

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

MSFM S2.5T Multi Sensor Flow Meter

Manufactured by:

Detectronic Ltd

Regent Street,
Whitewalls Industrial Estate,
Colne, Lancashire
BB8 8LJ

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

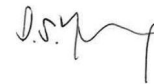
**Performance Standards and Test Procedures for Continuous Water
Monitoring Equipment, Part 3: Performance standards and test procedures for water
flowmeters, Environment Agency, version 4, March 2020**

The combined performance characteristic (U_c , the expanded uncertainty) is **6.65% % (Class 3)**

Certification ranges:

0 to 30l/s for 197mm channel
0 to 20l/s for 152mm pipe
0 to 25l/s for 188mm pipe
0 to 30l/s for 244mm pipe

Project No.: 80176090
Certificate No: CSA MC180336/03
Initial Certification: 15 August 2018
This Certificate issued: 15 August 2023
Renewal Date: 14 August 2028



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Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

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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.

Basis of Certification

This certification is based on the following test report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

- Detectronic MCERTS MSFM Open Channel Flow Meter. Issue 2 dated 28/03/2018.
- WRc Witness testing, Report ref: UC12499/14677-6 dated May 2017
- Detectronic '..MCERTS MSFM Open Channel Flow Meter and Minor modification to MCERTS MSFM 2.5T - Performance test', Issue 2, dated 05/06/2022.

Product Certified

The MSFM S2.5T Multi Sensor Flow Meter measuring system consists of the following parts:

- Multi sensor flow meter control unit with integral temperature module
- PDCR1830 hydrostatic pressure transducer
- ESPF2 ultrasonic Doppler velocity sensor

This certificate applies to all instruments fitted with Firmware version 4.04 (serial number 20132771955) onwards.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -25°C to +60°C

The instrument meets MCERTS Class 3 requirements for the combined performance characteristic as specified in Table 6 of the MCERTS performance standard. Details of individual performance characteristics are summarised below:

Results are expressed as error % of certification range, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Protection against unauthorised access	The unit is password protected					Clause 3.1.2
Units of measurement	The indicating device and output are scaled in metric units					Clause 3.1.3
Indicating device	Indicating device displays logged readings as volumetric flow-rate					Clause 3.1.4
Flow computation	Flow is calculated from level and velocity					Clause 3.1.11
Combined performance characteristic						
197mm				2.63	6.65	8% (Class 3) Table 6
152mm				2.71		
188mm						
244mm				4.33		
Mean Error					5.17	±6.5% (Class 3)
Repeatability				2.23		4% (Class 3)
Supply voltage 0 to 13 V DC				2.06		2.5% (Class 4)
Fluid Temperature (+5.6°C to +29.7°C)			-1.05			2% (Class 3)
Ambient air temperature (-25°C to +60°C)		-0.66				1% (Class 2)
Relative Humidity (95%RH)	-0.15					0.5% (Class 1)
Effect of conduit size						Clause 6.3.17 To be reported
152mm			1.98			
188m				2.23		
244m				3.51		

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Fill level						Clause 6.3.18 To be reported
197mm				-4.7		
152mm				-3.34		
188mm			-1.65			
244mm			1.99			
Response time					15 seconds	<30 seconds
Warm up time					5 minutes	Clause 6.1.2 To be reported
Error under field test conditions	Max error 7.9% Min error -7.9% Mean error -0.64% Proportion of errors $\leq 5\%$= 82% Proportion of errors $\leq 8\%$= 100%					Clause 7.3.1 8% (Class 3)
Up time					100%	Clause 7.4.1 >95%
Maintenance					3 months	To be reported

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

- | | |
|----------------------------------|-----------------------------------|
| 6.3.4 Output impedance | 6.3.15 Ancillary devices |
| 6.3.7 Incident light | 6.3.16 Effect of conduit material |
| 6.3.8 Sensor location | 6.3.20 Vibration |
| 6.3.9 Presence of stray currents | |
| 6.3.10 Direct solar radiation | |
| 6.3.13 Bi-directional flow | |
| 6.3.14 Flow reversal | |

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Description

The Detectronic MSFM S2.5T Multi Sensor Flow Meter is a self-contained battery powered GSM Data-logger intended to be used for open channel flow measurement.

The flowmeter uses a submerged sensor which is profiled to resist fouling. An integrated temperature sensor records the water temperature, a pressure transducer is used to calculate depth, and a velocity sensor which employs the Doppler principle is used to measure flow velocity.

Measurements are recorded at intervals selected by the user and flow rates are calculated using a temperature compensated cross sectional area and velocity method. Recorded information can be downloaded on site or is transmitted via GPRS to a secure website.

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 CSA Certificates'.
2. The design of the product certified is defined in the CSA design schedule V02 for certificate No. CSA MC180336/03.
3. If the certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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