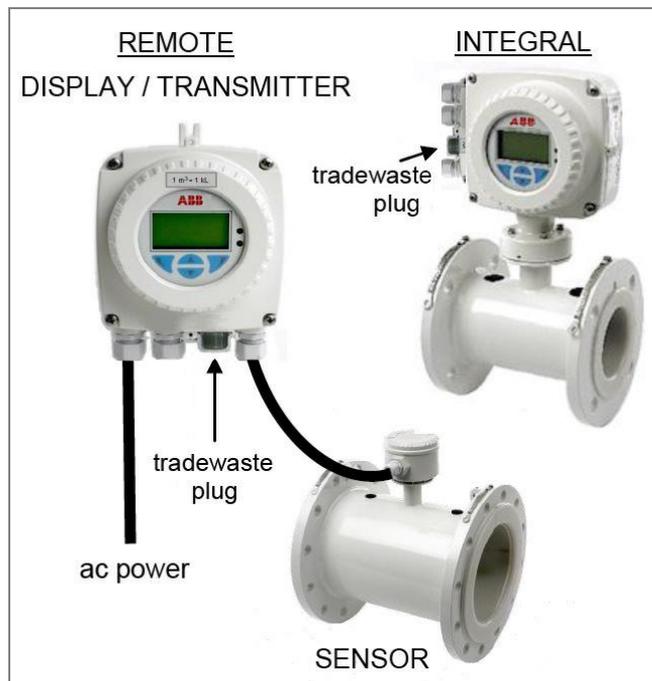


FEATURES

- Fitted with Tradewaste plug.
- Unsurpassed accuracy to $\pm 0.2\%$
- Process temperature: - 6 to 70°C.
- Wide flow measurement range.
- Virtually maintenance free - no moving parts.
- Eliminates headlosses and need for filters.
- Handles wide range of aggressive liquids.
- New backlit graphical display, with process status messaging. Display can be rotated in 90° increments.
- remote version: 2-metre cable between display and sensor (can be longer on request); or new DC integral version.
- New octagonal sensor tube reduces sensitivity to flow profile disturbances. Empty pipe detection.
- Advanced Digital Signal Processing gives unsurpassed performance in harsh environments involving flow fluctuations.
- Robust construction for industrial use.
- Infrared configuration port.



With no moving parts and an obstruction-less bore, the ABB WaterMaster tradewaste flowmeter (wired, programmed, tested and supplied by ManuFlo) guarantees the highest level of performance, unaffected by specific gravity or viscosity variations, or the most contaminated of fluids, whilst maintaining a high degree of accuracy over a very wide flowrange.

A unique self-verifying feature has been implemented in WaterMaster, providing ultra-stable performance over time.

Your chosen ManuFlo Watermaster will be fully programmed, wired, calibrated and wet-tested on our internal flow test rig facility. When you choose your tradewaste flowmeter from ManuFlo, simplicity of installation is assured.

CALIBRATION OF TRADEWASTE MEASUREMENT FLOWMETER

i) Pre-delivery calibration

All flowmeters are calibrated at the ManuFlo factory, with pumped or gravity fed water, using a Water Board designed weir tank rating facility cross-referenced with a load cell (certified to NMI standard) and Magmaster flowmeter verification system.

ii) Field calibration

After the flowmeter has been installed, Water Corporation WA will require an on-site calibration check. The calibration of a tradewaste flowmeter should be checked once a year.



Order Codes		Size (mm)	MINIMUM Flowrate (Litres/minute) for accuracy of			MAXIMUM Flowrate (Litres/min) @ $\pm 0.2\%$ accuracy
Flowmeter	Optional PVC connection kit		$\pm 3\%^*$	$\pm 1\%$	$\pm 0.2\%$	
FMS40-TW	CK-PVC40	40	3.3	5.3	100	667
FMS50-TW	CK-PVC50	50	5.3	8.3	133	1050
FMS80-TW	CK-PVC80	80	13.3	21.7	267	2666
FMS100-TW	CK-PVC100	100	21.7	33.3	417	4167
FMS150-TW	CK-PVC150	150	53.3	83.0	1050	10500
FMS200-TW		200	83.0	133.0	1666	16667

* measures at lower flowrates, but at reduced accuracy.

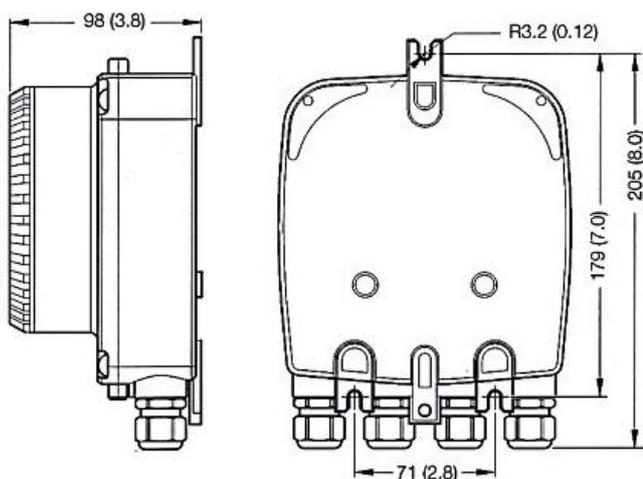
SPECIFICATIONS

FMS-TW Electromagnetic Flowmeter

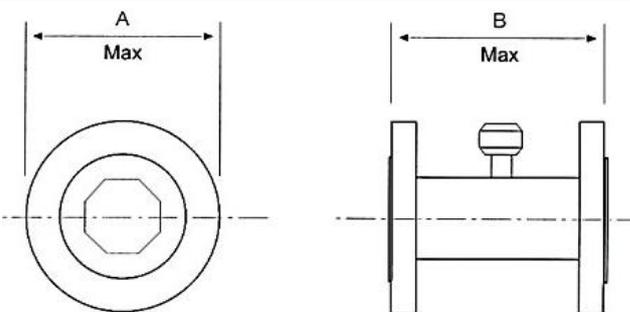
	Ambient Temp	Process Temp	Rating	Electrical Connections
Display/Transmitter	-20 to 60 °C		IP67	20mm plastic glands
Sensor	-20 to 70 °C	-6 to 70 °C	IP68 to 10m depth if terminal box fully-potted	20mm plastic glands

Display/Transmitter		Sensor	
Power supply (optionally)	85 to 265 vac @ < 7 VA 17 - 30 VDC @ ≤ 12 W (5.6 A switch-on current)	Liquid Conductivity	> 5 µS/cm
Accuracy	±0.2% of reading	Sensor cable	2m standard length (200m max length)
Total	Non-resetable. Up to 10 digits.	Flange type	40 & 50mm: AS2129 Table F. other sizes: AS4087 Class 16.
Cable to sensor	2-metres long	Pressure loss	<0.25 bar (at max. flow)
Pulse Output Rating	30V @ 220mA, Open Collector, Galvanically isolated.	Lining material	Polypropylene
Pulse Output Current Output	Square wave, 5 KHz maximum, 4 - 20 mA	Electrode material	Stainless Steel 316 L
Tradewaste Plug	Amphenol 6-pin: Pin A: (+); Pin C: (-); voltage free Pin E: (+); Pin F: (-)	Grounding Rings	Included
Pulse O/P 4-20mA		Terminal Box	Polycarbonate
		Housing	Carbon Steel
		Flange	Carbon Steel
		Vibration Limits	Min: 5 Hz, Max: 150 Hz

DISPLAY DIMENSIONS

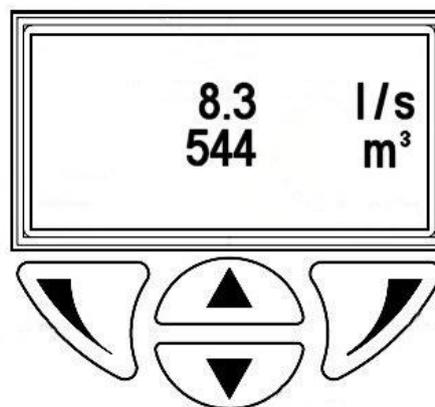


SENSOR DIMENSIONS



Pipesize		Length A*	Length B	Weight
mm	inches	mm	mm	kg
40	1.5"	150	200	11
50	2"	165	200	12
80	3"	200	200	15
100	4"	230	250	18
150	6"	280	300	31
200	8"	345	350	48

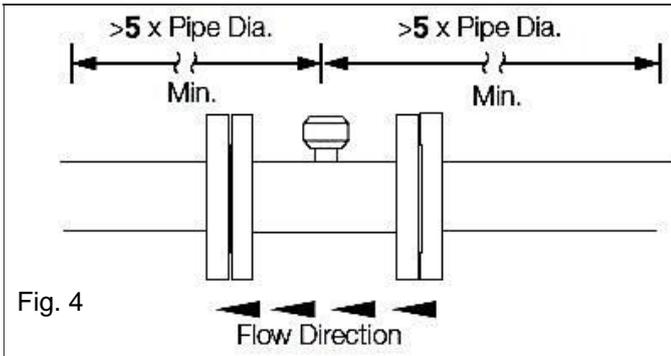
* Dimensions are approximate



The four keys below the display are used to navigate through the menus and to execute all system commands and selections.

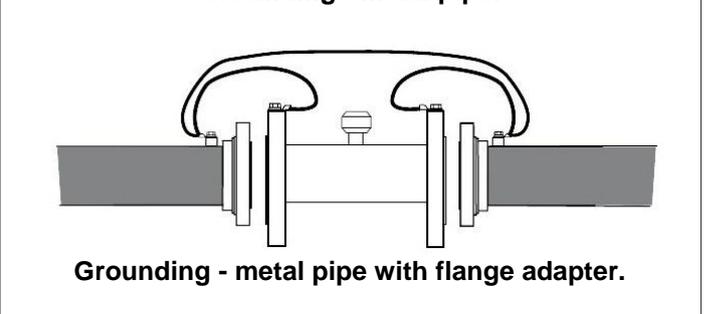
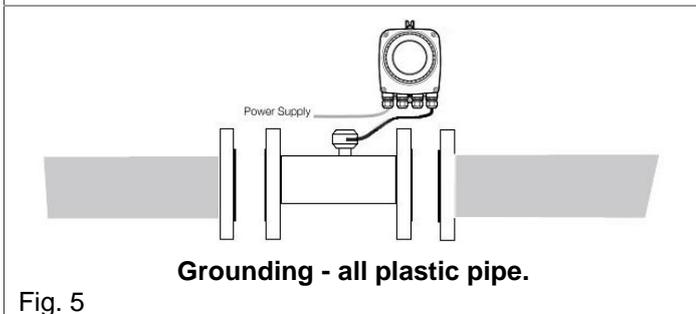
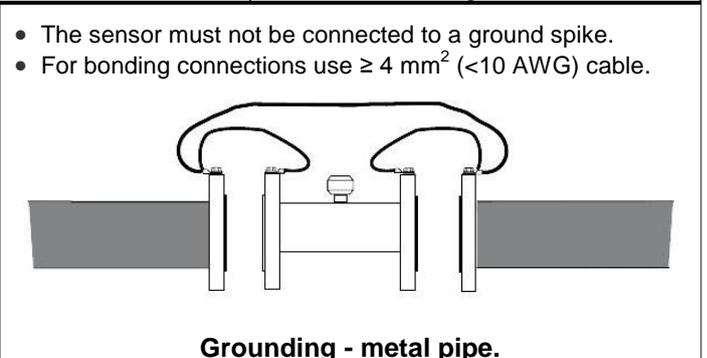
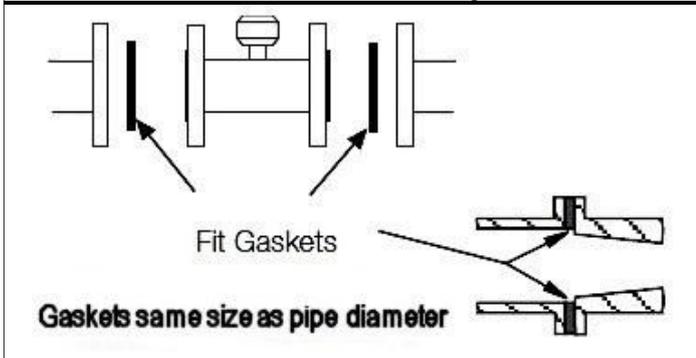
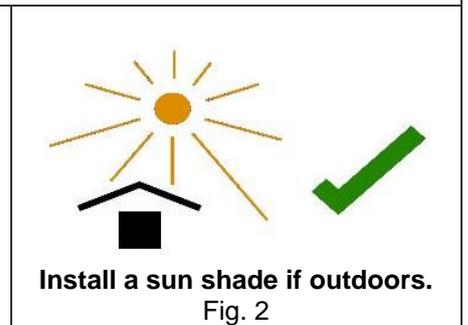
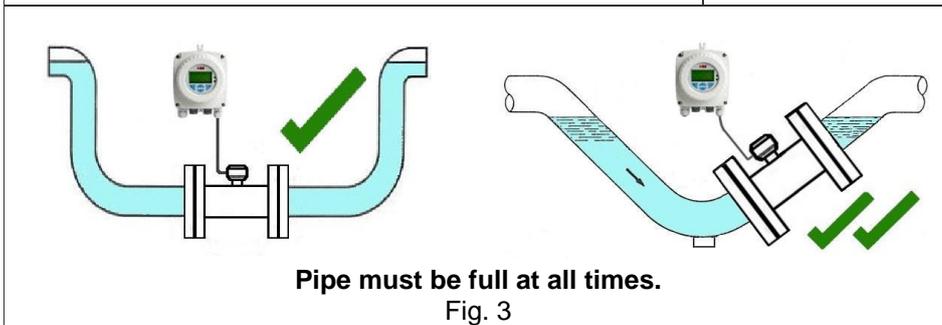
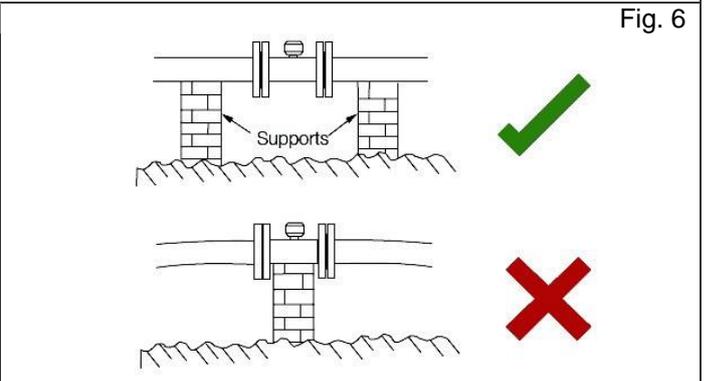
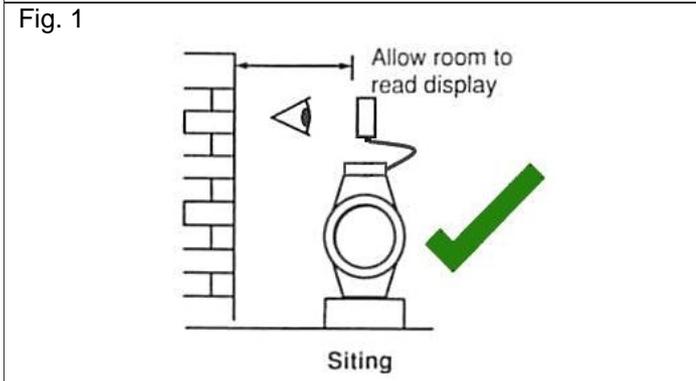
DISPLAY SETUP

Display	Flowrate	Litres/sec, 1 decimal place
	Total	m ³ (KL), no decimal place
Pulse output		1 pulse/100L



Straight Pipe Requirements
 For measurement accuracy, Water Corporation require straight pipe (of length > 5x pipe diameter) upstream of sensor, and also straight pipe (of length > 5x pipe diameter) downstream of sensor.

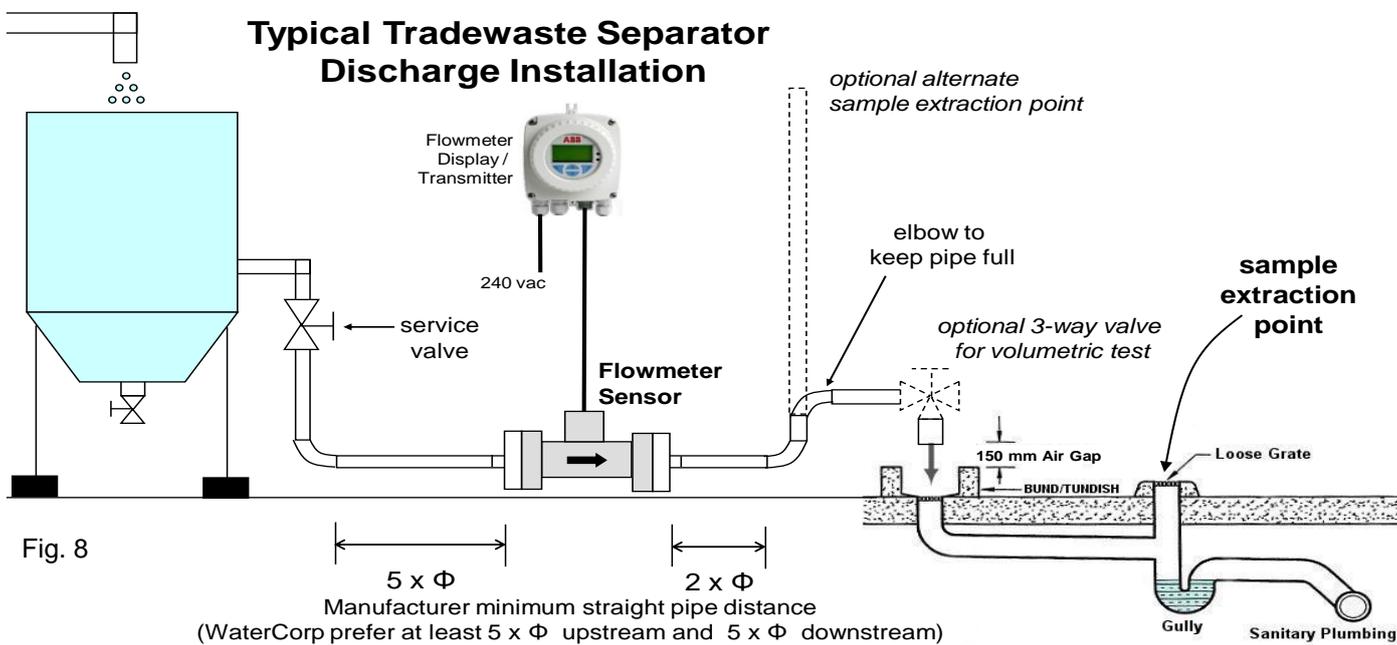
e.g. a 50mm flowmeter requires at least 250mm of straight 50mm Ø pipe upstream, and at least 250mm of straight 50mm Ø pipe downstream.



Note: detailed installation instructions are in the Manual provided with the flowmeter.

Electromagnetic Tradewaste Flowmeter Installation Guide and Checklist

LOCATION	
Locate the flowmeter as close as possible to pollutant source or immediately downstream of the pre-treatment plant.	<input type="checkbox"/>
Mount the flowmeter's display box in an area that allows easy access for readings for totals, and for connection of sampler collection units [Fig. 1, Page 3].	<input type="checkbox"/>
If mounted outdoors: <ul style="list-style-type: none"> • Install a sunshade, to protect the display box from direct sunlight [Fig. 2]; and • Install a lockable vandal-proof enclosure, preferably with a window for reading the flowmeter display. 	<input type="checkbox"/>
To ensure correct flow readings, avoid installing the flowmeter sensor in the vicinity of strong electromagnetic fields , and avoid areas where there is excessive vibration .	<input type="checkbox"/>
Ensure that the chosen location will allow the flowmeter to operate within its environmental rating .	<input type="checkbox"/>
ELECTRICAL	
Have 240vac supply available.	<input type="checkbox"/>
Hardwire the flowmeter display box to power supply (i.e. have permanent connection that can't be unplugged).	<input type="checkbox"/>
PLUMBING	
Install the flowmeter sensor in a section of pipe that is full at all times , to ensure correct readings [Fig. 3].	<input type="checkbox"/>
To prevent flow turbulence that may hinder correct flow readings, ensure that there is straight pipe before and after the sensor [Fig 4]: <ul style="list-style-type: none"> • 5x pipe diameters before sensor; and 5x pipe diameters after sensor. e.g. for 50mm diameter pipe, the straight pipe required is 5x50mm=250mm before sensor, and 5x50mm=250mm after sensor. 	<input type="checkbox"/>
If without optional connection kit, install gaskets and bonding cables(s) according to the pipe type [Fig. 5].	<input type="checkbox"/>
To avoid vibration that may hinder correct flow readings, support the weight of the sensor [Fig 6, Page 3].	<input type="checkbox"/>
Provide an extraction point so that samples of the discharge liquid can be extracted [Fig. 8 below]	<input type="checkbox"/>
Do not seal the pipe to the sewer, to avoid syphoning occurring.	<input type="checkbox"/>
If not a pumped installation, then install a service valve upstream of the flowmeter to allow for flowmeter maintenance [Fig. 8 below].	<input type="checkbox"/>



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