Flowmeter SITRANS FC330

Overview

The complete flowmeter system SITRANS FC330 can be ordered for standard, hygienic or NAMUR service.

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
- High immunity against process noise
- High turndown ratio of flowrates
- Suitable for liquid and gas service
- Easy to install, commission and maintain

FC330 is available with current output HART 7.5, Modbus RS-485 RTU, PROFIBUS DP or PROFIBUS PA as standard on Channel 1. Additional functions can be freely configured for analog, pulse, frequency, relay or status output or binary input.

The transmitter comes with a user-configurable graphical display and SensorFlash, a micro SD card for configuration backup, firmware update and data storage.

The SITRANS FC330 flowmeter system consists of a SITRANS FCS300 sensor and a SITRANS FCT030 transmitter.

Benefits

- It is compact and light, fitting neatly into dense piping arrangements
- Easy maintenance because modules can be exchanged rapidly
- Effective separation of measurement from plant vibration
- Highly secure operation in safety critical applications
- Non-volatile memory of all setup and operation data
- Reliable measurements due to high signal to noise ratio
- Secure, digital transfer of measurement data from the sensor
- Short overall length; easy drop-in replacement into most existing installations

Technical specifications

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 % for liquids additional ±0.40 for gases
Repeatability	± 0.05 %
Flow range (liquids) (water @ 1 bar pressure loss) (Q_{nom})	
• 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 (10 031 lb/min)
• DN 150	459 200 kg/h (16 873 lb/min)
Architecture	Compact or remote configuration
Display	Full graphical display, 240 x 160 pixels with selection of 6 languages
Power supply	20 ... 27 V DC ± 10%; 100 ... 240 V AC ± 10 %, 47 ... 63 Hz ± 10%
Weight	4.6 ... 212 kg
Material	
• Sensor	
- Wetted parts	316L stainless steel or Nickel Alloy C4
- Enclosure	304 stainless steel
• Transmitter	Aluminum with corrosion-resistant 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)[1]
• Display	-20 ... +60 °C (-4 ... +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, ISO228-1 G female pipe thread (BSPP)
• Hygienic threads	DIN 11851, SMS 1145
• Hygienic clamps	DIN 32676 serie A
Approvals	
• Hazardous area (zone 1)	ATEX, IECEx, EAC Ex, CSA, cCSAus, NEPSI, EAC
• Pressure equipment	PED, CRN (in preparation)
• Hygienic	EHEDG (DN 25 ... DN 80) (in preparation)
• Custody transfer	OIML R 117, NTEP (in preparation)
• Operational safety (compact system only NAMUR 7ME471)	SIL 2 Single (in preparation) SIL 3 Redundant system (in preparation)
NAMUR	NAMUR-compliant (e.g. NE 21, NE 41, NE 107 and NE 132)
I/O	Up to 4 channels combining analog, relay or digital outputs and binary input
Communication	HART PROFIBUS PA PROFIBUS DP Modbus RTU (RS-485)
EMC performance	
Emission	EN 55011/CISPR-11 (Class A)
Immunity	EN/IEC 61326-1 (Industry)
Mechanical load	18 to 400 Hz random The flow meter will mechanically tolerate 3.17 g RMS in all directions. Flow accuracy cannot be guaranteed under all conditions.

[1] If operating outdoors, avoid direct sunlight, paritcularly in warm climatic regions.

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Selection and Ordering data	Article No.	Order code
SITRANS FC330 Digital Coriolis flowmeter with SITRANS FCS300 standard flow sensor compact or remote mounting with FCT030 transmitter ↗	7ME4633-	-
↗ 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")	3F	
DN 15, DN 15 (½", ½")	3G	
DN 15, DN 20 (½", ¾")	3H	
DN 25, DN 20 (1", ¾")	3K	
DN 25, DN 25 (1", 1")	3L	
DN 25, DN 40 (1", 1½")	3N	
DN 50, DN 40 (2", 1½")	4B	
DN 50, DN 50 (2", 2")	4C	
DN 50, DN 65 (2", 2½")	4D	
DN 80, DN 65 (3", 2½")	4J	
DN 80, DN 80 (3", 3")	4K	
DN 80, DN 100 (3", 4")	4L	
DN 100, DN 80 (4", 3")	5M	
DN 100, DN 100 (4", 4")	5N	
DN 100, DN 150 (4", 6")	5Q	
DN 150, DN 100 (6", 4")	6D	
DN 150, DN 150 (6", 6")	6F	
DN 150, DN 200 (6", 8")	6H	
Process connection		
EN 1092-1 B1, PN 16	A0	
EN 1092-1 B1, PN 40	A1	
EN 1092-1 B2, PN 63	A2	
EN 1092-1 B2, PN 100	A3	
EN 1092-1 D, PN 40	A5	
ASME B16.5 RF, class 150	D1	
ASME B16.5 RF, class 300	D2	
ASME B16.5 RF, class 600	D3	
ASME B16.5 RF, class 900 (p- and t-rating as class 600)	D4	
ASME B16.5 RF, class 1500 (p- and t-rating as class 600)	D5	
ISO 228-1G female pipe thread	E1	
ASME B1.20.1 NPT female pipe thread	E3	
DIN 11851 hygienic screwed	F1	
DIN 32676 (ISO) clamp serie A	G2	
SMS 1145 hygienic screwed	K1	
JIS B2220/10K	L2	
JIS B2220/20K	L4	
EN 1092-1, PN 16, NAMUR length	N1	
EN 1092-1, PN 40, NAMUR length	N2	
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	
Standard fraction (with density 2 kg/m³)	8	
Customer selected fraction	9	N0Y

Selection and Ordering data	Article No.	Order code
SITRANS FC330 Digital Coriolis flowmeter with SITRANS FCS300 standard flow sensor compact or remote mounting with FCT030 transmitter	**7ME4633 -**	
Mounting style, transmitter housing and material		
None (replacement sensor)		**A**
Compact, IP67 fieldmount, aluminum		**D**
Remote, IP67 fieldmount, aluminum, M12		**G**
Remote, IP67 fieldmount, aluminum, T/Box		**K**
Remote, IP67, wall mount, aluminium (in preparation)		**U**
Ex approval (depending on variant)		
Non-Ex		**A**
ATEX (zone 1)		**C**
IECEx (zone 1)		**F**
US (cCSAus), Div 1		**L**
Canada (cCSAus), zone 1		**M**
NEPSI		**N**
INMETRO (in preparation)		**P**
KCC (in preparation)		**Q**
EAC		**U**
Local User Interface		
None (replacement sensor, DSL only)		**0**
Blind		**1**
Graphical, 240 x 160 pxl		**3**

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, Nylon, limited to -20 °C/-4 °F	**A02**
Metric, brass/Ni plated	**A05**
Metric, stainless steel	**A06**
NPT, no glands	**A11**
NPT, Nylon, limited to -20 °C/-4 °F	**A12**
NPT, brass/Ni plated	**A15**
NPT, stainless steel	**A16**
Metric thread with M12 socket fitted	**A20**
Sofware functions and CT approvals	
None (replacement sensor)	**B10**
Standard	**B11**
CT OIML R 117 (in preparation)	**B31**
CT NTEP (in preparation)	**B52**
I/O configuration Ch1	
No output channel	**E00**
4 ... 20 mA HART Active/Passive (non-Ex)	**E02**
Ca 4 ... 20 mA HART active (Ex)	**E06**
Ca 4 ... 20 mA HART passive (Ex)	**E07**
PROFIBUS PA	**E10**
PROFIBUS DP (non-Ex)	**E11**
Modbus RTU RS-485	**E14**

Selection and Ordering data	Order code
I/O configuration Ch2, Ch3 and Ch4	
None	**F00**
Non Ex: Sig O, None, None	**F01**
Non Ex: Sig O, Sig I/O, None	**F02**
Non Ex: Sig O, Sig I/O, Sig I/O	**F03**
Non Ex: Sig O, Sig I/O, R	**F04**
Non Ex: Sig O, R, R	**F05**
Non Ex: Sig O, R, None	**F06**
Ex: pSig O, None, None	**F11**
Ex: pSig O, pSig I/O, None	**F12**
Ex: pSig O, pSig I/O, pSig I/O	**F13**
Ex: pSig O, pSig I/O, R	**F14**
Ex: pSig O, R, R	**F15**
Ex: pSig O, R, None	**F16**
Ex: aSig O, None, None	**F21**
Ex: aSig O, aSig I/O, None	**F22**
Ex: aSig O, aSig I/O, aSig I/O	**F23**
Ex: aSig O, aSig I/O, R	**F24**
Ex: aSig O, R, R	**F25**
Ex: aSig O, R, None	**F26**

Notes on I/O configurations:
a or p suffix: The I/O module is selected at ordering with either active or passive function.
Signal: The output can be selected for Current (0 or 4 to 20 mA), frequency or pulse function in the menu.
I: Discrete status input to the flowmeter. Functions are selected in the menu including 'Freeze output', 'Reset totalizer' (only CH3&4).
R: Relay output for discrete status reporting. Function is selected in the menu, including 'Error', 'High flow warning'.
The MLFB structure for FC430 systems must be filled to **this level**, including **"-Z"** options A.., B.., E.. and F..

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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	
None	**L50**
5 m (16.4 ft), standard with M12 connectors fitted	**L51**
5 m (16.4 ft), standard	**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**
SD-Card accessibility via USB (not allowed in USA by Patent)	
Mass storage enabled	**S30**
Region-specific approvals and certificates	
South Korea (KCC) (in preparation)	**W28**
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 FC330

Description	Article No.
English	
• for firmware V 4.0 and onwards	**A5E44030648**
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