

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

***WaterMaster V Electromagnetic Flowmeter
With WaterMaster Transmitter***

&

***WaterMaster F Electromagnetic Flowmeter
With WaterMaster Transmitter***

&

***WaterMaster W Electromagnetic Flowmeter
With WaterMaster Transmitter***

Manufactured by:

ABB Limited

Oldends Lane
Stonehouse
Gloucester
GL10 3TA

has been assessed by Sira Certification Service
And for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Continuous Water
Monitoring Equipment, Version 3 dated July 2018**

Certification Ranges :

WaterMaster V Size Range: DN 40 to DN 200 (excluding DN65 & 125)

WaterMaster F Size Range: DN 250 to DN 2200

WaterMaster W Size Range: DN 10 to DN 2400

Project No. : 674/0228/70201328
Certificate No : Sira MC080138/06
Initial Certification : 04 November 2008
This Certificate issued : 09 October 2018
Renewal Date : 09 October 2023

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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The MCERTS certificate consists of this document in its entirety.

For conditions of use, please consider all the information within.

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Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

The product is suitable for use, where it is appropriate, for regulated applications such as abstraction, effluent discharge, ultraviolet disinfection and industrial processing.

Any potential user should ensure, in consultation with the manufacturer that the product is suitable for the process on which it will be installed.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

Sira Evaluation Report: WaterMaster V 674/0228, dated 4 November 2008

WRc Report: UC8496 dated February 2011

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Product Certified

Certification only applies to WaterMaster products manufactured in the UK.

The WaterMaster flowmeter consists of the following parts:

- Integral or remote WaterMaster transmitter FET
- WaterMaster electromagnetic flowmeter sensor, model FEV, FEW and FEF, size range DN40 to DN2200

This certificate applies to all instruments fitted with software version V01.00.00 onwards.

Pipe Size (DN)	Flow rates (m ³ /h)	
	Min (Q1)	Max (Q3)
10	0.012	2.5
15	0.03	6.3
20	0.05	10
25	0.08	16
32	0.13	25
40	0.2	40
50	0.32	63
80	0.8	160
100	1.3	250
150	3.2	630
200	5	1000
250	8	1600
300	12.5	2500
350	20	4000
400	20	4000
450	32	6300
500	32	6300
600	50	10000
700	100	16000
800	100	16000
900	156	25000
1000	156	25000
1200	250	40000
1400	394	63000
1600	394	63000
1800	625	100000
2000	625	100000
2200	1000	160000
2400	1000	160000

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -25°C to +70°C

Note: Tests were performed over the ambient temperature range -25°C to +70°C. The manufacturers' specification is -20°C to +60 °C.

The instrument meets MCERTS Class 1 requirements for the combined performance characteristic as specified in section 4.2 of the MCERTS performance standard. Details of individual performance characteristics are summarised below:

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Protection against unauthorised access	Transmitter has 'read only' switch, and 3 level password protection if not sealed.					Clause 3.1.2
Indicating device	Analogue and pulse outputs. All versions have display.					Clause 3.1.3
Units of measurement	Various units of measurement are available.					Clause 3.1.6
Bi-directional flow	The sign (-) will stand in front of the flow reading when the reading is negative.					Clause 3.1.8
Combined performance characteristic WaterMaster FEV WaterMaster FEF WaterMaster FEW					1.31 0.46 1.61	2% Class 1 Table 6
Mean error WaterMaster FEV WaterMaster FEF WaterMaster FEW	-0.15	0.85 0.93				Clause 6.3.2 ±1.5% Class 1
Lower Limit Value					-2.80	Clause 6.3.2 ±5% Class 1
Repeatability WaterMaster FEV WaterMaster FEF WaterMaster FEW	0.29 0.04 0.50					Clause 6.3.2 1% Class 1
Supply voltage		0.05				Clause 6.3.3 0.5% Class 1
Output impedance	<0.01					Clause 6.3.4 0.5% Class 1
Fluid Temperature WaterMaster FEV WaterMaster FEF	0.45 0.01				+5°C to +45°C +24 °C to +27 °C	Clause 6.3.5 0.5 % Class 1

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Ambient air temperature WaterMaster FEV WaterMaster FEF	0.35 0.35				-25 °C to +70 °C +3 °C to +19 °C	Clause 6.3.6 0.5% Class 1
Relative humidity	0.14					Clause 6.3.6 0.5% Class 1
Stray currents	0.06					Clause 6.3.9 0.5% Class 1
Bi-directional Flow WaterMaster FEV WaterMaster FEF	Mean error 0.24% Repeatability 0.12% Mean error -0.51% Repeatability 0.47%					Clause 6.3.13 Mean error ±1.5% Class 1 Repeatability 1% Class
Warm up time					~40 seconds	Clause 6.1.2 to be reported
Loss of Power for electronic flowmeters	No changes in pre-set data					Clause 6.3.1 to be reported
Response time	Instrument has adjustable damping <10 seconds with damping set to 3 seconds.					Clause 6.3.19 30 seconds

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Field Test Results

The field trial was conducted with a WaterMaster V in series with a Helix mechanical meter

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Error under field test conditions WaterMaster FEV WaterMaster FEF	Error range +2.08% to +3.06% Field test error is <2% for 0% of readings Field test error is <5% for 100% of readings Field test error is <2% for 0% of readings Field test error is <5% for 98% of readings					Clause 7.3 2% Class 1 5% Class 2
Up time WaterMaster FEV WaterMaster FEF					100% 100%	Clause 7.4 >95%
Maintenance WaterMaster FEV WaterMaster FEF					None	Clause 7.5 To be reported

Note 1: The following requirements are not applicable to the flowmeter:

6.3.7 Incident light	6.3.14 Flow reversal
6.3.8 Sensor location	6.3.15 Ancillary devices
6.3.10 Direct Solar Radiation	6.3.16 Effect of conduit material
6.3.11 Accuracy of computation	6.3.17 Effect of conduit size
6.3.12 User defined stage-discharge equation	6.3.18 Fill level

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Description

WaterMaster is a range of Electromagnetic flowmeters, where the order prefix FEV, signifies a design of sensor covering the size range DN40 to DN300. It incorporates a plastic Polypropylene liner, with a novel contour rather than the traditional circular type. This gives improved immunity to hydraulic disturbances, both upstream and downstream.

The order prefix FEF signifies a design of sensors covering the range DN250 to DN2200 which are Elastomer lined.

The order prefix FEW signifies a design of sensors covering the range DN10 to DN2400. DN10 to DN32 are lined using PTFE and DN40 to DN2400 are lined using the same technique as the WaterMaster FEF design (a full bore elastomer lining).

This WaterMaster range incorporates a "sensor memory" which stores all the sensor calibration data, plant / site settings, such as units, pulses / unit etc. and the volumetric flow totals metered. This sensor memory allows ease of installation and mixing of transmitters, including repair, without having to configure the installation or lose the volume totals previously recorded.

Associated with the sensor is the WaterMaster Transmitter. It works with other sensors in the range from DN3 to DN2400. The transmitter has a plug in "cartridge", which contains all of the electronics, allowing easy serving in the field, in the event of a fault. The Transmitter incorporates a self-calibration feature, where the measurement electronics is self-calibrated every minute as part of its normal operation. It also includes a built in verification system designed to meet OIML R49 type P checking, for both transmitter and sensor, with diagnosis reporting if the accuracy is outside specification.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC08138/01
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.
3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.
4. This document remains the property of Sira and shall be returned when requested by the company.

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