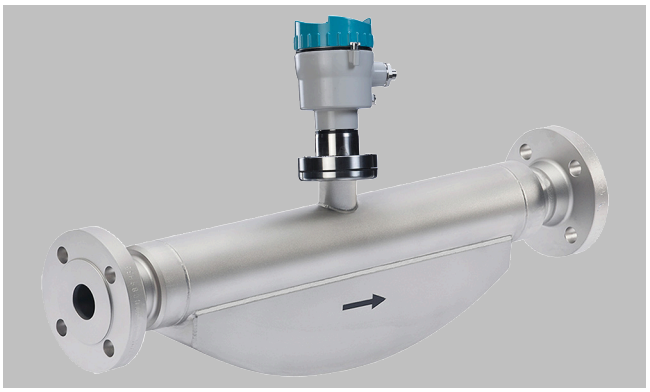
Overview



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.

FC310 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

Selection and ordering data

SITRANS FC310 Digital coriolis flowmeter with SITRANS FCS300 standard flow sensor with hygienic and flange/pipe thread connections and compact mounting with FCT010 transmitter	Article No. 7ME4631-										Order code		
	●	●	●	●	●	-	●	●	●	●	●	●	●
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 hygienic clamp Row 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			
KCs										Q			

Selection and ordering data (continued)

SITRANS FC310 Digital coriolis flowmeter with SITRANS FCS300 standard flow sensor with hygienic and flange/pipe thread connections and compact mounting with FCT010 transmitter	Article No. 7ME4631- ● ● ● ● ● - ● ● ● ●	Order code ● ● ●
EAC Ex	U	
Local User Interface		
Blind	1	

	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**
Sofware functions and CT approvals	
Standard	**B11**
I/O configuration Ch1	
Modbus RTU RS 485	**E14**
I/O configuration Ch2, Ch3 and Ch4	
None	**F00**
Add-on options and accessories Please add "**-Z**" to Article No. and specify Order code(s).	
Certificates	
Certificate EN 10204-2.2 confirmation of pressure containing material	**C01**
Certificate EN 10204-3.1 material (wetted parts)	**C02**
Certificate NACE MR0175-2009 + MR0103-2012	**C04**
Certificate EN 10204-2.1 Declaration of compliance with the order	**C05**
Insp. Certificate EN 10204-3.1 for visual, dimensional and functional test	**C06**
Certificate EN 10204-3.1 PMI Positive material ident. of pressure-cont./wetted parts (confirmation only)	**C07**
Certificate EN 10204-3.1 P-test Pressure-test acc. AD2000	**C08**
Test pack (pressure test, non-destructive welding test, welder & welding procedure certificate)	**C09**
Certificate EN 10204-3.1 welding X-ray / Dye-penetration test of weldings (pressure cont.)	**C10**
Certificate EN 10204-2.1 Declaration of accuracy	**C11**
Certificate EN 10204-3.1 PMI Positive material ident. of pressure-cont./wetted parts (including heat analysis)	**C12**
Customer selected calibration	
DN 15 ... 50, multi-point, 5 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D60**
DN 15 ... 50, multi-point, 10 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D61**

Selection and ordering data (continued)

	Order code
DN 80, multi-point, 5 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D62**
DN 80, multi-point, 10 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D63**
DN 100, multi-point, 5 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D64**
DN 100, multi-point, 10 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D65**
DN 150, multi-point, 5 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D66**
DN 150, multi-point, 8 flows × 1 pass Flow 10 ... 100 % of Q_{norm}	**D67**
Cable	
None	**L50**
5 m (16.4 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted	**L51**
5 m (16.4 ft), sensor cable, 4 wire, without plugs for terminal connection	**L52**
5 m (16.4 ft), sensor cable, 4 wire, with 1 pc M12 plug mounted	**L53**
10 m (32.8 ft) sensor cable, 4 wire, with 2 pcs M12 plugs mounted	**L55**
10 m (32.8 ft), sensor cable, 4 wire, without plugs for terminal connection	**L56**
10 m (32.8 ft), sensor cable, 4 wire, with 1 pc M12 plug mounted	**L57**
25 m (82 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted	**L59**
25 m (82 ft), sensor cable, 4 wire, without plugs for terminal connection	**L60**
25 m (82 ft), sensor cable, 4 wire, with 1 pc M12 plug mounted	**L61**
50 m (164 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted	**L63**
50 m (164 ft), sensor cable, 4 wire, without plugs for terminal connection	**L64**
50 m (164 ft), sensor cable, 4 wire, with 1 pc M12 plug mounted	**L65**
75 m (246 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted	**L67**
75 m (246 ft), sensor cable, 4 wire, without plugs for terminal connection	**L68**
75 m (246 ft), sensor cable, 4 wire, with 1 pc M12 plug mounted	**L69**
Sensor options	
FCS300 marine approval	**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

Selection and ordering data (continued)

Accessories

Description	Article No.	
SITRANS I300 – Isolating power supply – Ex barrier	A5E39832532	

Technical specifications

SITRANS FC310	
Sizes	DN 15 (½") DN 25 (1") DN 50 (2") DN 80 (3") DN 100 (4") DN 150 (6")
Accuracy	± 0.10 % or ± 0.20 % Addional ± 0.40 % for gases
Repeatability	± 0.05 %
Flow range (water @ 1 bar pressure loss)	
• DN 15	4 500 kg/h (163.3 lb/min)
• DN 25	20 500 kg/h (753.2 lb/min)
• DN 50	49 000 kg/h (1 800 lb/min)
• DN 80	122 000 kg/h (4 483 lb/min)
• DN 100	273 000 kg/h (10 031 lb/min)
• DN 150	459 200 kg/h (16 873 lb/min)
Power supply	12-27 V DC; 1.1 W
Weight	4.6 ... 207 kg
Material	
• Sensor	
- Measuring tubes	316L stainless steel or nickel alloy C4
- Enclosure	304 stainless steel
• Transmitter	Aluminum with corrosion-resistant coating class C4
Enclosure rating	IP67
Pressure ratings	
• Measuring tubes	
- 316L	100 bar (1 450 psi)
- Nickel alloy C4	100 bar (1 450 psi)
• Sensor enclosure	No pressure containment
Temperature ratings	
• Process medium	-50 ... +205 °C (-58 ... +400 °F)
• Ambient	-40 ... +60 °C (-40 ... +140 °F)
Process connections	
• Flanges	EN 1092-1 B1, EN 1092-1 B2, EN 1092-1 D, ANSI/ASME B16.5, JIS B 2220
• Pipe threads	ASME B1.20 (NPT) female pipe thread, ISO 228-1 G female pipe thread (BSPP)
• Hygienic threads	DIN 11851, SMS 1145
• Hygienic clamps	DIN 32676 Hygenic Clamp Row A
Approvals	
• Hazardous area (zone 1)	ATEX, IECEx, EAC Ex, cCSAus, NEPSI, EAC Ex No dust approval
• Pressure equipment	PED, CRN (in preparation)
• Marine	Germanischer Lloyd/det Norske Veritas, Bureau Veritas, Lloyds of London, American Bureau of Shipping, RINA (Italy)
NAMUR	NAMUR-compliant (e.g. NE 21, NE 41 and NE 132)
Communication	Modbus RS 485 RTU
EMC performance	
Emission	EN 55011/CISPR-11 (Class B)
Immunity	EN/IEC 61326-1 (Industry)
Mechanical load	18 ... 400 Hz random The flowmeter will mechanically tolerate 3.17 g RMS in all directions. Flow accuracy cannot be guaranteed under all conditions.