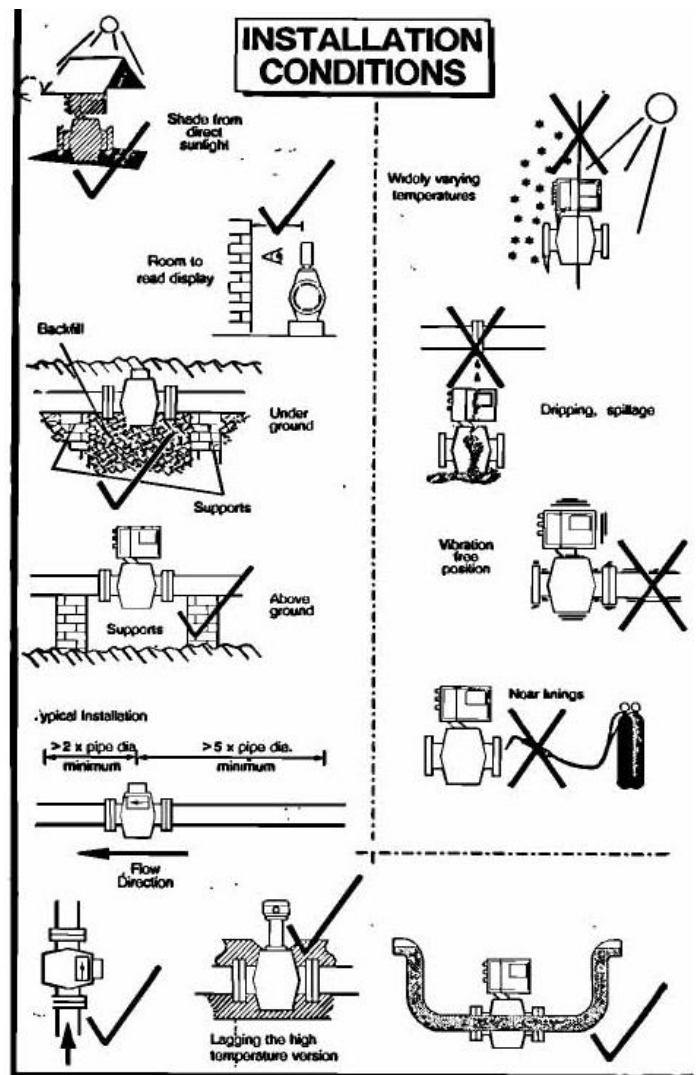
\* Based on @10 metres/sec flowspeed, but instrument capability is up to 15 metres/sec (50% greater capacity).

## SPECIFICATIONS

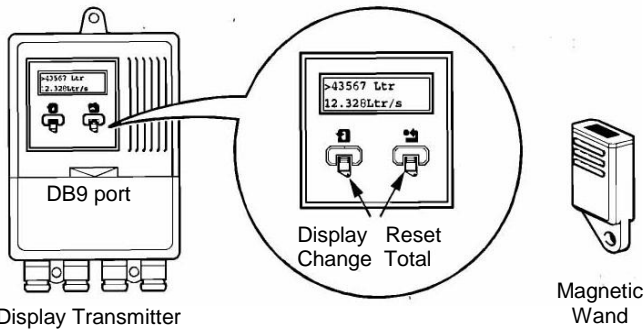
Accuracy	- Better than 0.2% of reading.
Construction	- Flanged carbon steel sensor, epoxy coated, lined in Teflon with Hastelloy 'C' electrodes with inbuilt earthing electrode, remote transmitter with polycarb. window.
Protection	- NEMA 4x (IP65) sensor and transmitter. - sensor pottable to IP68 protection.
Pressure rating	- 2000 kPa (19 bar) PN19.
Fluids	- 5µs/cm minimum conductivity.
Outputs	- All fully programmable, dual analogue, dual pulse, low & high flow and empty pipe alarms etc. Local RS232 input.
Output drives	- Isolated protected transistor sinking >250mA . Voltage <35V. Square wave or fixed duration pulse. - Analogue 4-20 or 0-21mA.
Displays	- 9 digit forward, reverse and nett flow totals, forward flow rate, flow velocity, % of range and status condition display messages, all with non-volatile memory. (display programmed to application). Display can be armed for easy reset of Totals (via magnetic wand, or via external logic), or accumulative non-reset.
Isolation	- Galvanic separation to 50VDC.
Power	- 85-265vac standard, optional 11-40VDC, at 20VA max.
Fluid temp.	- -10 °C to +130 °C
Quality	- ISO9001, Cenelec, FM, CSA.

- All parameters programmed by Manu Electronics to suit the specific flow application.
- Wired with 2-metres cable length (can be extended Up to 100m) from sensor to display/transmitter.
- Optional PVC or GAL Flanges with earthing fitted as required.

## MAGMASTER™ Electromagnetic Flowmeter



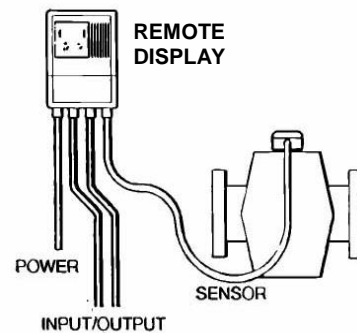
## OPERATION



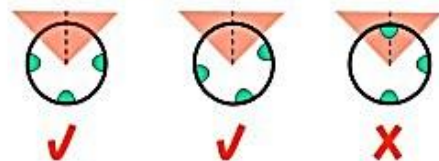
Switch on the power supply to the flowmeter, the flowrate will be shown on the bottom line and the total on the top line. Using the magnetic wand, waving over the right icon will reset the totaliser (when activated). Waving over the left icon will scroll through the display options;

- > Forward flow total value
- < Reverse flow total value
- \* Nett flow total value (>-<=\*)
- Alm Active alarms
- Vel Flow velocity in m/s.
- % Flow rate % of max. flow range

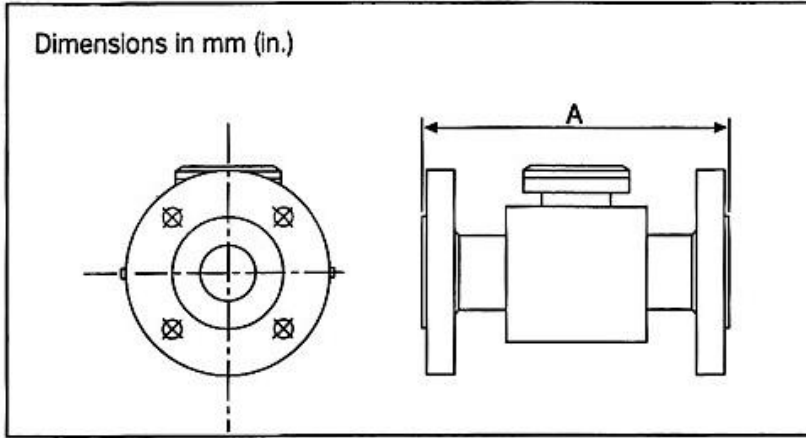
## ELECTRICAL INSTALLATION



**For horizontal runs, the electrodes are properly orientated when not within 45 degrees from upright (is not an issue for vertical installation).**



**DIMENSIONS**



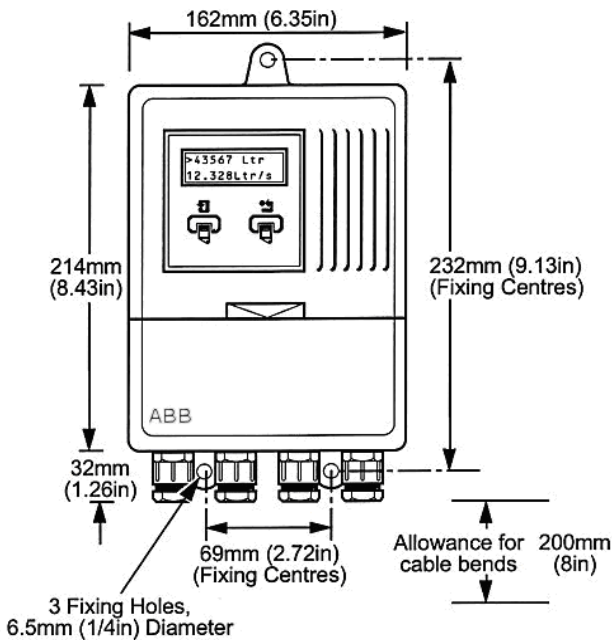
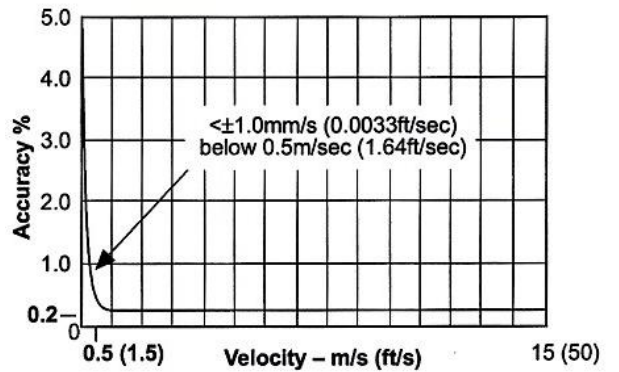
**SENSOR MATERIAL OPTIONS:**

**TEFLON:** ANSI-150 flanges.  
Teflon-lined tube with Hasteloy C electrodes.  
Excellent resistance to virtually all fluids.  
The most inert thermoplastic material.

Suitable for hygienic applications.  
Process temperature to 130°C.  
Best for chemical, food, water and aggressive liquids.

Sensor if potted is IP68 and can be buried.

Pipesize		Elastomer Liner		Teflon Liner	
		Length A	Weight	Length A	Weight
mm	inches	mm	kg	mm	kg
15	0.5"			200	8.5
25	1"			200	9.5
40	1.5"			200	11.5
50	2"			200	13
80	3"	200	21	200	20
100	4"	250	28	250	21
150	6"	300	42	300	33



**Display mounting details.**

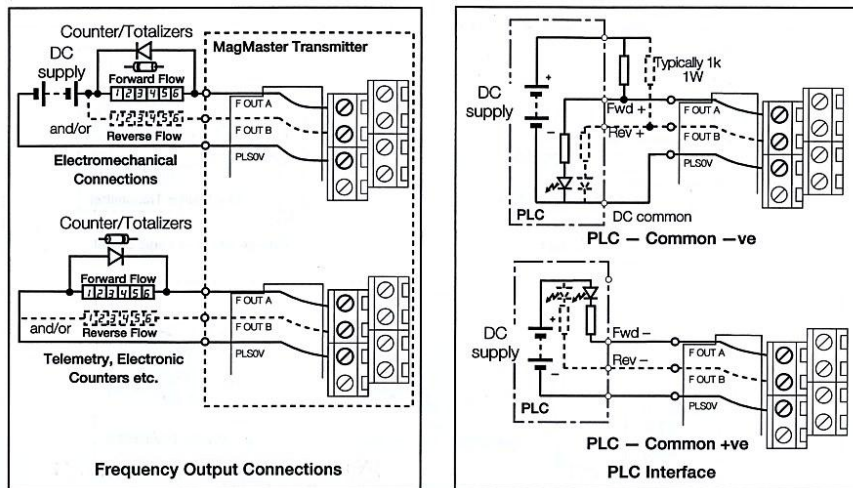
- Magmaster programmed to your specific application requirements:
  - Flowrate in millilitres/Litres/KLitres/M<sup>3</sup> per Sec/Min/Hr/Day. Totals in millilitres/Litres/ M<sup>3</sup> etc.
  - Pulse output, 4-20mA, alarm conditions, and more.
- Total can be factory programmed to be resetable or non-resetable to suit specific applications.
- Remote Transmitter Display Unit is wired with a 2-metre cable as standard (optionally up to 100m).
- Voltage supply: standard 85-265 vac; optionally 11-40VDC.
- ALL MAGMASTERS ARE FULLY WIRED AND WET TESTED, WITH CERTIFICATE & PROGRAM SHEET.

**FOR ORDERING CONFIGURATION OPTIONS refer to pricelist.**

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

# Electromagnetic Flowmeter Installation Guide and Checklist

<b>LOCATION</b>	
Mount the flowmeter's display box in an area that allows <b>easy access</b> for readings for totals.	<input type="checkbox"/>
If mounted outdoors:	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• Install a <b>sunshade</b>, to protect the display box from direct sunlight; and</li> <li>• Install a lockable vandal-proof enclosure, preferably with a window for reading the flowmeter display.</li> </ul>	<input type="checkbox"/>
To ensure correct flow readings, <b>avoid</b> installing the flowmeter sensor in the vicinity of strong <b>electromagnetic fields</b> , and avoid areas where there is <b>excessive vibration</b> .	<input type="checkbox"/>
Ensure that the chosen location will allow the flowmeter to operate within its <b>environmental rating</b> .	<input type="checkbox"/>
<b>ELECTRICAL</b>	
Have the appropriate <b>power supply</b> (e.g 240vac or 11-40VDC) available.	<input type="checkbox"/>
Units in most cases come prewired between sensor and transmitter/display box, otherwise ensure proper colour coding is used when wiring signal cable.	<input type="checkbox"/>
If unsure regarding wiring of outputs, call ManuFlo. Use cable glands provided and make sure they are properly tightened and sealed.	<input type="checkbox"/>
Program is fully changeable to meet most flow condition variations e.g. dampening for pulsating flows.	<input type="checkbox"/>
<b>PLUMBING</b>	
Install the flowmeter sensor in a section of pipe that is <b>full at all times</b> , to ensure correct flow readings.	<input type="checkbox"/>
To prevent turbulence in the flow that may hinder correct flow readings, ensure that there is <b>straight pipe before and after the sensor</b> of lengths at least:	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• 5x pipe diameters before (upstream of) sensor; and</li> <li>• 2x pipe diameters after (downstream of) sensor.</li> </ul> e.g. for 50mm diameter pipe, the straight pipe required is at least 5x50mm=250mm before sensor, and 2x50mm=100mm after sensor.	<input type="checkbox"/>
Ensure that the <b>sensor electrodes</b> are not with 45 degrees of upright (horizontal pipe runs).	<input type="checkbox"/>
Install <b>gaskets, earthing ring (for PVC) and bonding cable(s)</b> according to the type of pipe.	<input type="checkbox"/>
To avoid vibration that may hinder correct flow readings, <b>support the weight</b> of the flowmeter sensor.	<input type="checkbox"/>



If ordered for automatic batching, then ManuFlo pre-wire a 1-metre long pulse cable with 270 Ω current limiting resistor.

### IMPORTANT

**The display/transmitter is matched to the unique coil factor calibration of the sensor, and they are programmed as a matched pair.**  
**Do not swap displays or sensors as the flowmeter will then be out of calibration.**