

Overview



The compact flowmeter SITRANS FC410 is available in sizes DN 15, DN 25 and DN 50 for standard and hygienic applications.

Intended for integration into OEM skids, machines or pre-assembled plant systems. The sensor design is the marked leader in compact design which makes it easy to integrate in the compact skids. 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
- Markeds most compact sensor design
- Sensor with sanitary EHEDG and 3 A certification (in preparation)
- 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 FC410 is ideal for integration in ship fuel efficiency and environmental measurement systems. 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 FC410 flowmeter system consists of a SITRANS FCS400 sensor and a SITRANS FCT010 transmitter always compact mounted.

Benefits

- It is truly compact and light, fitting neatly into dense piping arrangements
- Easy maintenance because modules can be exchanged rapidly
- Effective separation of measurement from plant vibration
- Reliable measurements due to high signal to noise ratio
- Shortest 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

Technical specifications

SITRANS FC410	
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 configuration
Display	Full graphical display, 240 × 160 pixels with selection of 6 languages
Power supply	12 ... 27 V DC; 1.1 W
Materials	<ul style="list-style-type: none"> • Sensor 316L stainless steel - Wetted parts 304 stainless steel - Enclosure Aluminum with corrosion-resistant coating class C4 • Transmitter
Enclosure rating	IP67
Pressure ratings	<ul style="list-style-type: none"> • Measuring tubes <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> • Process medium <ul style="list-style-type: none"> - DN 15 ... DN 50 -50 ... +200 °C (-58 ... +392 °F) • Ambient -40 ... +60 °C (-40 ... +140 °F)¹⁾
Process connections	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Hazardous area ATEX, IECEx, EAC Ex, NEPSI, CSA, cCSA us • Pressure equipment PED, CRN • Hygienic 3A, EHEDG (in preparation)
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	Modbus RTU (RS 485)
EMC performance	<ul style="list-style-type: none"> • Emission EN 55011/CISPR-11 (Class A) • Immunity EN/IEC 61326-1 (Industry)
Mechanical load	18 ... 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, particularly in warm climatic regions.

Flow Measurement

SITRANS FC (Coriolis)

Sensors and Flowmeter systems

SITRANS FC410 flowmeter for OEM customers

Selection and ordering data

Article No.

Article No.

SITRANS FC410 digital coriolis flowmeter with SITRANS FCS400 standard flow sensor compact or remote mounting with FCT010 transmitter

7ME4611-

Ord.
code

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")
DN 15, DN 10 (½", 3/8")
DN 15, DN 15 (½", ½")
DN 15, DN 20 (½", ¾")
DN 15, DN 25 (½", 1")
DN 25, DN 25 (1", 1")
DN 25, DN 32 (1", 1¼")
DN 25, DN 40 (1", 1½")
DN 50, DN 40 (2", 1½")
DN 50, DN 50 (2", 2")
DN 50, DN 65 (2", 2½")

3 E
3 F
3 G
3 H
3 J
3 L
3 M
3 N
4 B
4 C
4 D

Process connection

EN 1092-1 B1, PN 16
EN 1092-1 B1, PN 40
EN 1092-1 B1, PN 63
EN 1092-1 B1, PN 100
EN 1092-1 D, PN 40
EN 1092-1 D, PN 63
EN 1092-1 D, PN 100
EN 1092-1 D, PN 160
(max operation pressure 100 bar)
ASME B16.5 RF, Class 150
ASME B16.5 RF, Class 300
ASME B16.5 RF, Class 600
ASME B16.5 RF, Class 900
(p- and t-rating as Class 600)
ISO 228-1G female pipe thread
ASME B1.20.1 NPT female pipe thread
DIN 11851 hygienic screwed
DIN 32676, ASME, Form C (inch)
(tri-clamp)
DIN 11864-1 GS Form A Row A,
Form A = O-ring type hygienic, aseptic
thread connector, hygienic class H3
DIN 11864-2 BF Form A Row A, Form A =
O-ring type hygienic, aseptic flange con-
nector, hygienic class H3
DIN 11864-3 BKS Form A Row A, Form A =
O-ring type hygienic, aseptic clamp con-
nector, hygienic class H3
ISO 2852 hygienic clamp
ISO 2853 hygienic thread
SMS 1145 hygienic screwed
Quick connect
JIS B2220/10K
JIS B2220/20K
JIS B2220/40K
JIS B2220/63K

A 0
A 1
A 2
A 3
A 5
A 6
A 7
A 8
D 1
D 2
D 3
D 4
E 1
E 3
F 1
G 1
H 1
H 2
H 3
J 1
J 2
K 1
K 5
L 2
L 4
L 6
L 7

SITRANS FC410 digital coriolis flowmeter with SITRANS FCS400 standard flow sensor compact or remote mounting with FCT010 transmitter

7ME4611-

Ord.
code

Wetted parts material

AISI 316L/1.4435/1.4404
AISI 316L/1.4435/1.4404 (polished;
EHEDG; 3A) (in preparation)

Calibration/Accuracy class

0.1 % flow, 5 kg/m³ density
0.1 % flow, 0.5 kg/m³ density

Mounting style, transmitter housing and material

None (replacement sensor)
Compact, IP67 fieldmount, aluminum

Ex approval (depending on variant)

Non-Ex
ATEX (zone 1 / zone 21)
IECEx (zone 1 / zone 21)
US (cCSAus), Div 1
Canada (cCSAus), zone 1
NEPSI
INMETRO (in preparation)
KCC (in preparation)
EAC

Local User Interface

Blind

1
2
1
4
A
D
A
C
F
L
M
N
P
Q
U
1

Selection and ordering data	Order code	Order code
Further designs Please add "-Z" to Article No. and specify Order code(s).		Further designs Please add "-Z" to Article No. and specify Order code(s).
Cable glands		
None (replacement sensor)	A00	25 m (82 ft), sensor cable, 4 wire, without plugs for terminal connection L60
Metric, no glands	A01	25 m (82 ft), sensor cable, 4 wire, with 1 pc M12 plugs mounted L61
Metric, plastic	A02	50 m (164 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted L63
Metric, brass/Ni plated	A05	50 m (164 ft), sensor cable, 4 wire, without plugs for terminal connection L64
Metric, stainless steel	A06	50 m (164 ft), sensor cable, 4 wire, with 1 pc M12 plugs mounted L65
NPT, no glands	A11	75 m (246 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted L67
NPT, plastic	A12	75 m (246 ft), sensor cable, 4 wire, without plugs for terminal connection L68
NPT, brass/Ni plated	A15	75 m (246 ft), sensor cable, 4 wire, with 1 pc M12 plugs mounted L69
NPT, stainless steel	A16	
Metric thread with M12 socket fitted	A20	
Software functions and CT approvals		Sensor options
Standard	B11	FCS400 marine approval S22
I/O configuration Ch1		Region-specific approvals and certificates
Modbus RTU RS 485	E14	South Korea (KCC) W28
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).		Additional data Please add "-Z" to Article No. and specify Order code(s) and plain text.
Certificates		Tag name
Pressure testing certificate CRN	C01	Tag name plate, stainless steel Y17
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		Operating instructions for SITRANS FC410
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	
5 m (16.4 ft), sensor cable, 4 wire, with 1 pc M12 plugs 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 plugs mounted	L57	
25 m (82 ft), sensor cable, 4 wire, with 2 pcs M12 plugs mounted	L59	

Description	Article No.
English	
• for firmware V 4.0 and onwards	A5E39789214
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