



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Meter Indicating Mass
Digital Electronic
Sensor Model: SITRANS FCS200 DN 1X
Transmitter Model: SIFLOW FC070 Ex CT
Accuracy Class 2.0

Submitted By:

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Standard Features and Options

Standard Features:

- Category 2 Method of Sealing (See page 2)
- Dual parallel flow tube construction
- Frequency Output from Transmitter for Mass Indications
- MODBUS Communications for Display of Process Variables

Flow Sensor Model Number	Flow Sensor Size (inches)	Flow (lbs/kg/min)	Minimum Measured Quantity (MMQ) (lbs/kg)
SITRANS FCS200 DN 10	3/8 inch (10)	2 lbs/min - 119 lbs/min (0.9 kg/min - 54 kg/min)	2 lbs (0.9 kg)
SITRANS FCS200 DN 15	9/16 inch (15)	4 lbs/min - 238 lbs/min (1.8 kg/min - 108 kg/min)	4 lbs (1.8 kg)

Options:

- Built-in Integral Transmitter with Display

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages. *Editorial changes, not affecting the type or metrological content, corrected this certificate.

Ronald Hayes
Chairman, NCWM, Inc.

John Gaccione
Committee Chair, National Type Evaluation Program Committee
Issued: May 29, 2015

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Siemens A/S, Flow Instruments
Meter Indicating Mass / SITRANS FCS200 DN 1X

Application: For use in stationary applications. The mass flow meter is used to measure compressed natural gas (CNG) with specific gravities of 0.6 to 0.8 with an approved and compatible remote indicator capable of receiving a frequency input. This Certificate *does not* cover the use of a specific meter to measure multiple products where the *variation* in specific gravities exceeds 0.1 specific gravity units.

Identification: A badge containing the required identification markings are permanently attached to the sensor housing.

Sealing: Calibration and configuration parameters are changed by connecting a remote device (a category 2 sealing method), and controlled by the position of a dual inline package (DIP) write-protect switch located on the side of the transmitter enclosure. The switch has two positions labeled “On” and “Off”. The switch must be in the “On” position so that no metrological parameters can be changed while the meter is in the custody transfer (secure) mode of operation. A write protect indicator located on the transmitter enclosure top cover marked “WP” will not be illuminated when the write-protect DIP switch is in the “Off” position, indicating the meter is not sealed. The write protect indicator illuminates yellow when the DIP switch is on, indicating the meter is sealed. The DIP switch access opening is sealed with a tamper-evident, self-adhesive seal. A removable program read-only memory (SENSORPROM®) card used for programming sensor characteristics to the transmitter is located on the back of the transmitter enclosure, and is sealed in place with a tamper-evident, self-adhesive seal. Sensor wiring is fed into, and accessed through, the transmitter front enclosure and sealed with a tamper-evident, self-adhesive seal. The transmitter connection at the sensor end is also sealed using a tamper-evident, self-adhesive seal.

The sensor flow tubes are embedded within a completely enclosed welded housing, therefore inaccessible and have no sealing requirements.

Test Conditions: The SITRANS FCS200 DN 10 sensor measuring CNG, and remote SIFLOW FC070 Ex CT transmitter was submitted for evaluation. The transmitter was connected to a Kraus Global, Ltd Model MICON 500 CN register (National Type Evaluation (NTEP) Certificate of Conformance Number 97-111A3) as the indicating element. The emphasis of the evaluation was on device design, performance, markings, sealing, accuracy, repeatability, and permanence. Full fills of four test drafts each at five different flows ranging from 2.0 lbs/min to 95 lbs/min at a fill pressure of 3600 psi were delivered through the sensor. Partial fills consisting of 1/3 receiving tank capacity were also delivered through the sensor. In addition, test drafts delivering the minimum measured quantity of 2.0 lbs were measured. The meter was subjected to approximately 60 days and 3384 lbs of throughput and all tests were repeated. The acceptance tolerance of 1.5% for accuracy class 2.0 was applied.

Evaluated By: R. Ingram (CA); J. Roach (CA)

Type Evaluation Criteria Used: *NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, 2015 Edition. *NCWM Publication 14 Measuring Devices*, 2015 Edition.

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: J. Truex (NCWM)

Siemens A/S, Flow Instruments
Meter Indicating Mass / SITRANS FCS200 DN 1X

Examples of Device:

SIFLOW FC070 Ex CT Transmitter



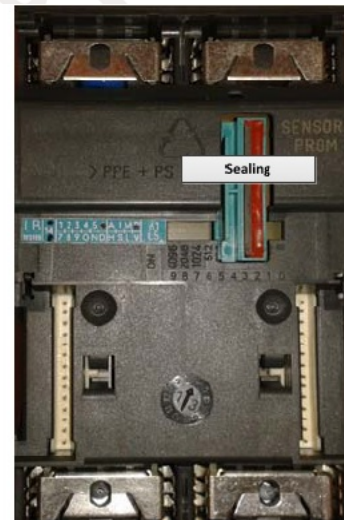
SITRANS FCS200 Sensor



Front of Transmitter



Side of Transmitter (WP)



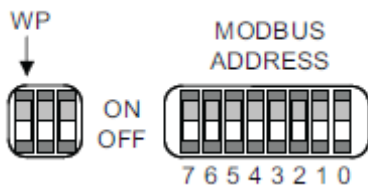
Back of Transmitter
(SENSORPROM®)

SIFLOW FC070 Ex CT (Sealing)

Siemens A/S, Flow Instruments
Meter Indicating Mass / SITRANS FCS200 DN 1X

SIFLOW FC070 Ex CT Custody Transfer Settings

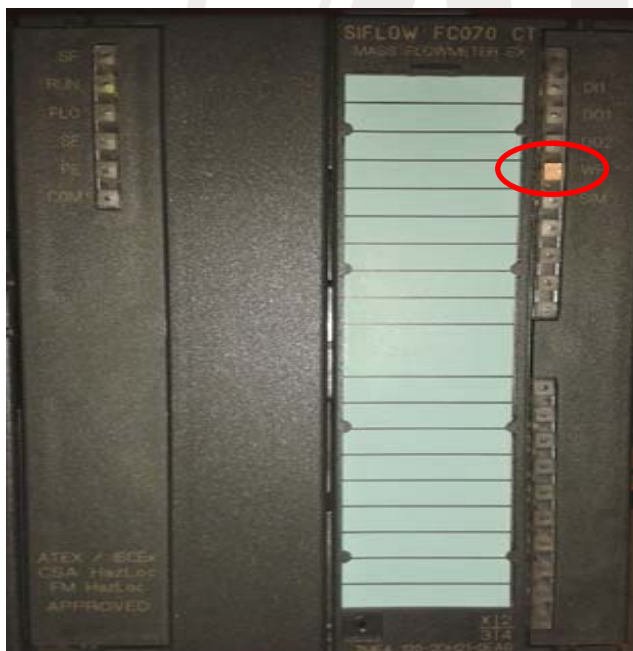
The SIFLOW FC070 Ex CT module has two DIP switches located on the side of the enclosure: the MODBUS slave address switch and the write protection switch.



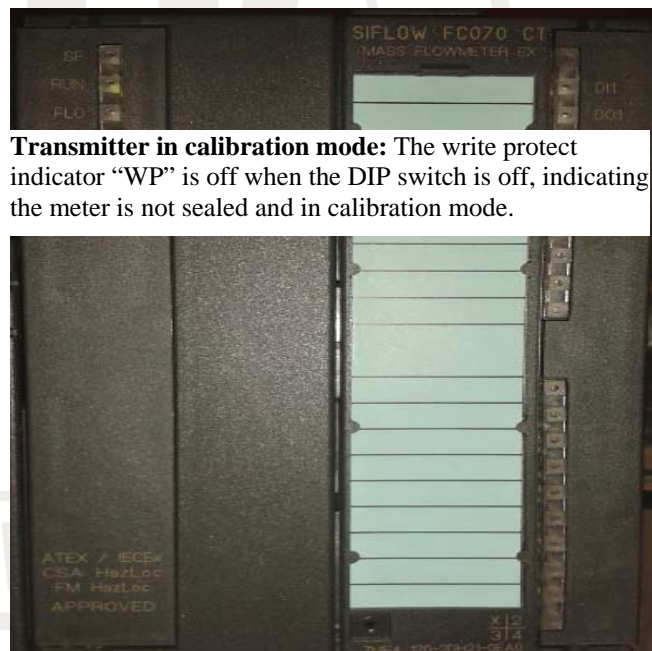
When setting the WP DIP switch to ON the SIFLOW FC070 Ex CT transmitter is in CT (Custody Transfer) mode, all parameters that have any influence on the measuring results are not possible to change, including Zero point adjustment.

Sealing indication SIFLOW FC070 Ex CT

These photos show the write-protect indicator “On” on the left and “Off” on the right.



Transmitter in sealing mode: The write protect indicator “WP” illuminates yellow when the DIP switch is on, indicating the meter is sealed.



Transmitter in calibration mode: The write protect indicator “WP” is off when the DIP switch is off, indicating the meter is not sealed and in calibration mode.