

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

## **SITRANS FST 020 Clamp-on Flowmeter**

Manufactured by:

### **Siemens Industry, Inc.**

*Industry Automation Division  
Process Instrumentation & Analytics  
1201 Sumneytown Pike  
PO Box 900  
Spring House  
PA 19477  
USA*

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

### **MCERTS Performance Standards for Water Monitoring Equipment Part 3, Version 2.4 dated February 2013**

Certification Ranges :

0.25 m/s to 6 m/s

Project No. : 16A30019 Add A  
Certificate No : Sira MC140260/00  
Initial Certification : 04 November 2014  
This Certificate issued : 04 November 2014  
Renewal Date : 03 November 2019

Emily Alexander BSc (Hons)  
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

## **Sira Certification Service**

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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](http://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.

The product has been tested on pipe sizes of 150 mm, 24” (nominally 500 mm) and 42” (nominally 1100 mm) over a range of velocities - 0.25 to 5.75 m/s on 150 mm pipe, 0.28 to 2.36 m/s on ~500 mm pipe and 0.28 to 2.44 m/s on ~1100 mm pipe. The majority of the testing was conducted with C3: 1010 Universal transducers. See the notes beneath the certified performance section for full details.

The instrument is suitable for pipe sizes upwards of 100mm.

The field test was conducted on a pumped flow at a water supply works for final drinking water distribution (pipe size DN 600). The field test duration was three months. The instrument setup included:

- FST 020 (serial number 40593)
- D3 Universal Transducers (serial numbers 66745A & 66745B)
- Reference meter: SITRANS FM Magflo MAG 5100 Electromagnetic flowmeter (serial number 149602N049)

**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 UC9776.1 dated July 2014

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## Product Certified

The FST 020 measuring system consists of the following parts:

- SITRANS FST 020 (AC)
- SITRANS FST 020 (DC)
- Universal and High Precision Transducers (fixed and portable). For MCERTS certified transducer types/sizes (when combined with SITRANS FST 020), please see the table below:

### Universal Transducers Permanent and Portable

	MLFB Part Number	Serial number
B1 Universal for pipe OD from 12.7 to 76 mm (0.5 to 3 in.)	7ME395xxLC10	61560A/B onwards
B2 Universal for pipe OD from 12.7 to 76 mm (0.5 to 3 in.)	7ME395xxLC20	62109A/B onwards
B3 Universal for pipe OD from 19 to 127 mm (0.75 to 5 in.)	7ME395xxLC00	51892A/B onwards
C1 Universal for pipe OD from 51 to 254 mm (2 to 10 in.)	7ME395xxLD10	51808A/B onwards
C2 Universal for pipe OD from 51 to 254 mm (2 to 10 in.)	7ME395xxLD20	50229A/B onwards
C3 Universal for pipe OD from 51 to 305 mm (2 to 12 in.)	7ME395xxLD00	50133A/b onwards
D1 Universal for pipe OD from 102 to 508 mm (4 to 20 in.)	7ME395xxLE10	52018A/B onwards
D2 Universal for pipe OD from 152 to 610 mm (6 to 24 in.)	7ME395xxLE20	58717A/B onwards
D3 Universal for pipe OD from 203 to 610 mm (8 to 24 in.)	7ME395xxLE00	49855A/B onwards
E1 Universal for pipe OD from 254 to 3048 mm (10 to 120 in.)	7ME395xxLF10	50824A/B onwards
E2 Universal for pipe OD from 254 to 6096 mm (10 to 240 in.)	7ME395xxLF00	49844A/B onwards
E3 Universal for pipe OD from 304 to 9144 mm (12 to 360 in.)	7ME395xxLF20	50707A/B onwards

### High Precision Transducers Permanent and Portable Including High Temperature

	MLFB Part Number	Serial number
B1H (High Precision) for pipe WT from 2.0 to 3.0 mm (0.08 to 0.12 in.)	7ME395xxLKx0	50391A/B onwards
B2H (High Precision) for pipe WT from 3.0 to 4.1 mm (0.12 to 0.16 in.)	7ME395xxLLx0	50219A/B onwards
B3H (High Precision) for pipe WT from 2.7 to 3.3 mm (0.106 to 0.128 in.)	7ME395xxLTx0	52104A/B onwards
C1H (High Precision) for pipe WT from 4.1 to 5.8 mm (0.16 to 0.23 in.)	7ME395xxLMx0	72096A/B onwards
C2H (High Precision) for pipe WT from 5.8 to 8.1 mm (0.23 to 0.32 in.)	7ME395xxLNx0	68825A/B onwards
D1H (High Precision) for pipe WT from 8.1 to 11.2 mm (0.32 to 0.44 in.)	7ME395xxLPx0	61707A/B onwards
D2H (High Precision) for pipe WT from 11.2 to 15.7 mm (0.44 to 0.62 in.)	7ME395xxLQx0	50387A/B onwards
D3H (High Precision) for pipe WT from 7.4 to 9.0 mm (0.293 to 0.354 in.)	7ME395xxLUx0	55951A/B onwards
D4H (High Precision) for pipe WT from 15.7 to 31.8 mm (0.62 to 1.25 in.)	7ME395xxLRx0	49952A/B onwards

This certificate applies to all instruments fitted with software version 2.04.05 (FST 020 serial number 38213 (AC) & 38893 (DC) onwards).

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## Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -10°C to +35°C  
 Instrument IP rating: NEMA 4X/IP65

Results are expressed as error % reading and conducted using transducer C3 : 1011 Universal, unless otherwise stated.

Test	Results expressed as error % reading				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Protection against unauthorised access					Password required	Clause 3.1.2
Indicating device					The flowmeter displays totalised volume and/or flow-rate	Clause 3.1.3
Units of measurement					The flowmeter records in metric units	Clause 3.1.6
Loss of power					All pre-set data retained for 66 hours	Clause 6.3.1
Warm up time					15s	Clause 6.1.2 To be reported
Combined performance characteristic					2.14	Table 7 5% Class 2
Mean error 170mm nominal 0.14 – 0.43 m/s 1.15 – 1.73 m/s 2.59 – 3.16 m/s 4.03 – 4.60 m/s 5.18 – 5.75 m/s	0.02	0.51 0.78 0.91	1.2		Note 1	Clause 6.3.2 4% Class 2
Repeatability	0.23					Clause 6.3.2 1% Class 1
Supply voltage 85 to 264 V AC 11.5 to 28.5V DC	0.20 0.15					Clause 6.3.3 0.5% Class 1 0.5% Class 1
Output impedance 750 Ω, 250Ω & 100Ω	0.20					Clause 6.3.4 0.5% Class 1
Fluid temperature 3.7°C to 25.5°C			1.36		Note 2 Note 4	Clause 6.5.3 2% Class 3
Ambient temperature -10°C to +35°C	0.09					Clause 6.3.6 0.5% Class 1

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Test	Results expressed as error % reading				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Relative humidity ≥95%RH	0.11					Clause 6.3.6 0.5% Class 1
Bi-directional flow				7.3		Clause 6.3.13 To be reported
Effect of conduit material					Note 4	Clause 6.3.16
Carbon steel						
Mean error				2.5		To be reported
Repeatability	0.14					To be reported
ABS						
Mean error				7.7		To be reported
Repeatability	0.34					To be reported
Cement lined ductile iron						
Mean error				3.9		To be reported
Repeatability	0.20					To be reported
Effect of conduit size					Note 3	Clause 6.3.17
24" (0.5m nominal) – Mean error						
0.28				-2.9		To be reported
0.85				-2.6		To be reported
1.38				-2.3		To be reported
1.90				-2.0		To be reported
2.44				-2.1		To be reported
42" (1.2m nominal) – Mean error						
0.29			-1.4			To be reported
0.80			-1.6			To be reported
1.32			-1.5			To be reported
1.87			-1.6			To be reported
2.36			-1.3			To be reported
Response time					Note 4 10 s	Clause 6.3.19 < 30 s

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Test	Results expressed as error % certification range				Other results	MCERTS specification
	<0.5	<1	<2	<8		
Error under field test conditions						Clause 7.3 8% Class 3
Up time					99.9%	Clause 7.4 >95%
Maintenance					None	Clause 7.5 To be reported

Note 1: Test conducted using C2H : 1011HP-T1 transducers.

Note 2: Test conducted using C1H : 101HP-T1 transducers.

Note 3: Test conducted using D1 : 101H-D1H transducers.

Note 4: Test conducted using the FUS 1010 controller (rather than the FST 020).

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## Description

The SITRANS FST020 clamp-on flowmeters described on this certificate provide accurate, non-intrusive flow measurement in full pipes. They consist of a SITRANS FST transmitter, a calibrated matched pair of transducers and mounting hardware such as cables and easy mount frames.

The transducers use Wide-Beam technology. This technology increases precision by reducing the sensitivity to any change in the medium type or pressure. The Wide-Beam ultrasonic signal is not affected by step velocity changes (hydraulic surging) or solids particle distribution.

The sensors can be mounted in two different orientations depending on the quality of the pipe and viscosity of the product. To achieve the best accuracy the "reflect method" is recommended. Using this method enables auto zero calibration, eliminating any necessity to stop process flow. With this configuration in place the pipe characteristics are continually monitored to instantly correct any offset generated by temperature changes in the process.

The matched pair of transducers is available in two types, either Universal or High Precision. The High Precision sensors have been tuned for use on steel pipe only and should only be used for these applications. The standard Universal Transducers, are suitable any other pipe material including steel.

The SITRANS FST020 is a low feature flowmeter featuring specifications compatible with basic application requirements: one channel, limited configuration options that make product selection straightforward, RS232 communication and lastly, a simple and user-friendly design that ensures easy set-up and configuration.

## 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 MC140260/00.
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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