Overview

The complete flowmeter system SITRANS FC consist of a new FCS400 sensor in sizes DN 15 to DN 50 mm and a FCT030 multichannel/multifunctional in compact or remote versions. 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
- Aerated flow filtering system, for advanced filtering of fluids with gas or air bubbles
- Build in Data logger for all process variables and status messages (FCT030)
- Build in Batch functionality (FCT030)

The SITRANS FC430 is available with current output HART 7.5, Modbus RS 485 RTU, PROFIBUS DP or PROFIBUS PA as standard on Channel 1. Additional I/O 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.

Benefits

- It is truely 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
- Shortest overall length; easy drop-in replacement into most existing installations
- Marine Application: fuel management & consumption; bunkering solutions; boiler control

Selection and ordering data

SITRANS FC430 digital coriolis flowmeter with SITRANS FCS400 standard flow sensor compact or remote mounting with FCT030 transmitter	Article No. 7ME4613-	●	●	●	●	●	-	●	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Sensor size, connector size											
DN 15, DN 6 (½", ¼")		3	E								
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 15, DN 25 (½", 1")		3	J								
DN 25, DN 25 (1", 1")		3	L								
DN 25, DN 32 (1", 1¼")		3	M								
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								
Process connection											
EN 1092-1 B1, PN 40				A	1						
EN 1092-1 B1, PN 63				A	2						
EN 1092-1 B1, PN 100				A	3						
EN 1092-1 D, PN 40				A	5						
EN 1092-1 D, PN 63				A	6						
EN 1092-1 D, PN 100				A	7						
EN 1092-1 D, PN 160 (max operation pressure 100 bar)				A	8						
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						
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, ASME, Form C (inch) (tri-clamp)				G	1						
DIN 11864-1 GS Form A Row A, Form A = O-ring type hygienic, aseptic thread connector, hygienic class H3				H	1						
DIN 11864-2 BF Form A Row A, Form A = O-ring type hygienic, aseptic flange connector, hygienic class H3				H	2						
DIN 11864-3 BKS Form A Row A, Form A = O-ring type hygienic, aseptic clamp connector, hygienic class H3				H	3						
ISO 2852 hygienic clamp				J	1						
ISO 2853 hygienic thread				J	2						
SMS 1145 hygienic screwed				K	1						
Quick connect				K	5						
JIS B2220/10K				L	2						
JIS B2220/20K				L	4						
JIS B2220/40K				L	6						
JIS B2220/63K				L	7						
Wetted parts material											
AISI 316L/1.4435/1.4404						1					
AISI 316L/1.4435/1.4404 (polished; EHEDG; 3A) (in preparation)						2					
Calibration/Accuracy class											
0.1 % flow, 5 kg/m³ density								1			
0.1 % flow, 0.5 kg/m³ density								4			
Standard fraction (with density 0.5 kg/m³)								8			
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									U		
Ex approval (depending on variant)											
Non-Ex										A	
ATEX (zone 1 / zone 21)										C	
IECEx (zone 1 / zone 21)										F	
US (cCSAus), Div 1										L	
Canada (cCSAus), zone 1										M	

Selection and ordering data (continued)

SITRANS FC430 digital coriolis flowmeter with SITRANS FCS400 standard flow sensor compact or remote mounting with FCT030 transmitter	Article No. 7ME4613-	●	●	●	●	●	-	●	●	●	●
NEPSI										N	
INMETRO (in preparation)										P	
KCs										Q	
EAC Ex										U	
Local User Interface											
None (replacement sensor, DSL only)											0
Blind											1
Graphical, 240 × 160 pxl											3

	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**
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**
I/O configuration Ch2 (O), Ch3 (I/O) and Ch4 (I/O)	
None	**F00**
• Non Ex: Sig O, None, None. Active/passive menu selected	**F01**
• Non Ex: Sig O, Sig I/O, None. Active/passive menu selected	**F02**
• Non Ex: Sig O, Sig I/O, Sig I/O. Active/passive menu selected	**F03**
• Non Ex: Sig O, Sig I/O, R. Active/passive menu selected	**F04**
• Non Ex: Sig O, R, R. Active/passive menu selected	**F05**
• Non Ex: Sig O, R, None. Active/passive menu selected	**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**

Selection and ordering data (continued)

	Order code
• 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 FC330 systems must be filled to **this level**, including "**-Z**" options A.., B.., E.. and F.	
Add-on options and accessories Please add "**-Z**" to Article No. and specify Order code(s).	
Certificates	
Pressure testing certificate CRN	**C01**
Pressure testing certificate PED	**C02**
Material certificate EN 10204-3.1 (wetted parts)	**C05**
Welding inspection certificate	**C07**
Factory certificate EN 10204 2.1	**C10**
Factory certificate EN 10204 2.2	**C11**
Cleaned for oil and grease	**C50**
Customer selected calibration	
Multi-point (5 flows × 2 pass) Flow 10 ... 100 % of Q_{norm}	**Y60**
Multi-point (10 flows × 1 pass) Flow 10 ... 100 % of Q_{norm}	**Y61**
Multi-point calibration (5 flows × 2 pass) Flow 2 ... 20 % of Q_{norm}	**Y69**
Multi-point calibration (5 flows × 2 pass) Flow 5 ... 50 % of Q_{norm}	**Y71**
Multi-point calibration (10 flows × 1 pass) Flow 2 ... 20 % of Q_{norm}	**Y72**
Multi-point calibration (10 flows × 1 pass) Flow 5 ... 50 % of Q_{norm}	**Y73**
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**
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**
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**
50 m (164 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted	**L63**

Selection and ordering data (continued)

	Order code
50 m (164 ft), sensor cable, 4 wire, without plugs for terminal connection	**L64**
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**
Sensor options	
FCS400 marine approval	**S22**
SD-Card accessibility via USB (not allowed in USA by Patent)	
Mass storage enabled	**S30**
Region-specific approvals and certificates	
South Korea (KCC)	**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 FC430

Description	Article No.
English	
• for firmware V 4.0 and onwards	**A5E39789392**
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

Heating jacket for FCS400

Description	Article No.	
Heating jacket, indoor use, 0 ... 200 °C (32 ...392 °F) max. temperature. Complete with 5 m (16.4 ft) high temperature cable fitted. Dedicated plug connection to included controller		
• 230 V AC		
- DN 15 electric	**A5E33035287**	
- DN 25 electric	**A5E33035324**	
- DN 50 electric	**A5E33035325**	
• 115 V AC		
- DN 15 electric	**A5E32877520**	
- DN 25 electric	**A5E32877556**	
- DN 50 electric	**A5E32877557**	
Heating jacket controller, IP65. Digital display for 0 ... 200 °C (32 ...392 °F) control setpoint		
• 230 V AC	**A5E03839193**	
• 115 V AC	**A5E03839194**	

Technical specifications

SITRANS FC430	
Sizes	DN 15 (½") DN 25 (1") DN 50 (2")
Accuracy	± 0.10 %
Repeatability	± 0.05 %
Flow range (liquids) Q_{nom} (water @ 1 bar pressure loss)	
• DN 15 (½")	3 700 kg/h (8 157 lb/h)
• DN 25 (1")	11 500 kg/h (25 353 lb/h)
• DN 50 (2")	52 000 kg/h (114 640 lb/h)
Architecture	Compact or remote configuration
Display	Full graphical display, 240 × 160 pixels with selection of 6 languages
Power supply	20 ... 90 V DC ± 10 %; 100 ... 240 V AC ± 10 %, 47 ... 63 Hz ± 10 %
Materials	
• Sensor	
- Wetted parts	316L stainless steel
- Enclosure	304 stainless steel
• Transmitter	Aluminum with corrosion-resistant coating class C4
Enclosure rating	IP67[1)]
Pressure ratings	
• Measuring tubes	
- 316L	100 bar (1 450 psi)
- Sensore enclosure	20 bar (DN 15, DN 25) 17 bar (DN 50)
• Sensor enclosure burst pressure	>160 bar (depending on size)
Temperature ratings	
• Process medium	
- DN 15 ... DN 50	-50 ... +200 °C (-58 ... +392 °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 D, ANSI/ASME B16.5, JIS B 2220, DIN 11864-2
• Pipe threads	ASME B1.20 (NPT), ISO 228-1 G (BSPP), VCO Quick-connect
• Hygienic threads	DIN 11851, DIN 11864-1A, ISO 2853, SMS 1145
• Hygienic clamps	DIN 11864-3A, DIN 32676-C Tri-clamp, ISO 2852
Approvals	
• Hazardous area	ATEX, IECEx, EAC Ex, NEPSI, CSA, cCSA us, KCs
• Pressure equipment	PED, CRN
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 ... 400 Hz random The flowmeter will mechanically tolerate 3.17 g RMS in all directions. Flow accuracy cannot be guaranteed under all conditions.

Technical specifications (continued)

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