

Overview



The compact flowmeter SITRANS FC310 can be ordered for industrial, hygienic or NAMUR service.

Intended for integration into OEM skids, machines or pre-assembled plant systems, the flowmeter is based on the latest developments within digital signal processing technology - engineered for high measuring performance:

- Fast response to rapid changes in flow
- Fast dosing applications with control in host system
- High immunity against process noise
- High turndown ratio of flowrates
- Suitable for liquid and gas service
- Easy to install, commission and maintain

With all global marine approvals the FC310 is ideal for integration in ship fuel efficiency and environmental measurement systems as well as bunkering solutions.

The FCT010 transmitter delivers true multi-parameter measurements i.e. massflow, density, temperature.

FC410 is available with Modbus RTU (RS-485) multi-drop serial communication.

The flowmeter is supplied with SensorFlash, a micro SD card containing all relevant certificates.

The SITRANS FC310 flowmeter system consists of a SITRANS FCS300 sensor and a SITRANS FCT010 transmitter always compact mounted.

Benefits

- It is compact and light, fitting neatly into dense piping arrangements
- Effective separation of measurement from plant vibration
- Reliable measurements due to high signal to noise ratio
- Short overall length; easy drop-in replacement into most existing installations
- Direct connection to host with high-speed Modbus simplifies machine or skid construction and set-up
- Modbus RS-485 RTU allows simple and easy integration with all Modbus masters with fast update rate of process values

Flow Measurement

SITRANS F C

Flowmeter SITRANS FC310

Technical specifications

Sizes	DN 15 (1/2") DN 25 (1") DN 50 (2") DN 80 (3") DN 100 (4") DN 150 (6")	Process connections	
Accuracy	± 0.10 % or ± 0.20 % Additional ± 0.40 % for gases	• Flanges	EN 1092-1 B1, EN 1092-1 B2, EN 1092-1 D, ANSI/ASME B16.5, JIS B 2220
Repeatability	± 0.05 %	• Pipe threads	ASME B1.20 (NPT) female pipe thread, ISO228-1 G female pipe thread (BSPP)
Flow range (water @ 1 bar pressure loss)		• Hygienic threads	DIN 11851, SMS 1145
• DN 15	4 500 kg/h (163.3 lb/min)	• Hygienic clamps	DIN 32676 serie A
• DN 25	20 500 kg/h (753.2 lb/min)	Approvals	
• DN 50	49 000 kg/h (1 800 lb/min)	• Hazardous area (zone 1)	ATEX, IECEx, EAC Ex, cCSAus NEPSI, EAC
• DN 80	122 000 kg/h (4 483 lb/min)	• Pressure equipment	PED, CRN (in preparation)
• DN 100	273 000 kg (10 031 lb/min)	• Hygienic	EHEDG (DN 25 ... 80) (in preparation)
• DN 150	459 200 kg/h (16 873 lb/min)	• Marine (in preparation)	Germanischer Lloyd/det Norske Veritas, Bureau Veritas, Lloyds of London, American Bureau of Shipping, RINA (Italy)
Power supply	24 V DC ± 20 %; 110 mA	NAMUR	NAMUR-compliant (e.g. NE 21, NE 41 and NE 132)
Weight	4.6 ... 207 kg	Communication	Modbus RS-485 RTU
Material		EMC performance	
• Sensor		Emission	EN 55011/CISPR-11 (Class B)
- Measuring tubes	316L stainless steel or Nickel Alloy C4	Immunity	EN/IEC 61326-1 (Industry)
- Enclosure	304 stainless steel	Mechanical load	18 to 400 Hz random The flow meter will mechanically tolerate 3.17 g RMS in all direc- tions. Flow accuracy cannot be guaranteed under all conditions.
• Transmitter	Aluminum with corrosion-resis- tant coating		
Enclosure rating	IP67		
Pressure ratings			
• Measuring tubes			
- 316L	100 bar (1450 psi)		
- Nickel-Alloy C4	100 bar (1450 psi)		
• Sensor enclosure	No pressure containment		
Temperature ratings			
• Process medium	-50 ... +205 °C (-58 ... +400 °F)		
• Ambient	-40 ... +60 °C (-40 ... +140 °F)		

Selection and Ordering data	Article No.	Order code
SITRANS FC310 Digital Coriolis flowmeter with SITRANS FCS300 standard flow sensor with hygienic and flange/pipe thread connections and compact mounting with FCT010 transmitter	7 ME 4 6 3 1 -	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Sensor size, connector size		
DN 15, DN 10 (½", 3/8")		3 F
DN 15, DN 15 (½", ½")		3 G
DN 15, DN 20 (½", ¾")		3 H
DN 25, DN 20 (1", ¾")		3 K
DN 25, DN 25 (1", 1")		3 L
DN 25, DN 40 (1", 1½")		3 N
DN 50, DN 40 (2", 1½")		4 B
DN 50, DN 50 (2", 2")		4 C
DN 50, DN 65 (2", 2½")		4 D
DN 80, DN 65 (3", 2½")		4 J
DN 80, DN 80 (3", 3")		4 K
DN 80, DN 100 (3", 4")		4 L
DN 100, DN 80 (4", 3")		5 M
DN 100, DN 100 (4", 4")		5 N
DN 100, DN 150 (4", 6")		5 Q
DN 150, DN 100 (6", 4")		6 D
DN 150, DN 150 (6", 6")		6 F
DN 150, DN 200 (6", 8")		6 H
Process connection		
EN 1092-1 B1, PN 16		A 0
EN 1092-1 B1, PN 40		A 1
EN 1092-1 B2, PN 63		A 2
EN 1092-1 B2, PN 100		A 3
EN 1092-1 D, PN 40		A 5
ASME B16.5 RF, class 150		D 1
ASME B16.5 RF, class 300		D 2
ASME B16.5 RF, class 600		D 3
ASME B16.5 RF, class 900 (p- and t-rating as class 600)		D 4
ANSI B16.5-2009, class 1500 (p- and t-rating as class 600)		D 5
ISO 228-1G female pipe thread		E 1
ASME B1.20.1 NPT female pipe thread		E 3
DIN 11851 hygienic screwed		F 1
DIN 32676 (ISO) hygienic clamp serie A		G 1
SMS 1145 hygienic screwed		K 1
JIS B2220/10K		L 2
JIS B2220/20K		L 4
EN 1092-1, PN 16, NAMUR length		N 1
EN 1092-1, PN 40, NAMUR length		N 2
Wetted parts material		
AISI 316L/1.4435/1.4404		1
AISI 316L/1.4435/1.4404 (polished)		2
Nickel-Alloy C4		3
Calibration/Accuracy class		
0.2 % flow, 10 kg/m³ density		0
0.1 % flow, 2 kg/m³ density		1
Mounting style, transmitter housing and material		
Compact, IP67, aluminum		D
Ex approval		
Non-Ex		A
ATEX II 2G zone 1		C
IECEx Gb (zone 1)		F
US (cCSAus), Div 1		L
Canada (cCSAus), class I, zone 1		M
NEPSI		N
INMETRO (in preparation)		P
KCCs (in preparation)		Q
EAC		U
Local User Interface		
Blind		1

Flow Measurement

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Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
Cable glands	
None (replacement sensor)	A00
Metric, no glands	A01
Metric, plastic	A02
Metric, brass/Ni plated	A05
Metric, stainless steel	A06
NPT, no glands	A11
NPT, plastic	A12
NPT, brass/Ni plated	A15
NPT, stainless steel	A16
Metric thread with M12 socket fitted	A20
Software functions and CT approvals	
Standard	B11
I/O configuration Ch1	
Modbus RTU RS-485	E14
I/O configuration Ch2, Ch3 and Ch4	
None	F00

Selection and Ordering data	Order code
Add-on options and accessories	
Please add "-Z" to Article No. and specify Order code(s).	
Certificates	
Certificate EN10204-2.2 confirmation of pressure containing material	C01
Certificate EN10204-3.1 material (wetted parts)	C02
Material certificate EN 10204-3.2 with inspection	C03
Certificate NACE MR0175-2009 + MR0103-2012	C04
Certificate EN10204-2.1 Declaration of compliance with the order	C05
Insp. Certificate EN10204-3.1 for visual, dimensional and functional test	C06
Certificate EN10204-3.1 PMI Positive material ident. of pressure-cont./wetted parts (confirmation only)	C07
Certificate EN10204-3.1 P-test Pressure-test acc. AD2000	C08
Test pack (pressure test, non-destructive welding test, welder & welding procedure certificate)	C09
Certificate EN10204-3.1welding X-ray / Dye-penetration test of weldings (pressure cont.)	C10
Certificate EN10204-2.1 Declaration of accuracy	C11
Certificate EN10204-3.1 PMI Positive material ident. of pressure-cont./wetted parts (including heat analysis)	C12
Customer selected calibration	
DN 15 ... 50, multi-point, 5 flows x 1 pass	D60
DN 15 ... 50, multi-point, 10 flows x 1 pass	D61
DN 80, multi-point, 5 flows x 1 pass	D62
DN 80, multi-point, 10 flows x 1 pass	D63
DN 100, multi-point, 5 flows x 1 pass	D64
DN 100, multi-point, 10 flows x 1 pass	D65
DN 150, multi-point, 5 flows x 1 pass	D66
DN 150, multi-point, 8 flows x 1 pass	D67
Cable	
(M12 versions of cable have a connector on both ends)	
None	L50
5 m (16.4 ft), standard with M12 connectors fitted	L51
5 m (16.4 ft), standard, without plugs	L52
10 m (32.8 ft) standard with M12 connectors fitted	L55
10 m (32.8 ft), standard, without plugs	L56
25 m (82 ft), standard with M12 connectors fitted	L59
25 m (82 ft), standard, without plugs	L60
50 m (164 ft), standard with M12 connectors fitted	L63
50 m (164 ft), standard, without plugs	L64
75 m (246 ft), standard with M12 connectors fitted	L67
75 m (246 ft), standard, without plugs	L68
Sensor options	
FCS300 Marine approval (in preparation)	S22
Additional data	
Please add "-Z" to Article No. and specify Order code(s) and plain text.	
Tag name	
Tag name plate, stainless steel	Y17

Operating instructions for SITRANS FC310

Description	Article No.
English	
• for firmware V 4.0 and onwards	A5E44036384
German	
• for firmware V 4.0 and onwards	TBD

All literature is available to download for free, in a range of languages, at www.siemens.com/processinstrumentation/documentation