

FEATURES

- Resetable Totaliser for portable batching.
- Cumulative Totaliser for inventory.
- Instantaneous Flowrate display for flow monitoring.
- Flowrate display in l/s, l/m, or m³/h.
- Total display in Litres or m³ (3 decimal places).
- Measures any liquid with conductivity >20uS/cm.
- Virtually maintenance free, with no moving parts.
- Eliminates headlosses and need for filters.
- Robust polypropylene construction.
- Powered by 6 x AA batteries (1-3 year life).
- Easy access to replace batteries.
- Empty pipe detection.
- Flange clamp with BSP connectors.
- Inbuilt earthing electrodes
- Electronics sealed to NEMA 4X (IP66)



The low cost CompactMag electromagnetic flowmeters are capable of operating over wide flow ranges. They are ideal for measurement of a range of liquids and ideal in agricultural, irrigation, wastewater and liquid transfer applications. With no moving parts and an obstruction-less bore, this type of flowmeter guarantees a high level of performance unaffected by contaminated materials present in the liquid.. The uses are wide and far reaching.

The low cost AA batteries are easy replaceable when the automatic low-battery power warning is displayed.

The displayed engineering units can easily be changed via the front touchpad display. The Flowrate and Totalisers read to 3 decimal places for precise measurements.

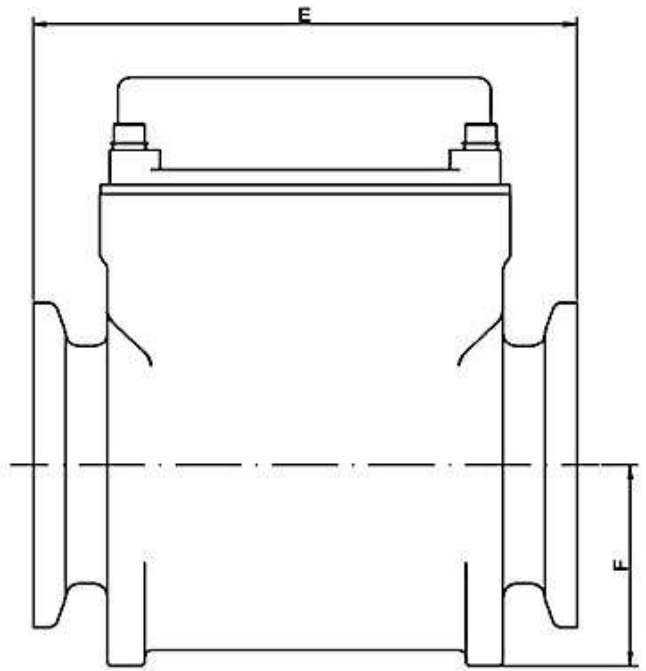
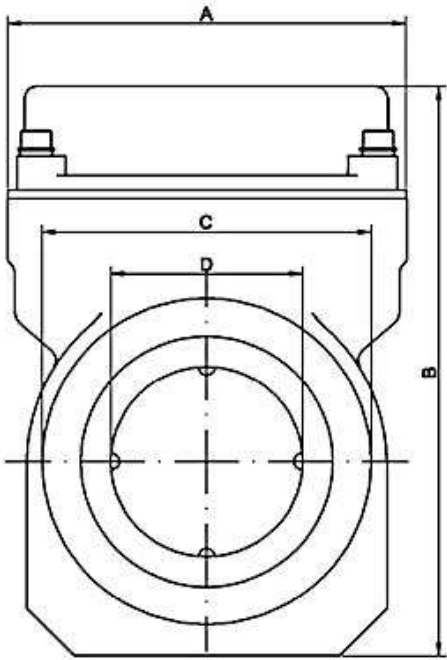
CompactMag is available in three sizes: 25, 50 and 80mm (1", 2" and 3").

FLOWRANGE PERFORMANCE and SIZING TABLE

size		Minimum flowrate (L/min)			Maximum flowrate Litres/min
mm	inches	±3%	±2%	±1%	
25	1"	5.7	15	28	285
50	2"	22.6	65	113	1130
80	3"	58.8	150	294	2940

DIMENSIONS

size	Dimensions (mm)					
	A	B	C	D	E	F
25 mm	100	130	80	25.4	139.7	41.402
50 mm	100	150	82.55	50.8	139.7	51.562
80 mm	100	180	111	76.2	185	64.8



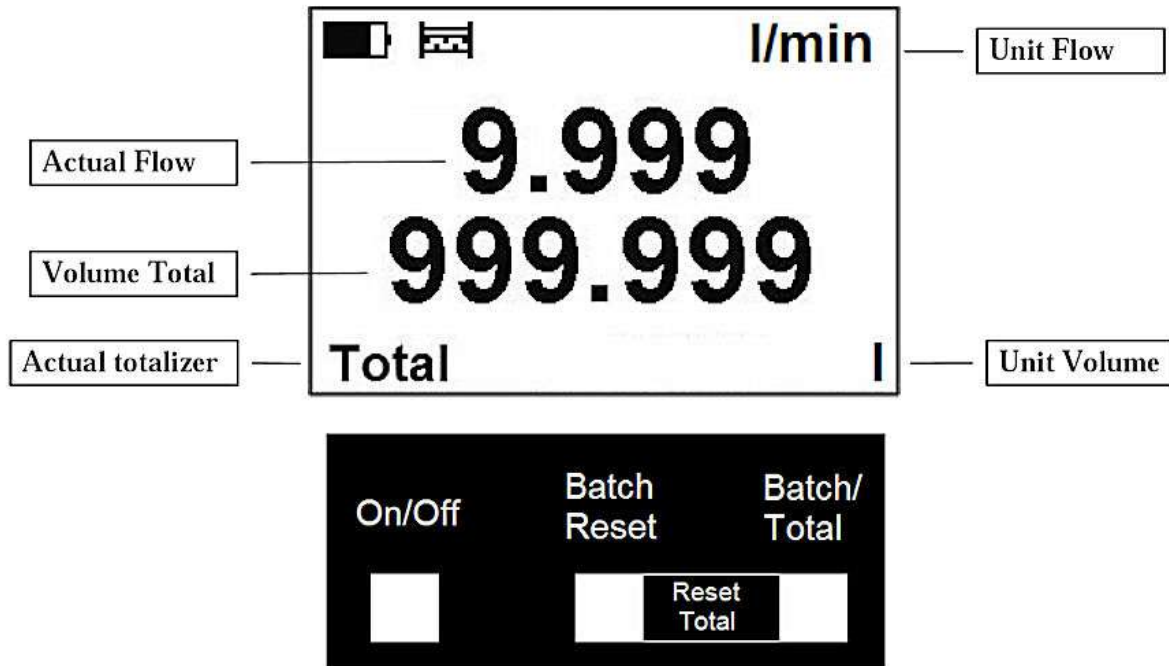
FITTING KIT

The fitting kit includes: 2 fitting parts + 2 clamps + 2 gaskets.



DISPLAY

The CompactMag flowmeter consists of the motherboard, a graphical display, touch-buttons and sensor housing. Through the display and with help of the controls, you can see and change the Flow and Totaliser displays.



Note: these are not push buttons.
To activate, hold your finger over the white rectangle for 2 to 4 seconds.

On/Off	Turns the meter on, switches the meter off.
Batch Reset	Clears the Batch volume.
Batch/Total	Switches between totalisers
Batch Reset and Batch/Total together	Clears the Total volume.
On/Off and Batch/Total together	Changes the units of the system (Litres/second and US Gallons/minute, Litres and Gallons, etc)
Total Volume	This is the total volume counter. Negative flow is not counted.*#
Batch Volume	This counter works the same way as Total Volume.*#

* If the value of the Volume counter is > 4 000 000 m³, then Volume will only be shown in m³ units.
If the value of the Volume counter is > 999 999 999 m³, then the Volume will be reset to zero.


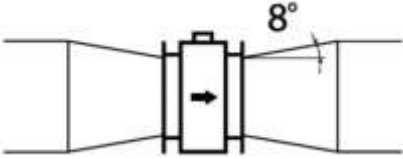
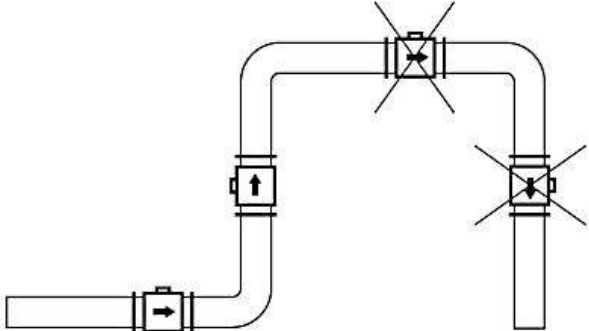
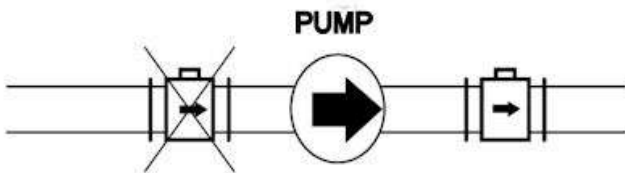
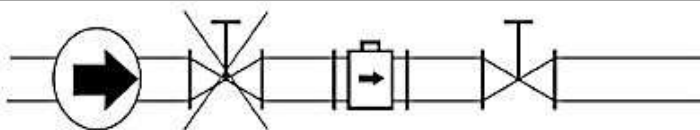
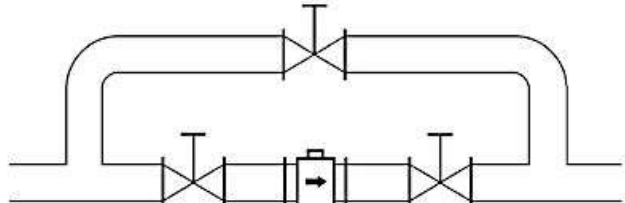
Both volume counters are independently clearable.

INSTALLATION

Sensor Installation

Proper installation is extremely important in order for the flowmeter to work correctly. The sensor installation requirements must be adhered to at all times.

If the flowmeter is mounted outdoors, use a sun shade. This also protects the LCD.

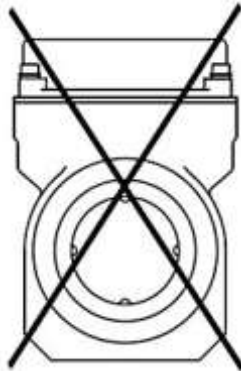
<p>Horizontal standard mounting The sensor tube must always remain full.</p> <p>It is mandatory to install the sensor in a section of straight pipe with at least 5 times the pipe diameter before sensor and 3 times after sensor.</p>	
<p>Pipe reducers If the pipe diameter is not the same as the diameter of the sensor, then pipe reducers can be used. So as not to lose accuracy of the measurement, the slope of reducers should not exceed 8°.</p>	
<p>Vertical mounting When the sensor is mounted in a vertical section of pipe, the flow direction must be upwards. In the case of a downward flow direction, air bubbles can collect in the sensor and the measurement could be unstable and inaccurate.</p>	
<p>Pumps Never install the sensor on the suction side of a pump or on a section of pipe where a vacuum is possible.</p>	
<p>Valves Suitable location of a shutoff valve is downstream of a sensor.</p>	
<p>Removal during maintenance If the application requires removal of the sensor for periodic maintenance, it is recommended to install a bypass section.</p>	

Position of flowmeter

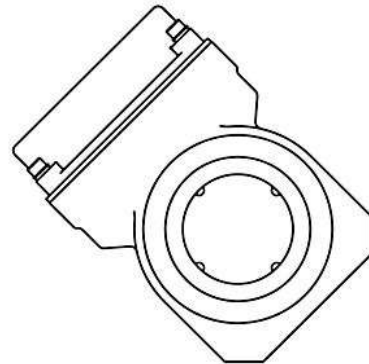
This is an all-position flowmeter which can be installed either vertically or horizontally, register up, down or angled. However, entrained air or solids may make some positions preferable to others. See the position diagram for guidance.

The correct position will be related to the function of the electrodes:

- The two electrodes located on the vertical axis of the flowmeter are used for earthing purposes.
- The two electrodes located on the horizontal axis of the flowmeters are used for measuring.



In this position, if there are any air bubbles or if sediments accumulate in the lower part of the flowmeter, it could have an adverse effect on the earthing, which could affect the accuracy of the measurement.



By rotating the flowmeter, it is possible to prevent any sediments accumulating at the earthing electrodes.




Also, there is less chance of any air bubbles affecting the earthing electrode.

FITTING KIT

The fitting kit includes: 2 fitting parts + 2 clamps + 2 gaskets.



CONNECTION

		
Step 1 Position gasket at either end.	Step 2 Place adapter against gasket, Open screw clamps to clear flanges.	Step 3 Place screw clamps over both adapter and meter flanges and tighten screws.

ERRORS AND WARNINGS

Low Battery	If Low Battery appears on the screen, replace existing batteries with new batteries.
Empty Pipe	If Empty Pipe appears on the screen then the pipe is not full of liquid, so the flowmeter is preserving batteries until the pipes are full again.
Excitation	Sensor coils are interrupted or disconnected.
AD-converter	Analogue to Digital converter fault. Note: The error disappears once the cause of it is fixed. You can see the measurement when you touch any of the controls.
Overloaded	Occurs when the measured flowrate is $> 1.2 \times$ Maximum Flowrate for the pipesize. Generally, the error will occur when the Analogue to Digital converter is overloaded. . This can be because the flowrate is excessive or if there is a very big voltage on the sensor electrodes.

BATTERIES

Battery life can be from 1 year to 3 years depending on factors such as measuring or sleeping mode, ambient temperature, and flowrate profile.

**Changing the battery**

1. Unscrew 4x IMBUS 4 screws.
2. Carefully open the display part of the flowmeter.
3. Open battery holder and remove batteries.
4. Install six new AA batteries (1.2-1.6V).
5. Close the battery holder.
6. Close the display part of the flowmeter, minding the cables.
7. Tighten the 4x IMBUS 4 screws.

Battery Conservation

To conserve battery power, the flowmeter switches off its display after 15 minutes of no flow. The display is re-activated either by the re-commencement of flow, or by the user pressing the On/Off button. The battery is also conserved when the Empty Pipe, Excitation and/or AD-converter faults appear, by the flowmeter displaying the alarm but not measuring.

Internal Backup

Once an hour, the Total and Batch data is automatically saved to the internal EEPROM. When the batteries are removed, the last Total and last Batch will be saved in the EEPROM until the unit is switched on again.

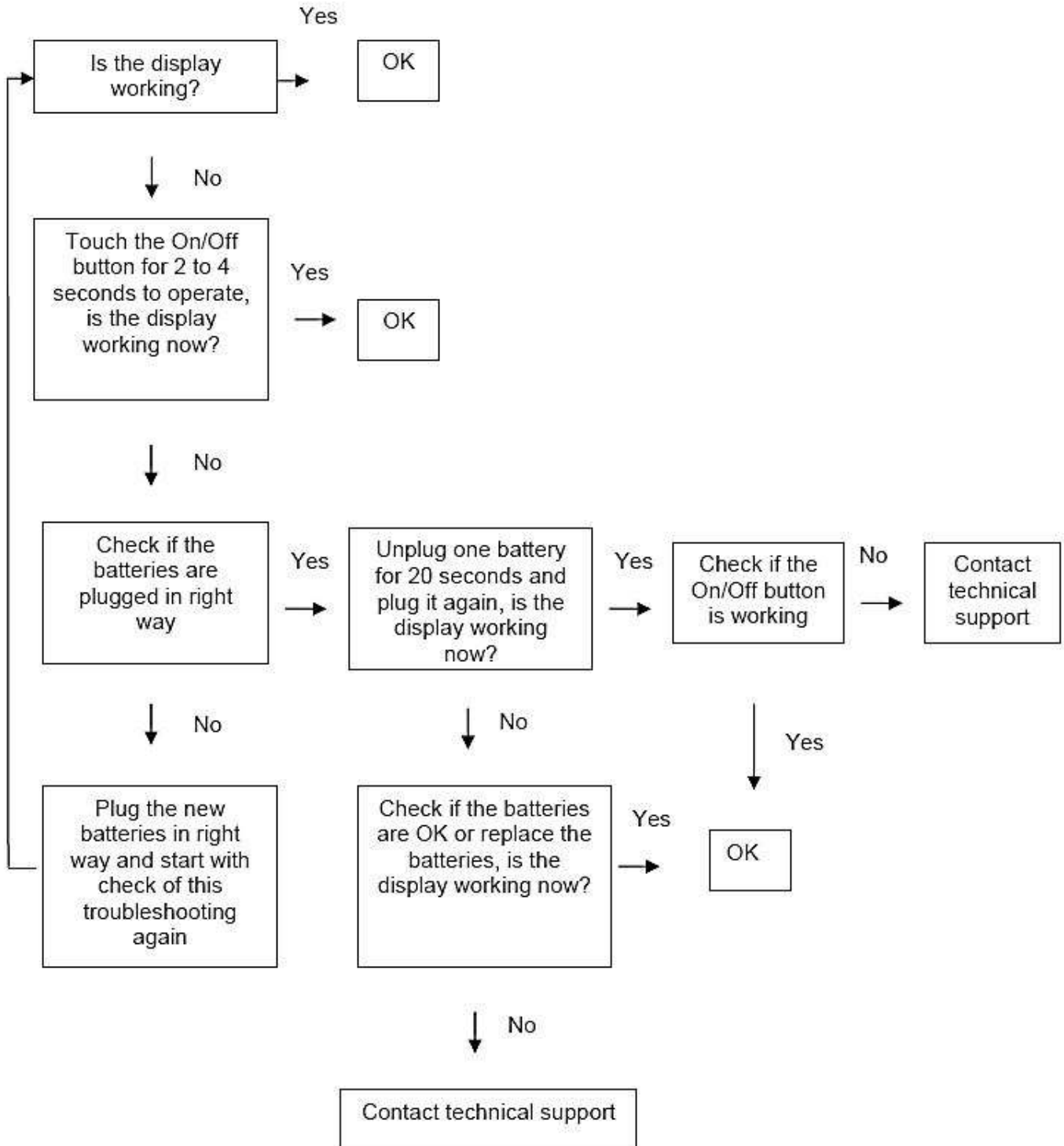
CLEANING

CompactMag electromagnetic flowmeters does not have any moving parts, so special maintenance is not required. However, it is recommended:

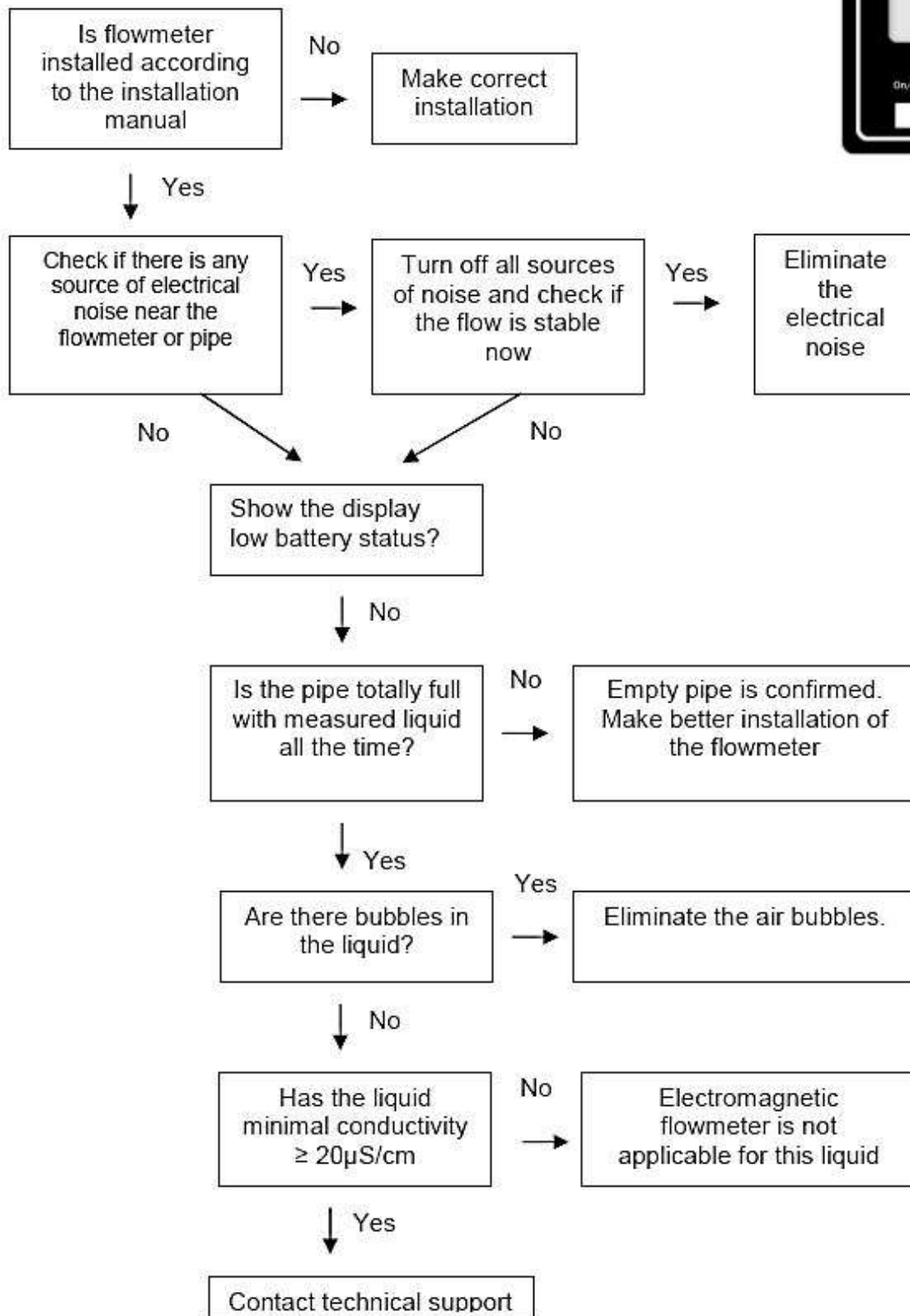
- to check battery life at least once a year, and change the 6 batteries if the meter shows "low battery status".
- When used with highly sedimented liquids, do yearly mechanical cleaning of the sensor to remove any sedimentation from the liner or electrodes. Clean the inside of the sensor tube with a piece of cloth to remove any dry foreign matter.

TROUBLESHOOTING

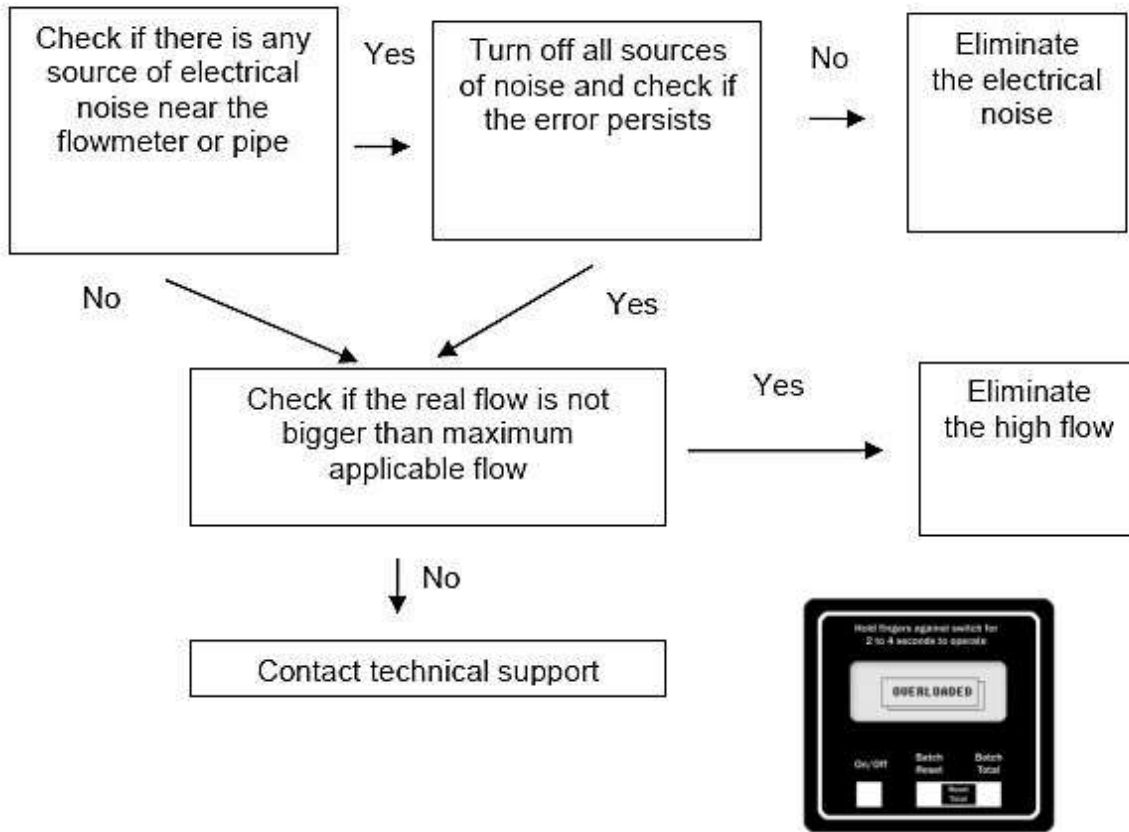
Trouble: non working display



Trouble: Non stable flow or Empty pipe alarm



Trouble: Error overloaded



Trouble: Error excitation, or AD-converter error



or



Contact technical support

Trouble: Low battery error



Replace the batteries. Install correctly

SPECIFICATIONS

Measurable media	Conductive fluids
Minimum liquid conductivity	≥ 20µS/cm
Flow velocity	0.1 to 10 metres/second
Display	LCD 128 x 64 px graphical, sleep mode
Control	3 touch buttons
Displayed values	<ul style="list-style-type: none"> • Flow range (m³/h, l/s, l/m, US gal/min, UK gal/min), • Volume (m³, l, US Gal, UK Gal) • Total, Batch volume
Accuracy	<ul style="list-style-type: none"> • ±1% of reading from 100% to 10% of full scale • ±3% of reading from 10% of full scale to cut-off
Full scale	<ul style="list-style-type: none"> • 25mm (1"): 0.5 – 4.8 Litres/second (30 – 285 Litres/minute) • 50mm (2"): 1.9 – 18.9 Litres/second (114 – 1130 Litres/minute) • 80mm (3"): 5.0 – 49.0 Litres/second (300 – 2940 Litres/minute)
Power supply	6 AA alkaline batteries(1.2 – 1.6 VDC). Expected lifetime: 1 year
Flow direction	Bi-directional measurement
Ambient temperature	-12 to 54 °C (10 to 130 °F)
Low flow cut-off	2% of full scale
Electronics protection	Nema 4X standard, IP66
Other features	<ul style="list-style-type: none"> • Test of excitation coils • Earthing through 3rd and 4th electrodes • Empty pipe detection - battery conservation
Excitation frequency	1/1.67s
Samples per Average	4 excitations
Coils resistance	100 Ω
Working Pressure	1034 kPa (150 psi, 10.3 bar)
Bore size	25, 50 or 80mm (1", 2" or 3")
Weight (unpacked)	<ul style="list-style-type: none"> • 25mm (1") : 1.4 kg • 50mm (2") : 2.5 kg • 80mm (3") : 3.5 kg
Construction	<ul style="list-style-type: none"> • Polypropelene body and housing. • Stainless Steel 316 electrodes.
Connections	Flange clamps with BSP male connection ends

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