

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 RS485 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

Flow Measurement

SITRANS F C

Flowmeter SITRANS FC330

Technical specifications

Sizes	DN 15 (1/2") 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 (DN 15 ... 50)	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, INMETRO, EAC (in preparation)
• 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 prepa- ration)
NAMUR	NAMUR-compliant (e.g. NE 21, NE 41, NE 107 and NE 132)
I/O	Up to 4 channels combining ana- log, 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 tol- erate 3.17 g RMS in all directions. Flow accuracy cannot be guaran- teed under all conditions.

¹⁾ If operating outdoors, avoid direct sunlight, particularly in warm climatic regions.

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	7 ME 4 6 3 3 -	
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
ASME B16.5 RF, 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) clamp serie A		G 2
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
Standard fraction (with density 2 kg/m³)		8
Customer selected fraction		9
		N O Y

Flow Measurement

SITRANS F C

Flowmeter SITRANS FC330

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	7 ME 4 6 3 3 -	
Mounting style, transmitter housing and material		A D G K U
None (replacement sensor)		
Compact, IP67 fieldmount, aluminum		
Remote, IP67 fieldmount, aluminum, M12		
Remote, IP67 fieldmount, aluminum, T/Box		
Remote, IP67, wall mount, aluminium		
Ex approval (depending on variant)		A C F L M N P Q U
Non-Ex		
ATEX (zone 1)		
IECEX (zone 1)		
US (cCSAus), Div 1		
Canada (cCSAus), zone 1		
NEPSI (in preparation)		
INMETRO (in preparation)		
KCs (in preparation)		
EAC (in preparation)		
Local User Interface		0 1 3
None (replacement sensor, DSL only)		
Blind		
Graphical, 240 x 160 pxl		

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
Software 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.	

Selection and Ordering data	Order code
Add-on options and accessories	
Please add "-Z" to Article No. and specify Order code(s).	
Certificates	
Factory certificate to EN 10204 -2.2	C01
Material certificate EN 10204-3.1 with inspection	C02
Material certificate EN 10204-3.2 with inspection	C03
NACE MR0175/EN 10204-3.1	C04
Declaration of conformity certificate EN 10204-2.1	C05
Inspection certificate EN 10204-3.1 incl. dimension and function test	C06
Inspection certificate EN 10204-3.1 with PMI	C07
Pressure test acc. AD2000	C08
Test package (Pressure, NDT, WPS, WPQS)	C09
Inspection certificate to EN 10204 3.1/NDE-weld	C10
Certificate of accuracy acc. EN 10204 2.1	C11
Inspection certificate to EN 10204 3.1 with PMI (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	A5E44030648
• for firmware V 4.0 and onwards	
German	TBD
• for firmware V 4.0 and onwards	

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