FMS-TW WATERMASTER™

Sizes: 40mm to 200mm

Electromagnetic Tradewaste Flowmeters

FEATURES

- **Fitted with Tradewaste plug.**
- **Unsurpassed accuracy to ± 0.2%**
- **Process temperature: - 6 to 70ºC.**
- **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.**
- **2-metre cable between display and sensor (can be longer on request).**
- **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 NSW Weights and Measures certified load cell 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	MINIMUM Flowrate (Litres/minute) for accuracy of			MAXIMUM Flowrate (Litres/min)
Flowmeter	Optional PVC connection kit	(mm)	±3%*	±1%	±0.2%	@ ±0.2% accuracy
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 ºC		IP67	20mm plastic glands
Sensor	-20 to 70 ºC	-6 to 70 ºC	IP68 to 10m depth if terminal box fully-potted	20mm plastic glands

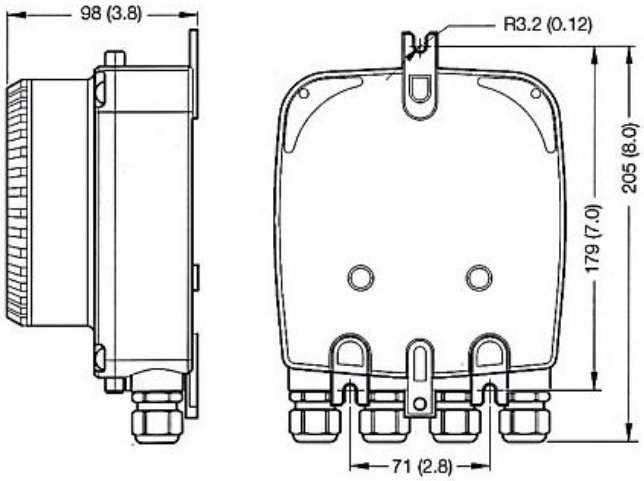
Display/Transmitter

Power supply	85 to 265 vac @ < 7 VA
Accuracy	±0.2% of reading
Total	Non-resetable. Up to 10 digits.
Cable to sensor	2-metres long
Pulse Output Rating	30V @ 220mA, Open Collector, Galvanically isolated.
Pulse Output Current Output	Square wave, 5 KHz maximum, 4 - 20 mA
Tradewaste Plug Pulse O/P 4-20mA	Amphenol 6-pin: Pin A: (+); Pin C: (-); voltage free Pin E: (+); Pin F: (-)

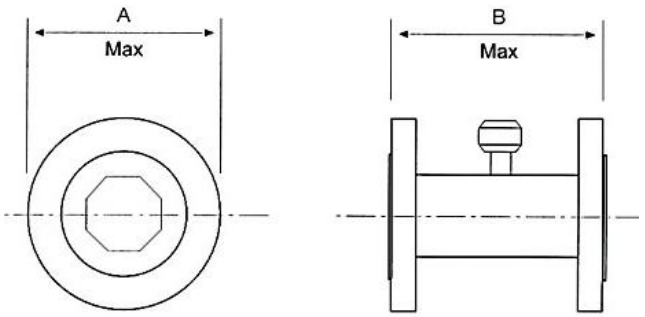
Sensor

Liquid Conductivity	> 5 µS/cm
Sensor cable	2m standard length (200m max length)
Flange type	40 & 50mm: AS2129 Table F. other sizes: AS4087 Class 16.
Pressure loss	<0.25 bar (at max. flow)
Lining material	Polypropylene
Electrode material	Stainless Steel 316 L
Grounding Rings	Not required
Terminal Box	Polycarbonate
Housing	Carbon Steel
Flange	Carbon Steel
Vibration Limits	Min: 5 Hz, Max: 150 Hz

DISPLAY DIMENSIONS



SENSOR DIMENSIONS



Pipesize mm	Pipesize inches	Length A* mm	Length B mm	Weight 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

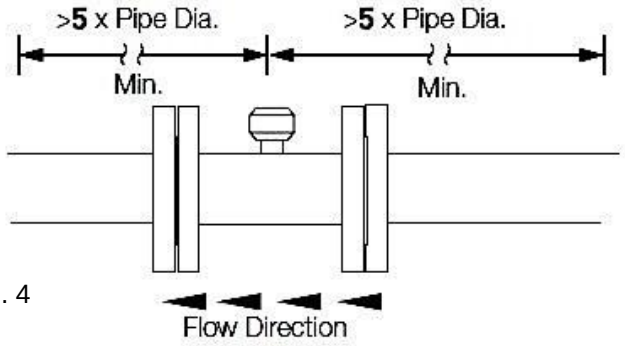


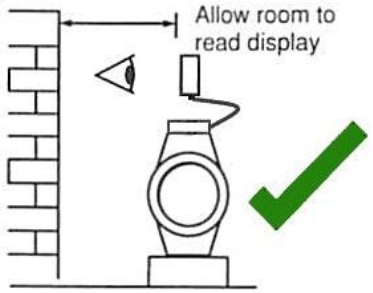
Fig. 4

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.

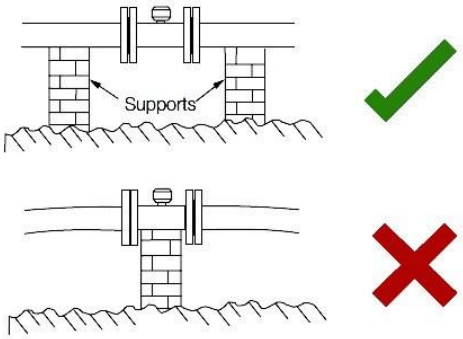
e.g. a 50mm flowmeter requires
at least 250mm of straight 50mm Ø pipe upstream, and
at least 250mm of straight 50mm Ø pipe downstream.

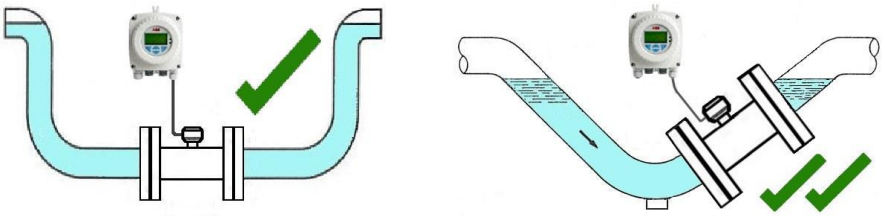
Fig. 1



Siting

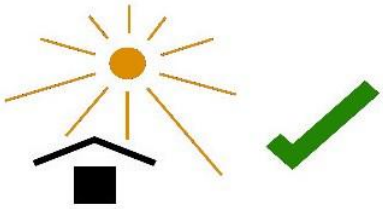
Fig. 6





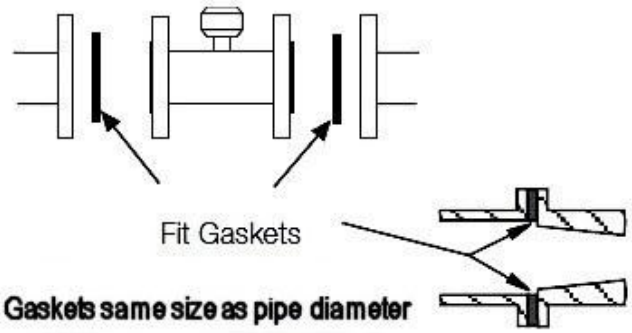
Pipe must be full at all times.

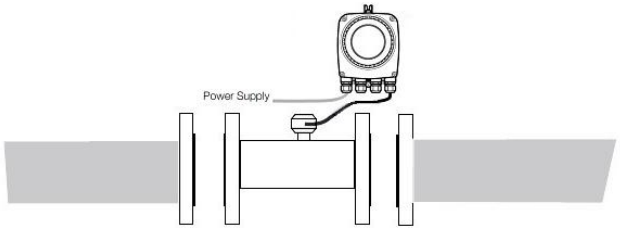
Fig. 3



Install a sun shade if outdoors.

Fig. 2

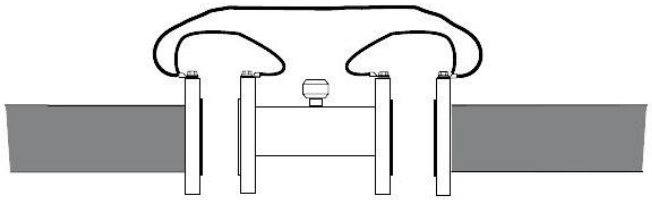




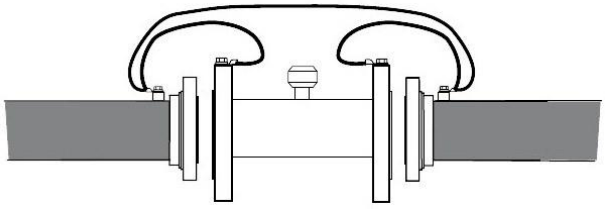
Grounding - all plastic pipe.

Fig. 5

- The sensor must not be connected to a ground spike.
- For bonding connections use ≥ 4 mm^2 (<10 AWG) cable.



Grounding - metal pipe.



Grounding - metal pipe with flange adapter.

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.	☐
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].	☐
If mounted outdoors: • 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.	☐
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**.	☐
Ensure that the chosen location will allow the flowmeter to operate within its **environmental rating**.	☐
ELECTRICAL	
Have **240vac supply** available.	☐
Hardwire the flowmeter display box to power supply (i.e. have permanent connection that can't be unplugged).	☐
PLUMBING	
Install the flowmeter sensor in a section of pipe that is **full at all times,** to ensure correct readings [Fig. 3].	☐
To prevent flow turbulence that may hinder correct flow readings, ensure that there is **straight pipe before and after the sensor** [Fig 4]: • 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.	☐
If without optional connection kit, install **gaskets and bonding cables(s)** according to the pipe type [Fig. 5].	☐
To avoid vibration that may hinder correct flow readings, **support the weight** of the sensor [Fig 6, Page 3].	☐
Provide an **extraction point** so that samples of the discharge liquid can be extracted [Fig. 8 below]	☐
Do not seal the pipe to the sewer, to **avoid syphoning** occurring.	☐
If not a pumped installation, then install a **service valve** upstream of the flowmeter to allow for flowmeter maintenance [Fig. 8 below].	☐

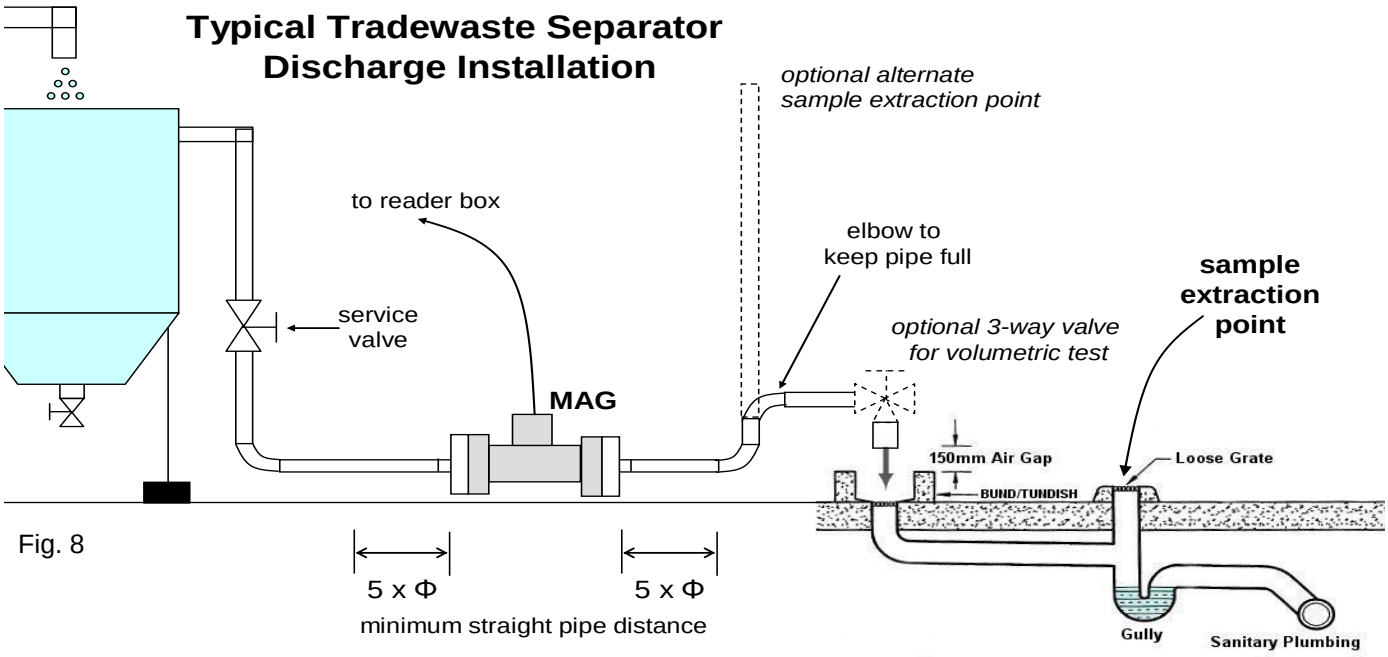


Fig. 8

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

ManuFlo® ™
Flow Measurement & Control Products

a division of

MANU ELECTRONICS PTY LTD
41 Carter Rd, Brookvale
Sydney NSW 2100 Australia
Ph: + 61 2 9905-4324, 9938-1425
Fax: + 61 2 9938-5852
Web: www.manuelectronics.com.au
Email: sales@manuelectronics.com.au