

Flow Measurement

SITRANS F C

Flow sensor SITRANS FCS200

Overview



SITRANS FCS200 (DN10, DN 15 and DN 25) is a Coriolis sensor specialized for accurate mass flow measurement of gases.

The sensor offers superior performance in terms of flow accuracy and turn down ratio. The ultra compact sensor design makes installation, replacement and commissioning very straightforward and easy.

Benefits

- High accuracy gas measurement
- Approved for use in hazardous area
- Self-draining in both horizontal and vertical orientation
- Pt1000 temperature measurement for optimum accuracy
- SENSORPROM enabling true "plug & play"
- Rigid enclosure design reducing influence from pipeline vibration and thermal stress
- High-pressure measurement up to 350 bar (5076 psi)
- Ultra compact sensor design with space-saving split flow

Application

SITRANS FCS200 is designed for measurement of gases and is suitable for use in the oil and gas industry:

- Filling of gas bottles
- CNG dispensers
- Metering of general gas applications

Design

SITRANS FCS200 is available in DN 10, DN 15 and DN 25.

The sensor consists of 2 parallel measuring pipes, welded directly onto a flow splitter at each end of the sensor to eliminate a direct coupling to the process connectors and significantly reduce effects from external vibrations. The flow-splitters are welded directly onto a rigid sensor housing which acts as a mechanical low pass filter.

The wetted parts of SITRANS FCS200 are available in Hastelloy C22, while the enclosure is made of stainless steel mat no. 1.4301 (AISI 304) with a grade of encapsulation of IP67.

The black rupture disc of one side of the DN 10 and both sides of the DN 15 and DN 25 is designed to prevent the enclosure from overpressure.

Function

The flow measuring principle is based on the Coriolis effect. See "System information SITRANS F C".

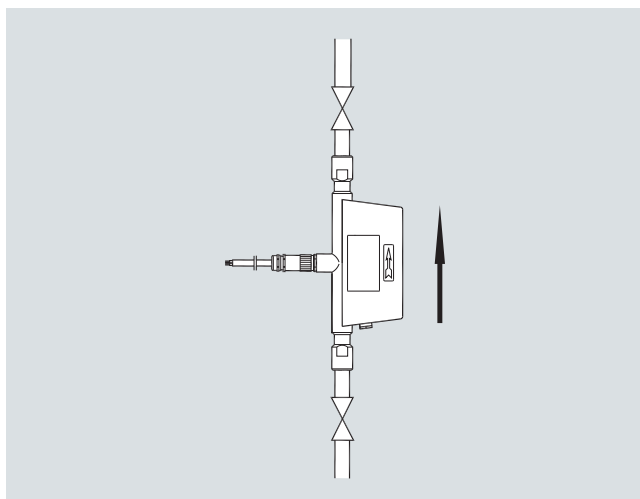
Integration

The complete flowmeter consists of the sensor (SITRANS FCS200) and a transmitter SITRANS F C MASS 6000 or SIFLOW FC070. All communication options are available for MASS 6000.

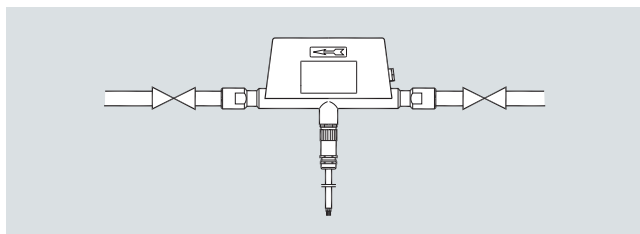
The sensor is shipped with a SENSORPROM memory unit containing all information about calibration data, device identity and factory pre-programming of transmitter settings.

Installation guidelines

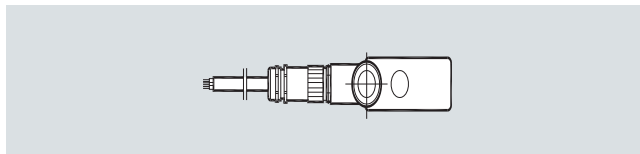
Siemens Flow Instruments recommends installing the sensor in one of the following ways:



Vertical orientation with an upwards flow



Horizontal installation, tubes up



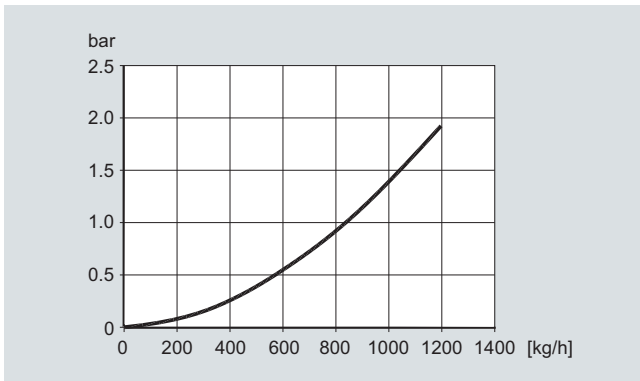
Horizontal installation, tubes sideways

Technical specifications

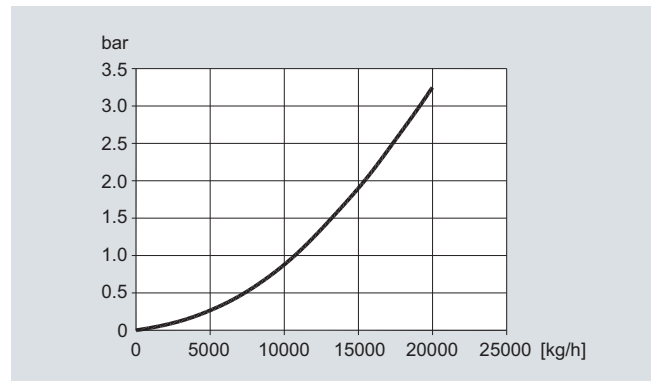
Sensor size	DN 10	DN 15	DN 25
Mass Flow			
Accuracy [% of rate]		± 0.5	
Repeatability [% of rate]		± 0.25	
Max. zero point error [kg/h (lbs/h)]	0.25 (0.55)	1.2 (2.65)	3.0 (6.6)
Measuring range [kg/min (lbs/min)]	0 ... 42 (0 ... 92.6)	0 ... 200 (0 ... 440.9)	0 ... 500 (0 ... 1102.3)
Process temperature	-40 ... +1+25 °C (-40 ... +257 °F)		
Ambient temperature	-40 ... +60 °C (-40 ... +140 °F)		
Temperature error	0.5 °C (0.9 °F)		
Pressure [bar (psi)]	350 (5076)	350 (5076)	214 (3104)
Enclosure grade	IP66/IP67 (EN 60529)		
Material			
Measuring pipe and splitter	Hastelloy C22		
Enclosure and connection (flanges)	1.4404/1.4571 (304)		
Connection thread	VCO ¾ ... 1" NPT ¼ ... 1½"		
Ex approval	II 1/2 G Ex ia IIC T5-T4		
Weight approx.	2.8 kg (6.2 lb)	6.0 kg (13.2 lb)	11 kg (24.2 lb)

Characteristic curves

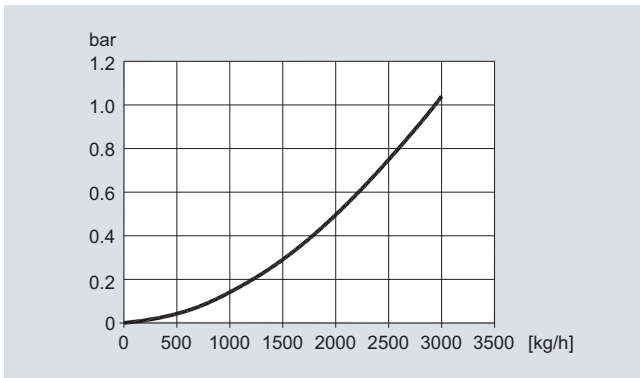
DN 10



DN 25



DN 15



The pressure drop as a function of capacity for CNG with a pressure of 200 bar (2900 psi) and an ambient temperature of 20°C (68°F).

Flow Measurement

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Selection and Ordering data	Order No.
SITRANS F C Flow sensors	
SITRANS FCS200 sensor, without heating jacket	7ME4500 -
Sensor size and material	
DN 10, Hastelloy C-22	2 D
DN 15, Hastelloy C-22	2 E
DN 25, SS mat. no. 1.4571	1 F
Pressure	
PN 200	K
PN 350 (DN 10 and DN 15)	N
Process connection/flange	
½" VCO	7 1
¾" VCO	7 2
1" VCO	7 3
¼" NPT pipe thread	8 1
½" NPT pipe thread	8 2
¾" NPT pipe thread	8 3
1" NPT pipe thread	8 4
1½" NPT pipe thread	8 5
Configuration	
Standard	1
Transmitter	
None	A
Cable	
No cable	A
Calibration	
Standard calibration	1

Selection and Ordering data	Order code
Additional information	
Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Pressure testing certificate PED: 97/23/EC	C11
Material certificate EN 10204-3.1	C12
Welding certificate to EN 287	C13
Factory certificate according to EN 10204 2.2	C14
Factory certificate according to EN 10204 2.1	C15
Tag name plate, stainless steel	Y17

Spare parts

Description	Order No.
Multiple plug for cable mounting	FDK-083H5056
Cable with multiple plug	
5 m (16.4 ft)	FDK-083H3015
Standard blue cable between MASS 6000 and MASS 2100,	10 m (32.8 ft) FDK-083H3016
5 x 2 x 0.34 mm ² twisted and screened in pairs.	25 m (82 ft) FDK-083H3017
Temperature range -20 °C ... +110 °C (-4 °F ... +230 °F)	50 m (164 ft) FDK-083H3018
	75 m (246 ft) FDK-083H3054
	150 m (492 ft) FDK-083H3055
2 kB SENSORPROM unit (Sensor Serial No. and Order No. must be specified by ordering)	FDK-083H4410
Bracket	A5E02590427

Flow Measurement

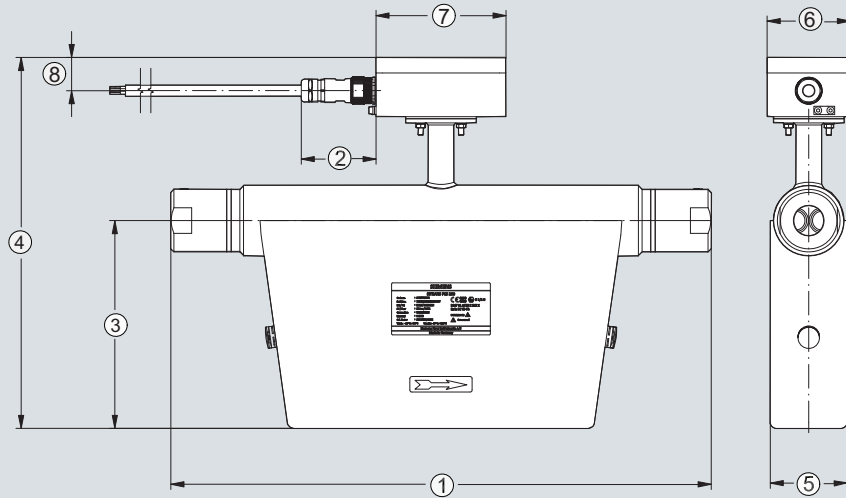
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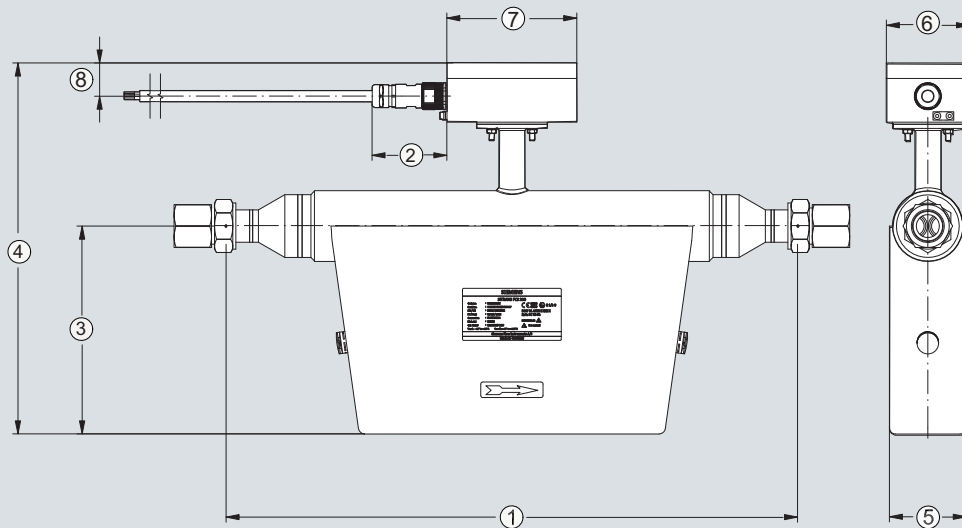
SITRANS FCS200, DN 25

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DN25 - NPT



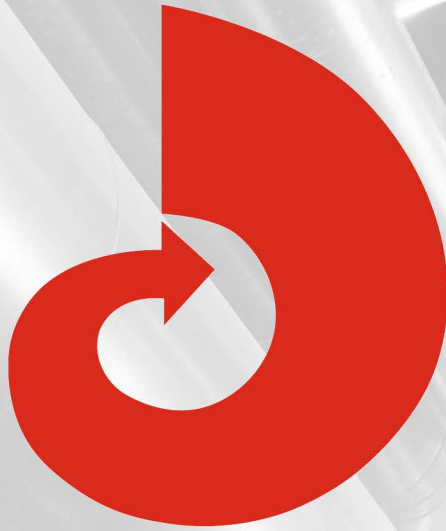
DN25 - VCO



SITRANS FCS200, DN 25, dimensions in mm (inch)

Position	DN 25 with NPT connection mm (inch)	DN 25 with VCO connection mm (inch)
(1)	520 (20.47)	550 (21.65)
(2)	72 (2.84)	72 (2.84)
(3)	200 (7.87)	200 (7.87)
(4)	357 (14.77)	357 (14.77)
(5)	74 (2.91)	74 (2.91)
(6)	80 (3.15)	80 (3.15)
(7)	125 (4.92)	125 (4.92)
(8)	32 (1.26)	32 (1.26)

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Fine Controls (UK) LTD, Bassendale Road, Croft Business Park,
Bromborough, Wirral, CH62 3QL UK
Tel: 0151 343 9966
Email: sales@finecontrols.com