

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

FLUXUS F721 Ultrasonic Flowmeter

Manufactured by:

FLEXIM Flexible Industriemesstechnik GmbH

Boxberger Str. 4
12681 Berlin
Germany

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

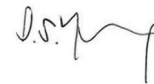
Performance Standards and Test Procedures for Continuous Water Monitoring Equipment, Part 3: Performance standards and test procedures for water flowmeters, Environment Agency, version 4, March 2020

The combined performance characteristic (U_c , the expanded uncertainty) is **6.25%** for AC Power (Class3) and **2.97%** for DC Power (Class2)

Certification Ranges:

Velocity	0.25m/s to 5m/s
Pipe diameter	0.1m to 1.2m

Project No.: 80097562
Certificate No: Sira MC160313/03
Initial Certification: 01 November 2016
This Certificate issued: 06 October 2021
Renewal Date: 31 October 2026



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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 Sira's assessment and ongoing surveillance of the product and the manufacturing process:

WRc Report UC12040 MCERTS Testing of the FLUXUS F721 Ultrasonic Flow Meter 10 Oct 16
Sira Evaluation Report dated October 2016

Product Certified

The measuring system consists of the following parts:

- Transmitter: F721
- Transducers: FSP, FSM, FSK and FSG

This certificate applies to all instruments fitted with software version V7.40.2.0 onwards.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -10°C to +50°C
 Instrument IP Rating: FLUXUS F721 Transmitter IP66

The instrument meets MCERTS Class 3 requirements for the combined performance characteristic as specified in Table 7 of the MCERTS performance standard. Details of individual performance characteristics are summarised below:

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

Test	Results expressed as % of reading				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Protection against unauthorised access					Passcode required	Clause 3.1.2
Indicating Device					The flowmeter incorporates an indicating device, analogue and digital output signal	Clause 3.1.3
Units of measurement					The flowmeter records in metric and imperial units	Clause 3.1.6
Combined performance characteristic						Clause 4.2.1
AC Power					6.25%	±8% Class 3
DC Power					2.97%	±5% Class 2
Mean Error						
FSP Transducer						
0.50 m/s			1.90			
1.45 m/s			1.29			
2.60 m/s	0.45					
3.80 m/s		0.80				
4.75 m/s	-0.12					
FSM Transducer						
0.50 m/s				5.10		
1.45 m/s			2.74			
2.60 m/s			3.26			
3.80 m/s			1.79			
4.75 m/s			1.42			

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Repeatability						
FSP Transducer						
0.50 m/s	0.15					Clause 6.3.2 1% Class 1
1.45 m/s	0.13					
2.60 m/s	0.12					
3.80 m/s	0.04					
4.75 m/s	0.03					
FSM Transducer						
0.50 m/s	0.10					Clause 6.3.2 1% Class 1
1.45 m/s	0.09					
2.60 m/s	0.20					
3.80 m/s	0.24					
4.75 m/s	0.12					
Supply Voltage						
AC (100V to 240V)	0.22				Note 1	Clause 6.3.3 0.5% Class 1
DC (20V to 32V)	0.44				Note 2	
Output impedance (40Ω to 200Ω)	0.03					Clause 6.3.4 0.5% Class 1
Fluid Temperature (+1°C to +30°C)			1.64			Clause 6.3.5 2% Class 3
Ambient temperature (-10°C to +50°C)	0.45					Clause 6.3.6 0.5% Class 1
Relative humidity (-10°C to +50°C)	0.39					Clause 6.3.6 0.5% Class 1
Bi-directional flow						
FSP Transducer				2.44		Clause 6.3.13 To be reported
FSM Transducer				5.07		
Conduit Material						
ABS Pipe				2.05		Clause 6.3.16 1.5% Class 1 4% Class 2
Carbon Steel Pipe			1.20			
Cement-lined ductile iron pipe				3.34		

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Conduit size						
FSM Transducer 400mm pipe						
0.50 m/s				3.60		
1.45 m/s				3.49		
2.60 m/s				3.71		Clause 6.3.17 ±4% Class 2
3.80 m/s				2.78		
4.75 m/s				3.07		
FSK Transducer 400mm pipe						
0.50 m/s				3.10		
1.45 m/s				2.91		Clause 6.3.17 ±4% Class 2
2.60 m/s				3.08		
3.80 m/s				2.38		
4.75 m/s				2.64		
FSK Transducer 1000mm pipe						
0.40 m/s			-1.12			
0.65 m/s			-1.33			Clause 6.3.17 ±1.5% Class 1
1.30 m/s			-1.49			
1.90 m/s			-1.25			
1.55 m/s			-1.34			
FSG Transducer 1000mm pipe						
0.40 m/s				-2.52		
0.65 m/s				-2.26		Clause 6.3.17 ±4% Class 2
1.30 m/s			-1.07			
1.90 m/s	-0.30					
1.55 m/s		0.58				
Response time					9 seconds	Clause 6.3.19 <30 seconds

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Error under field test conditions					Max error 3.20% Min error -4.04% Mean error 0.81% Proportion of errors $\leq 2\%$ = 94.8% Proportion of errors $\leq 5\%$ = 100%	Clause 7.3 1.5% Class 3
Up time					100%	Clause 7.4 >95%
Maintenance					None	Clause 7.5 to be reported

Note 1: The following tests were performed on the AC version of the FLUXUS F721 with transducers FSK, FSM and FSP: loss of power, supply voltage, mean error and repeatability, bi-directional flow, conduit size, conduit material, environmental factors, fluid temperature
 Note 2: The following tests were performed on the DC version of the FLUXUS F721 with transducers FSG, FSK, FSM and FSP: supply voltage, mean error and repeatability, bi-directional flow and conduit size.

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Description

The FLUXUS F721 is a non-intrusive ultrasonic flow meter, clamped to the pipe by means of heavy duty stainless steel straps and provided with a protective stainless-steel shroud over the transducers. Transducers are coupled to the pipe using a solid fluoropolymer elastomer pad. Unlike coupling gels or grease, this pad will not degrade or require monthly reapplication. The meter adapts itself automatically to the respective measurement conditions and compensates for water borne measurement disturbances. Extremely fast measurement cycles allow for precise real-time monitoring of highly dynamic flows.

The FLUXUS F721 is available with two different enclosure types: aluminium housing for standard applications and stainless-steel housing for operation in coastal or highly corrosive environments.

The FLUXUS F721 comes with a wide range of communication protocols. HART, Modbus, Foundation Fieldbus, Profibus PA and BACnet allow bidirectional field communication, parameterization and online diagnostics. FLEXIM offers a large selection of transducers with different frequencies and protection types, ensuring that we can deliver the perfect transducer for each pipe and application.

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 V00 for certificate No. Sira MC160313/03.
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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