

Flow Measurement

SITRANS F X

SITRANS FX300

Overview



SITRANS F X vortex flowmeters provide accurate volumetric and mass flow measurement of steam, gases and liquids as an all-in-one solution with integrated temperature and pressure compensation.

Benefits

- 2-wire technology with HART communication
- Integrated temperature compensation for saturated steam as standard feature
- Integrated temperature and pressure compensation enabling direct measurement of mass, standard volume flow rate and energy
- One instrument for measuring pressure, temperature and flow. No additional installation of pressure and temperature sensors
- Maximum process reliability thanks to Intelligent Signal Processing (ISP) - stable readings, free of external disturbances
- Fully welded stainless steel construction with high corrosion, pressure and temperature resistance
- Maintenance-free design
- Ready to use due to plug & play feature
- Minimal pressure drop
- Compact or remote design
- Free Air Delivery (FAD) measurement of a compressor

Application

The SITRANS FX300 is a flowmeter in a single or dual transmitter version, suitable for measuring industrial steam, gases, as well as conductive and non-conductive liquids, e.g. steam (saturated steam, superheated steam), industrial gases (compressed air, nitrogen, liquefied gases, flue gases), and conductive and non-conductive liquids (demineralized water, boiler feed water, solvents, heat transfer oil).

The main applications of SITRANS FX300 can be found in the following sectors:

- Chemical
- Petrochemical
- Oil & Gas
- Power plants
 - Air
 - Heating
 - Cooling
 - Chilling
- Food & beverage
 - Pharmaceutical
 - Sugar refineries
 - Dairies
 - Breweries
 - Production of soft drinks
- Pulp & paper
- Water & waste water

System Overview

Version	Flange	Sandwich	Dual transmitter
Compact			
Remote			

Design

SITRANS FX300 vortex flowmeters are available in the following variants:

SITRANS FX300 Single transmitter

The single transmitter variant exists in flange or sandwich design. In flange design the SITRANS FX300 offers a sensor with integrated nominal diameter reduction up to two nominal diameter sizes. That ensures best results in accuracy and optimal measuring ranges even in pipelines with large diameters, designed for low pressure loss. By forgoing complex pipeline reduction installations, space and cost saving installations can be realized. At the same time the number of potential leakages is reduced to a minimum.

The flowmeters in sandwich design will be supplied with additional optimised centring rings. With installation of the centring rings the SITRANS FX300 can be aligned centrally and eliminates any offset between the sensor and the pipeline.

The SITRANS FX300 is also available as a remote version. This feature allows separating the transmitter from the sensor up to a distance of 15m (49 ft). The remote mounted transmitter allows easy operation and optimal readability.

The following configurations can be selected for the single transmitter variant:

- **Basic version**
Suitable for liquids and gases, integrated temperature compensation included as standard for saturated steam
- **With integrated pressure compensation**
Version with integrated temperature and pressure compensation for gases, wet gases, gas mixtures or steam (energy measurement optional)
- **With integrated pressure compensation and isolation valve**
Allowing the pressure sensor to be shut off for the purpose of pressure and leak testing of the pipeline or for being exchanged without interrupting the process.
- **Remote version**
With this version transmitter and sensor are locally separated. In addition, it offers the same features as the compact version (integrated temperature and pressure compensation, isolation valve).

SITRANS FX300 Dual transmitter

This is a genuine redundant system with two independent sensors and transmitters providing twofold functional reliability and availability of the measurement. This variant is optimally suited for measurements in multi-product pipelines.

The dual transmitter version is available as:

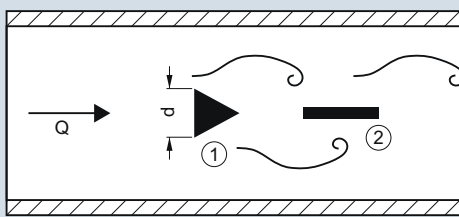
- **Basic version**
Suitable for liquids and gases, temperature compensation integrated as standard for saturated steam

Function

Operating Principle

SITRANS F X vortex flowmeters measure flow rate by detecting the frequency at which alternating vortices are shed from a bluff body inserted into the flow stream. This principle of measurement is derived from the Karman phenomenon of vortex shedding. The frequency of the alternating vortices is proportional to the flow rate.

The passage of a vortex causes a slight stress on a pick-up sensor placed downstream of the bluff body. The stress is detected by piezo-electric crystals placed inside the pick-up sensor.



① = Bluff Body, ② = Pick-up

The flowmeter calculates the flow velocity using the following equation:

$$Q = A \cdot v = A \cdot d / St \cdot f = 101.93 \cdot f / K \text{ [m}^3\text{/h]}$$

Where:

Q = flow rate [m³/h]

f = vortex shedding frequency [Hz]

K = calibration constant [pulses/m³]

d = width of the bluff body [m]

St = Strouhal Number

A = cross-section area [m²]

v = flow velocity [m/s]

Requirements

In order to generate the vortex streets, the medium must have a minimum velocity:

- For steam and gases, the flow velocity must be 2 to 80 m/s (6.6 to 262 ft/s)
- For liquids the flow velocity must be 0.4 to 10 m/s (1.3 to 32.8 ft/s)

Technical specifications

Input	
Measuring range limits	See „Dimensional Drawings“
Media pressure	1 ... 100 bar (14.5 ... 1450 psi) (Higher pressures on request)
Output	
Current output	
• Measuring range	4 ... 20 mA
• Over range	20.8 mA ± 1 % (105 % ± 1 %)
• Load	
- min.	100 Ω
- max.	$R_{\max} = (U_{\text{Power Supply}} - 14 \text{ V}) / 22 \text{ mA}$
• Error signal	NAMUR NE 43
• Maximum output	22 mA (112.5 %)
• Multidrop mode	4 mA
Digital output	
• Communication	HART
• Physical layer	FSK
• Device category	Transmitter
Pulse output	
Passive pulse output, setting pulse value (meter factor) for totalized flow or heat quantity (energy) with option Y47 (e.g.: 1 pulse/kg or 1 pulse/kWh)	
• Pulse frequency	Max. 0.5 Hz
• Power supply	Min. 24 V DC as NAMUR or
• Non-Ex version	open < 1 mA, max. 36 V, closed 100 mA, $U < 2 \text{ V}$
• Ex version	open < 1 mA, max. 30 V, closed 100 mA, $U < 2 \text{ V}$
Accuracy	
Standard version	
• For liquids	
- $Re \geq 20\,000$	± 0.75 %
• For steam and gases	
- $Re \geq 20\,000$	± 1 %
• For steam, gases and liquids	
- $10\,000 < Re < 20\,000$	± 2 %
Pressure and temperature-compensated version	
• For liquids	
- $10\,000 < Re < 20\,000$	± 2 %
- $Re \geq 20\,000$	± 0.75 %
• For gases and steam	
- $10\,000 < Re < 20\,000$	± 2.5 %
- $Re \geq 20\,000$	± 1.5 %
Repeatability	± 0.1 %
Installation conditions	
(At different conditions, e.g. installation after control valve, bends or reductions, please refer to the operating instructions.)	
• Inlet run	≥ 20 x DN
• Outlet run	≥ 5 x DN

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Software		Design	
Uncompensated for liquids and gases, density-compensated by temperature for saturated steam	Order option 1	Material	
Density-compensated by temperature and pressure for superheated steam	Order option 4	• Sensor/Pick-up	AISI 316L (1.4404)/ AISI 316L (1.4435)
Gross heat meter			Hastelloy C22/2.4602 available on request (contact your local Siemens representative)
When the thermal energy of steam is to be measured	Order option 5	• Transmitter housing	Aluminum
Following information is required at option Y51 to Y56	<ul style="list-style-type: none"> • Y51 Variable current output: Flow rate, power • Y52 Power unit Select one of the following units: kJ/h, MJ/h, GJ/h, Btu/h, kcal/h, kW, MW or special (custom) • Y53 Fullscale value power • Y54 Variable pulse output: Totalized flow, energy • Y55 Totalizer on/off • Y56 Energy unit Select one of the following units: kJ, MJ, GJ, Btu th, kcal, kWh, MWh or special (custom). 	• Sensor gaskets (Pick-up/Pressure sensor)	AISI 316L (1.4435) / FPM or FFKM
Density compensated by temperature and pressure for gases, wet gases	Order option 7	Process connections	FPM (Viton) for steam and non-aggressive gases. FFKM (Kalrez) for chlorine and other aggressive gases. (The meter is fitted with FPM/FFKM gasket only when configured with pressure sensor)
Wet gases	Select Y49 and enter relative humidity of process medium in %		Flange norm EN 1092-1 form B1/B2 or ANSI B16.5 RF. Other flanges on request (contact your local Siemens representative)
FAD - Free Air Delivery		• Flange version	DN 15 ... 300 (½ ... 12")
When the delivered air of a compressor is to be measured	Order option 8	• Sandwich version	DN 15 ... 100 (½ ... 4")
In Y81 to Y87 add information regarding:	<ul style="list-style-type: none"> • Y81 Inlet suction temperature • Y82 Atmospheric pressure • Y83 Pressure drop at inlet suction filter • Y84 Inlet relative humidity • Y85 Actual compressor rotation (rpm) • Y86 Rated compressor rotation (rpm) • Y87 Relative humidity at compressor output 	Degree of protection	IP66/IP67
Mixed gases	When fluid is a gas mixture, specify the single gas components and their amount/concentration in %.	Dimensions and weights	See "Dimensional Drawings"
Rated operation conditions		Display and operating interface	
Ambient temperature		Local display	2 lines, 10 characters per line
• Non-Ex version	-40 ... +85 °C (-40 ... +185 °F)	Languages	German, English, French
• Ex version	-40 ... +65 °C (-40 ... +149 °F)	Power supply	
Storage temperature	-50 ... +85 °C (-58 ... +185 °F)	• Standard version	14 ... 36 V DC
Media temperature	-40 ... +240 °C (-40 ... +464 °F)	• Ex version	14 ... 30 V DC
Density	Taken into consideration when dimensioning	Certificates and approvals	
Viscosity	<10 cP	Explosion protection	
Reynolds number	10 000 ... 2 300 000	• ATEX	II 2G EEx d ia [ia] IIC T6
Media pressure limit	Max. 100 bar (1450 psi) Higher pressure on request (contact your local Siemens representative)	• FM US/C	Class I, II, III, Div. 1 and 2
		Calibration	
		All flowmeters will be delivered with a 3 point calibration certificate	
		Material Certificate	
		Certificate of compliance, pressure test, material certificate, material in acc. of NACE and PMI of pressure bearing metal parts.	
		Cleaning	
		Choose Cleaning Class1 when fluid is oxygen or contains chloride.	
		Certificates	
		X-ray and dye penetration test on pressure bearing weldings	

Valid combinations of sensor/connections size with flange norm/nominal pressure are shown in the following table.

Sensor size	Connection size	EN 1092-1, Form B1/B2, PN 10	EN 1092-1, Form B1/B2, PN 16	EN 1092-1, Form B1/B2, PN 25	EN 1092-1, Form B1/B2, PN 40	EN 1092-1, Form B1/B2, PN 63	EN 1092-1, Form B1/B2, PN 100	ANSI B16.5, class 150	ANSI B16.5, class 300	ANSI B16.5, class 600
SITRANS FX Flanged - Single transmitter (7ME2600-...)										
DN 15	DN 15	-	-	-	●	-	●	●	●	●
	DN 25	-	-	-	●	-	●	●	●	●
	DN 40	-	-	-	●	-	●	●	●	●
DN 25	DN 25	-	-	-	●	-	●	●	●	●
	DN 40	-	-	-	●	-	●	●	●	●
	DN 50	-	●	-	●	●	●	●	●	●
DN 40	DN 40	-	-	-	●	-	●	●	●	●
	DN 50	-	●	-	●	●	●	●	●	●
	DN 80	-	●	-	●	●	●	●	●	●
DN 50	DN 50	-	●	-	●	●	●	●	●	●
	DN 80	-	●	-	●	●	●	●	●	●
	DN 100	-	●	-	●	●	●	●	●	●
DN 80	DN 80	-	●	-	●	●	●	●	●	●
	DN 100	-	●	-	●	●	●	●	●	●
	DN 150	-	●	-	●	●	●	●	●	●
DN 100	DN 100	-	●	-	●	●	●	●	●	●
	DN 150	-	●	-	●	●	●	●	●	●
	DN 200	●	●	●	●	-	-	●	●	-
DN 150	DN 150	-	●	-	●	●	●	●	●	●
	DN 200	●	●	●	●	-	-	●	●	-
	DN 250	●	●	●	●	-	-	●	●	-
DN 200	DN 200	●	●	●	●	-	-	●	●	-
	DN 250	●	●	●	●	-	-	●	●	-
	DN 300	●	●	●	●	-	-	●	●	-
DN 250	DN 250	●	●	●	●	-	-	●	●	-
	DN 300	●	●	●	●	-	-	●	●	-
DN 300	DN 300	●	●	●	●	-	-	●	●	-

● available
- not available

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Selection and Ordering data		Article No.	Ord. code
SITRANS FX300 Flanged Single transmitter and T_{max} = 240 °C (464 °F)		7 ME 2 6 0 0 -	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Sensor size	Connection size		
DN 15 (1/2")	DN 15 (1/2") DN 25 (1") DN 40 (1 1/2")	1 A 1 B 1 C	
DN 25 (1")	DN 25 (1") DN 40 (1 1/2") DN 50 (2")	2 B 2 C 2 D	
DN 40 (1 1/2")	DN 40 (1 1/2") DN 50 (2") DN 80 (3")	2 K 2 L 2 M	
DN 50 (2")	DN 50 (2") DN 80 (3") DN 100 (4")	2 R 2 S 2 T	
DN 80 (3")	DN 80 (3") DN 100 (4") DN 150 (6")	3 L 3 M 3 R	
DN 100 (4")	DN 100 (4") DN 150 (6") DN 200 (8")	3 S 3 T 3 Q	
DN 150 (6")	DN 150 (6") DN 200 (8") DN 250 (10")	4 M 4 P 4 Q	
DN 200 (8")	DN 200 (8") DN 250 (10") DN 300 (12")	4 T 4 U 4 V	
DN 250 (10")	DN 250 (10") DN 300 (12")	4 W 4 Y	
DN 300 (12")	DN 300 (12")	5 E	
Flange norm and nominal pressure			
Form B1/B2	EN 1092-1		
PN 10	DN 200 ... 300	A	
PN 16	DN 50 ... 300	B	
PN 25	DN 200 ... 300	C	
PN 40	DN 15 ... 300	D	
PN 63	DN 50 ... 150	E	
PN 100	DN 15 ... 150	F	
RF	ANSI B16.5		
class 150	1/2 ... 12"	J	
class 300	1/2 ... 12"	K	
class 600	1/2 ... 6"	L	
Sensor material/Gasket			
St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FPM		1	
St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FFKM		5	
Transmitter design			
Compact version - no cable		1	
Remote version:			
5 m (16.4 ft)		2	
10 m (32.8 ft)		3	
15 m (49.2 ft)		4	

Selection and Ordering data		Article No.	Ord. code
SITRANS FX300 Flanged Single transmitter and T_{max} = 240 °C (464 °F)		7 ME 2 6 0 0 -	
Approval and cable gland			
Non-Ex, M20 x 1.5		1	
Non-Ex, 1/2" NPT		2	
FM approval Class 1 Div. 2, M20 x 1.5		3	
ATEX, M20 x 1.5		4	
ATEX, 1/2" NPT		5	
FM approval Class 1 Div. 1, M20 x 1.5		6	
FM approval Class 1 Div. 1, 1/2" NPT		7	
FM approval Class 1 Div. 2, 1/2" NPT		8	
Further approvals and cable glands			
IEC Ex with M20 x 1.5		9	NO A
IEC Ex with 1/2" NPT		9	NO B
Transmitter, display and communication			
With display, HART		A	
Pressure sensor and isolation valve			
Without pressure sensor		A	
With pressure sensor, range:			
4 bar (58 psi)		B	
6 bar (87 psi)		D	
10 bar (145 psi)		E	
16 bar (232 psi)		G	
25 bar (363 psi)		H	
40 bar (580 psi)		K	
60 bar (870 psi)		L	
100 bar (1450 psi)		N	
With isolation valve and pressure sensor, range:			
4 bar (58 psi)		P	
6 bar (87 psi)		Q	
10 bar (145 psi)		R	
16 bar (232 psi)		S	
25 bar (363 psi)		U	
40 bar (580 psi)		V	
60 bar (870 psi)		W	
100 bar (1450 psi)		Y	
Software			
Uncompensated for liquids and gases, density compensated by temperature for saturated steam		1	
Density compensation for superheated steam		4	
Density compensated by temperature and pressure for superheated steam, gross heat meter - setting of energy metering at option Y51 ... Y56		5	
Density compensation for gases, wet gases and mixed gases - setting of relative humidity at option Y49		7	
Density compensation for gases, wet gases and mixed gases, Free air delivery (FAD) - setting of FAD at option Y81 ... Y87 and relative humidity at option Y49		8	

Selection and Ordering data	Order code
Additional information Please add “-Z” to Article No. and specify as minimum Order code Y40, Y41, Y42 and Y45 and plain text.	
Input process data	
Medium: Specify medium (Liquid, gas, steam or customer-specific)	Y40
Temperature: Specify operating temperature with unit	Y41
Pressure: Specify operating pressure with unit	Y42
Density (only for customer-specified medium): Specify density with unit	Y43
Viscosity (only for customer-specified medium): Specify viscosity with unit	Y44
Flow rate: Specify max. flow rate with units	Y45
Setting of pulse output: Specify pulse value (meter factor) for totalized flow or energy (1 pulse/unit)	Y47
Relative humidity of process medium in %	Y49
Settings of gross heat	
Variable current output: Flow rate, power	Y51
Power unit (specify: kJ/h, MJ/h, GJ/h, Btu/h, kcal/h, kW, MW or special (custom))	Y52
Fullscale value power	Y53
Variable pulse output: Totalized flow, energy	Y54
Totalizer on/off	Y55
Energy unit (specify: kJ, MJ, GJ, Btu th, kcal, kWh, MWh or special (custom))	Y56
Settings of FAD	
Inlet suction temperature ¹⁾	Y81
Atmospheric pressure ¹⁾	Y82
Pressure drop at inlet suction filter ²⁾	Y83
Inlet relative humidity ¹⁾	Y84
Actual compressor rotation (rpm) ²⁾	Y85
Rated compressor rotation (rpm) ²⁾	Y86
Relative humidity at compressor outlet ²⁾	Y87

¹⁾ Required information from customer.

²⁾ Required information from compressor manufacturer (data sheet).

Operating instructions

Description	Article No.
English	A5E2100423
German	A5E02171807
This device is shipped with a Quick Start guide and a CD containing further SITRANS F literature.	
All literature is available to download for free, in a range of languages, at www.siemens.com/processinstrumentation/documentation	

Selection and Ordering data	Order code
Further designs Please add “-Z” to Article No. and specify Order code.	
Converter housing material	
Aluminum for increased requirement, color: petrol green	A10
Material certificate	
Certificate of compliance EN 10204-2.1	C10
Pressure test + 3.1 accordance EN 10204	C11
Material certificate of pressure bearing parts + certificate 3.1	C12
Material in accordance with NACE MR 0175-01	C13
PMI of pressure bearing metal parts + certificate 3.1	C14
Material certificate of pressure bearing parts + PMI + certificate 3.1	C15
Calibration certificate FX300 As standard the flow device has a 3-point calibration certificate.	
5-point calibration certificate	D11
Hardness test	
Hardness test on pressure bearing parts + certificate 3.1	H30
Cleaning	
Cleaning class 1	K46
Cleaning class 1 + certificate 3.1 acc. EN 10204	K48
Certificates	
X-ray test on pressure bearing weldings	M56
Dye penetration test on pressure bearing weldings	M58
Tag name plate	
Stainless steel tag with 3 mm characters, max. 2 x 8 characters (40 x 20 mm, add plain text)	Y17
Stainless steel tag with 2.5 mm characters, max. 8 x 40 characters (120 x 46 mm, add plain text)	Y18

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Selection and Ordering data		Article No.	Ord. code
SITRANS FX300 Sandwich Single transmitter and T_{max} = 240 °C (464 °F)		7 ME 2 7 0 0 -	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Sensor size	Connection size		
DN 15 (1/2")	DN 15 (1/2")	1 A	
DN 25 (1")	DN 25 (1")	2 B	
DN 40 (1 1/2")	DN 40 (1 1/2")	2 K	
DN 50 (2")	DN 50 (2")	2 R	
DN 80 (3")	DN 80 (3")	3 L	
DN 100 (4")	DN 100 (4")	3 S	
Nominal pressure			
Form B1/B2	EN 1092-1		
PN 16	DN 50 ... 100	B	
PN 40	DN 15 ... 100	D	
PN 63	DN 50 ... 100	E	
PN 100	DN 15 ... 100	F	
RF	ANSI B16.5		
class 150	1/2 ... 4"	J	
class 300	1/2 ... 4"	K	
class 600	1/2 ... 4"	L	
Sensor material/Gasket			
St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FPM		1	
St. steel AISI 316L (1.4404)/AISI 316L (1.4435)/FFKM		5	
Transmitter design			
Compact version - no cable		1	
Remote version:			
5 m (16.4 ft)		2	
10 m (32.8 ft)		3	
15 m (49.2 ft)		4	
Approval and cable gland			
Non-Ex, M20 x 1.5		1	
Non-Ex, 1/2" NPT		2	
FM approval Class 1 Div. 2, M20 x 1.5		3	
ATEX, M20 x 1.5		4	
ATEX, 1/2" NPT		5	
FM approval Class 1 Div. 1, M20 x 1.5		6	
FM approval Class 1 Div. 1, 1/2" NPT		7	
FM approval Class 1 Div. 2, 1/2" NPT		8	
Further approvals and cable glands			
IEC Ex with M20 x 1.5		9	N 0 A
IEC Ex with 1/2" NPT		9	N 0 B
Transmitter, display and communication			
With display, HART			A

Selection and Ordering data		Article No.	Ord. code
SITRANS FX300 Sandwich Single transmitter and T_{max} = 240 °C (464 °F)		7 ME 2 7 0 0 -	
Pressure sensor and isolation valve			
Without pressure sensor			A
With pressure sensor, range:			
4 bar (58 psi)			B
6 bar (87 psi)			D
10 bar (145 psi)			E
16 bar (232 psi)			G
25 bar (363 psi)			H
40 bar (580 psi)			K
60 bar (870 psi)			L
100 bar (1450 psi)			N
With isolation valve and pressure sensor, range:			
4 bar (58 psi)			P
6 bar (87 psi)			Q
10 bar (145 psi)			R
16 bar (232 psi)			S
25 bar (363 psi)			U
40 bar (580 psi)			V
60 bar (870 psi)			W
100 bar (1450 psi)			Y
Software			
Uncompensated for liquids and gases, density compensated by temperature for saturated steam			1
Density compensation for superheated steam			4
Density compensated by temperature and pressure for superheated steam, gross heat meter - setting of energy metering at option Y51 ... Y56			5
Density compensation for gases, wet gases and mixed gases - setting of relative humidity at option Y49			7
Density compensation for gases, wet gases and mixed gases, Free air delivery (FAD) - setting of FAD at option Y81 ... Y87 and relative humidity at option Y49			8

Selection and Ordering data	Order code
Additional information Please add "-Z" to Article No. and specify as minimum Order code Y40, Y41, Y42 and Y45 and plain text.	
Input process data	
Medium: Specify medium (Liquid, gas, steam or customer-specific)	Y40
Temperature: Specify operating temperature with unit	Y41
Pressure: Specify operating pressure with unit	Y42
Density (only for customer-specified medium): Specify density with unit	Y43
Viscosity (only for customer-specified medium): Specify viscosity with unit	Y44
Flow rate: Specify max. flow rate with units	Y45
Setting of pulse output: Specify pulse value (meter factor) for totalized flow or energy (1 pulse/unit)	Y47
Relative humidity of process medium in %	Y49
Settings of gross heat	
Variable current output: Flow rate, power	Y51
Power unit (specify: kJ/h, MJ/h, GJ/h, Btu/h, kcal/h, kW, MW or special (custom))	Y52
Fullscale value power	Y53
Variable pulse output: Totalized flow, energy	Y54
Totalizer on/off	Y55
Energy unit (specify: kJ, MJ, GJ, Btu th, kcal, kWh, MWh or special (custom))	Y56
Settings of FAD	
Inlet suction temperature ¹⁾	Y81
Atmospheric pressure ¹⁾	Y82
Pressure drop at inlet suction filter ²⁾	Y83
Inlet relative humidity ¹⁾	Y84
Actual compressor rotation (rpm) ²⁾	Y85
Rated compressor rotation (rpm) ²⁾	Y86
Relative humidity at compressor outlet ²⁾	Y87

¹⁾ Required information from customer.

²⁾ Required information from compressor manufacturer (data sheet).

Operating instructions

Description	Article No.
English	A5E2100423
German	A5E02171807

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Selection and Ordering data	Order code
Further designs Please add "-Z" to Article No. and specify Order code.	
Converter housing material	
Aluminum for increased requirement, color: petrol green	A10
Material certificate	
Certificate of compliance EN 10204-2.1	C10
Pressure test + 3.1 accordance EN 10204	C11
Material certificate of pressure bearing parts + certificate 3.1	C12
Material in accordance with NACE MR 0175-01	C13
PMI of pressure bearing metal parts + certificate 3.1	C14
Material certificate of pressure bearing parts + PMI + certificate 3.1	C15
Calibration certificate FX300 As standard the flow device has a 3-point calibration certificate.	
5-point calibration certificate	D11
Hardness test	
Hardness test on pressure bearing parts + certificate 3.1	H30
Cleaning	
Cleaning class 1	K46
Cleaning class 1 + certificate 3.1 acc. EN 10204	K48
Certificates	
X-ray test on pressure bearing weldings	M56
Dye penetration test on pressure bearing weldings	M58
Tag name plate	
Stainless steel tag with 3 mm characters, max. 2 x 8 characters (40 x 20 mm, add plain text)	Y17
Stainless steel tag with 2.5 mm characters, max. 8 x 40 characters (120 x 46 mm, add plain text)	Y18

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SITRANS F X

SITRANS FX300



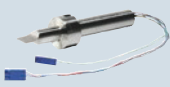

Selection and Ordering data Article No. Ord. code

Selection and Ordering data		Article No.	Ord. code
SITRANS FX300 Flanged Dual transmitter and T_{max} = 240 °C (464 °F)		7 ME 2 8 0 0 -	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Sensor size	Connection size		
DN 40 (1½")	DN 40 (1½")	2 K	
DN 50 (2")	DN 50 (2")	2 R	
DN 80 (3")	DN 80 (3")	3 L	
DN 100 (4")	DN 100 (4")	3 S	
DN 150 (6")	DN 150 (6")	4 M	
DN 200 (8")	DN 200 (8")	4 T	
DN 250 (10")	DN 250 (10")	4 W	
DN 300 (12")	DN 300 (12")	5 E	
Flange norm and nominal pressure			
Form B1/B2	EN 1092-1		
PN 10	DN 200 ... 300	A	
PN 16	DN 50 ... 300	B	
PN 25	DN 200 ... 300	C	
PN 40	DN 40 ... 300	D	
PN 63	DN 50 ... 150	E	
PN 100	DN 40 ... 150	F	
RF	ANSI B16.5		
class 150	1½ ... 12"	J	
class 300	1½ ... 12"	K	
class 600	1½ ... 6"	L	
Sensor material/Gasket			
Stainless steel AISI 316L (1.4404)/ AISI 316L (1.4435)/FPM		1	
Stainless steel AISI 316L (1.4404)/ AISI 316L (1.4435)/FFKM		5	
Transmitter design			
Compact version - no cable		1	
Remote version:			
5 m (16.4 ft)		2	
10 m (32.8 ft)		3	
15 m (49.2 ft)		4	
Approval and cable gland			
Non-Ex, M20 x 1.5		1	
Non-Ex, ½" NPT		2	
FM approval Class 1 Div. 2, M20 x 1.5		3	
ATEX, M20 x 1.5		4	
ATEX, ½" NPT		5	
FM approval Class 1 Div. 1, M20 x 1.5		6	
FM approval Class 1 Div. 1, 1/2" NPT		7	
FM approval Class 1 Div. 2, 1/2" NPT		8	
Further approvals and cable glands			
IEC Ex with M20 x 1.5		9	N 0 A
IEC Ex with ½" NPT		9	N 0 B
Transmitter, display and communication			
With display, HART			A
Pressure sensor and isolation valve			
Without pressure sensor			A
Software			
Uncompensated for liquids and gases, density-compensated by temperature for saturated steam			1

Selection and Ordering data Order code

Selection and Ordering data		Order code
Additional information		
Please add "-Z" to Article No. and specify as minimum Order code Y40, Y41, Y42 and Y45 and plain text.		
Input process data		
Specify medium (Liquid, gas, steam or customer-specific)		Y40
Temperature: Specify operating temperature with unit		Y41
Pressure: Specify operating pressure with unit		Y42
Density (only for customer-specified medium): Specify density with unit		Y43
Viscosity (only for customer-specified medium): Specify viscosity with unit		Y44
Flow rate: Specify max. flow rate with units		Y45
Setting of pulse output: Specify pulse value (meter factor) for totalized flow (1 pulse/unit)		Y47
Relative humidity of process medium in %		Y49
Operating instructions for SITRANS FX300		
Description	Article No.	
English	A5E2100423	
German	A5E02171807	
This device is shipped with a Quick Start guide and a CD containing further SITRANS F literature.		
All literature is available to download for free, in a range of languages, at www.siemens.com/processinstrumentation/documentation		
Selection and Ordering data		Order code
Further designs		
Please add "-Z" to Article No. and specify Order code.		
Converter housing material		
Aluminum for increased requirement, color: petrol green		A10
Material certificate		
Certificate of compliance EN 10204-2.1		C10
Pressure test + 3.1 accordance EN 10204		C11
Material certificate of pressure bearing parts + certificate 3.1		C12
Material in accordance with NACE MR 0175-01		C13
PMI of pressure bearing metal parts + certificate 3.1		C14
Material certificate of pressure bearing parts + PMI + certificate 3.1		C15
Calibration certificate FX300		
As standard the flow device has a 3-point calibration certificate.		
5-point calibration certificate		D11
Hardness test		
Hardness test on pressure bearing parts + certificate 3.1		H30
Cleaning		
Cleaning class 1		K46
Cleaning class 1 + certificate 3.1 acc. EN 10204		K48
Certificates		
X-ray test on pressure bearing weldings		M56
Dye penetration test on pressure bearing weldings		M58
Tag name plate		
Stainless steel tag with 3 mm characters, max. 2 x 8 characters (40 x 20 mm, add plain text)		Y17
Stainless steel tag with 2.5 mm characters, max. 8 x 40 characters (120 x 46 mm, add plain text)		Y18

SITRANS FX300 spare parts

Description	Article No.	
Seal disc 21.8-12-0.1	A5E02181439	
O-ring pickup	A5E02181464	
O-ring for pressure screw 17.13 x 2.62-FPM-70	A5E02181488	
Cover gasket O-Ring 91.67 x 3.5	A5E02181492	
Converter housing gasket 59.35.5-2-N	A5E02181495	
O-ring DIN3771-20 x 1-FPM for sensor	A5E02181515	
O-ring 10 x 2-NBR for lead- through	A5E02181525	
DUBOX plug, 5-pole-RM2	A5E02181527	
Electronic <ul style="list-style-type: none"> • Basic D-HART • Steam D-HART • Gas D-HART Serial number of flow meter must be specified on order.	A5E02181531 A5E02181541 A5E02181544 A5E02181544	
Display	A5E02181558	
Cable feedthrough 10-pole (non-Ex). O-ring for cable feedthrough 21.89 x 2.62 10-pole plug	A5E02181562	
Sensor replacement (incl. Seal disc, pickup, O-rings for pickup, and pressure screw <ul style="list-style-type: none"> • DN 15 (incl. 1/2" socket) • DN 25 (incl. 1" socket) • DN 40 ... 100 • DN 150 ... 300 	A5E02181087 A5E02181116 A5E02181152 A5E02275105	
Pressure sensor replacement (Incl. pressure sensor, DUBOX plug, 2 O-rings and calibration certificate) <ul style="list-style-type: none"> • 4 bar (58 psi) • 6 bar (87 psi) • 10 bar (145 psi) • 16 bar (232 psi) • 25 bar (363 psi) • 40 bar (580 psi) • 60 bar (870 psi) • 100 bar (1450 psi) 	A5E02181157 A5E02181175 A5E02181180 A5E02181221 A5E02181307 A5E02181316 A5E02181322 A5E02181437	

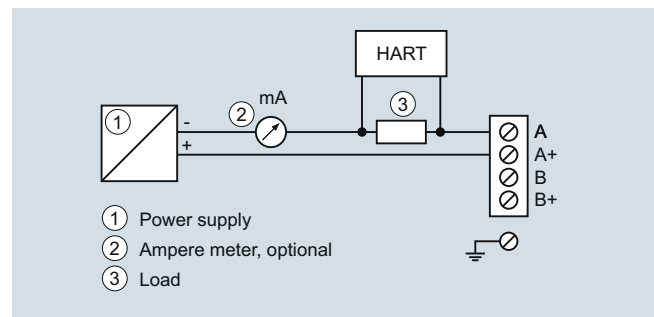
Description

Service Toolbox for program-
ming software (basic, steam
and gas); for changing set-
tings and diagnostics
Note: Dedicated service train-
ing is required. Please contact
Customer Support.

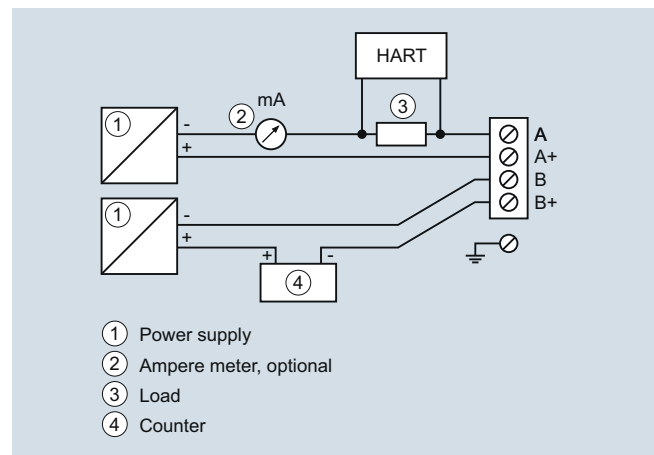
Article No.

A5E02375819

Schematics



Connection power supply and HART communication



Connection pulse output

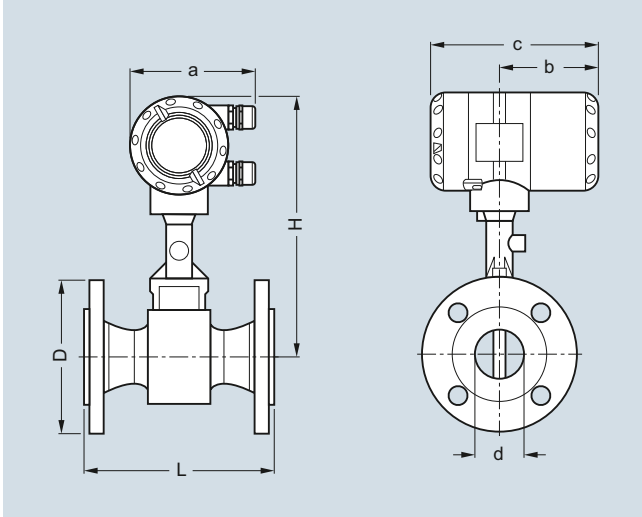
Flow Measurement

SITRANS F X

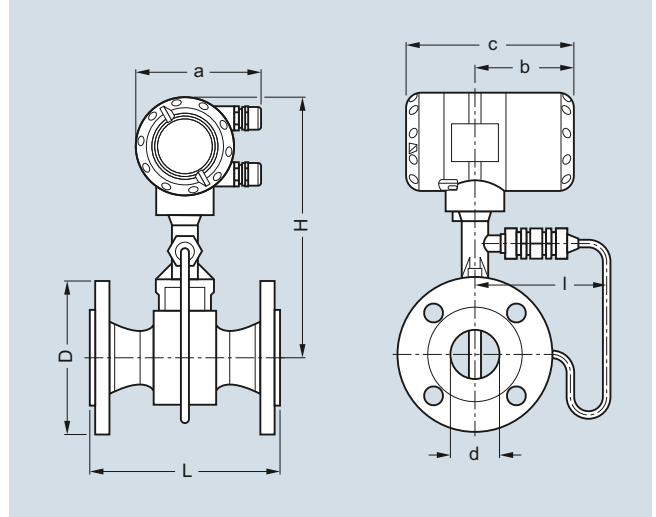
SITRANS FX300

Dimensional drawings

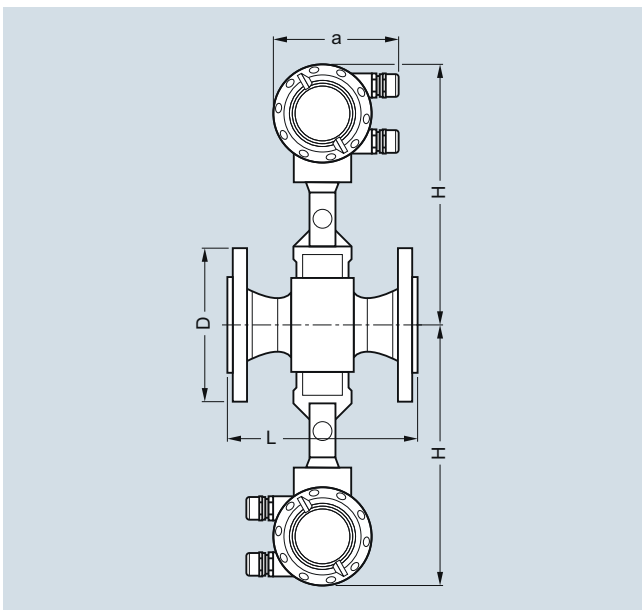
Compact version



Flange version



Flange version with pressure sensor



Flange version, dual converter

Flange version EN1092-1

Size DN	Pres- sure rating PN	Dimensions [mm (inch)] a = 135 (5.32), b = 108 (4.26), c = 184 (7.25)							Weight [kg (lb)] ¹⁾	
		d	d FR ²⁾	d F2R ³⁾	D	L	H	I	Flowmeter (without pres- sure sensor)	Flowmeter (with pressure sensor)
15	40	17.3 (0.68)	-	-	95 (3.74)	200 (7.87)	315 (12.40)	144 (5.67)	5.5 (12.13)	6.1 (13.45)
15	100	17.3 (0.68)	-	-	105 (4.13)	200 (7.87)	315 (12.40)	144 (5.67)	6.5 (14.33)	7.1 (15.65)
25	40	28.5 (1.12)	17.3 (0.68)	-	115 (4.53)	200 (7.87)	315 (12.40)	144 (5.67)	7.3 (16.09)	7.9 (17.42)
25	100	28.5 (1.12)	17.3 (0.68)	-	140 (5.51)	200 (7.87)	315 (12.40)	144 (5.67)	9.3 (20.50)	9.9 (21.83)
40	40	43.1 (1.70)	28.5 (1.12)	17.3 (0.68)	150 (5.91)	200 (7.87)	320 (12.60)	144 (5.67)	10.2 (22.49)	10.8 (23.81)
40	100	42.5 (1.67)	28.5 (1.12)	17.3 (0.68)	170 (6.69)	200 (7.87)	320 (12.60)	144 (5.67)	14.2 (31.31)	14.8 (32.63)
50	16	54.5 (2.15)	42.5 (1.67)	28.5 (1.12)	165 (6.50)	200 (7.87)	325 (12.80)	144 (5.67)	12.1 (26.68)	12.7 (28.00)
50	40	54.5 (2.15)	42.5 (1.67)	28.5 (1.12)	165 (6.50)	200 (7.87)	325 (12.80)	144 (5.67)	12.3 (27.12)	12.9 (28.44)
50	63	54.5 (2.15)	42.5 (1.67)	28.5 (1.12)	180 (7.09)	200 (7.87)	325 (12.80)	144 (5.67)	16.3 (35.94)	16.9 (37.26)
50	100	53.9 (2.12)	42.5 (1.67)	28.5 (1.12)	195 (7.68)	200 (7.87)	325 (12.80)	144 (5.67)	17.8 (39.24)	18.4 (40.57)
80	16	82.5 (3.25)	54.5 (2.15)	42.5 (1.67)	200 (7.87)	200 (7.87)	340 (13.39)	154 (6.06)	16.8 (37.04)	17.4 (38.36)
80	40	82.5 (3.25)	54.5 (2.15)	42.5 (1.67)	200 (7.87)	200 (7.87)	340 (13.39)	154 (6.06)	18.8 (41.45)	19.4 (42.77)
80	63	81.7 (3.22)	54.5 (2.15)	42.5 (1.67)	215 (8.46)	200 (7.87)	340 (13.39)	154 (6.06)	22.8 (50.27)	23.4 (51.59)
80	100	80.9 (3.19)	54.5 (2.15)	42.5 (1.67)	230 (9.06)	200 (7.87)	340 (13.39)	154 (6.06)	26.8 (59.08)	27.4 (60.41)
100	16	107.1 (4.22)	80.9 (3.19)	54.5 (2.15)	220 (8.66)	250 (9.84)	360 (14.17)	164 (6.46)	21.4 (47.18)	22 (48.50)
100	40	107.1 (4.22)	80.9 (3.19)	54.5 (2.15)	235 (9.25)	250 (9.84)	360 (14.17)	164 (6.46)	24.4 (53.79)	25 (55.12)
100	63	106.3 (4.19)	80.9 (3.19)	54.5 (2.15)	250 (9.84)	250 (9.84)	360 (14.17)	164 (6.46)	29.4 (64.82)	30 (66.14)
100	100	104.3 (4.11)	80.9 (3.19)	54.5 (2.15)	265 (10.43)	250 (9.84)	360 (14.17)	164 (6.46)	35.4 (78.04)	36 (79.37)
150	16	159.3 (6.27)	107.1 (4.22)	80.9 (3.19)	285 (11.22)	300 (11.81)	375 (14.76)	174 (6.85)	35.2 (77.60)	35.8 (78.93)
150	40	159.3 (6.27)	107.1 (4.22)	80.9 (3.19)	300 (11.81)	300 (11.81)	375 (14.76)	174 (6.85)	41.2 (90.83)	41.8 (92.15)
150	63	157.1 (6.19)	107.1 (4.22)	80.9 (3.19)	345 (13.58)	300 (11.81)	375 (14.76)	174 (6.85)	59.2 (130.51)	59.8 (131.84)
150	100	154.1 (6.07)	107.1 (4.22)	80.9 (3.19)	355 (13.98)	300 (11.81)	375 (14.76)	174 (6.85)	67.2 (148.15)	67.8 (149.47)
200	10	206.5 (8.13)	159.3 (6.27)	107.1 (4.22)	340 (13.39)	300 (11.81)	400 (15.75)	194 (7.64)	37.8 (83.33)	38.4 (84.66)
200	16	206.5 (8.13)	159.3 (6.27)	107.1 (4.22)	340 (13.39)	300 (11.81)	400 (15.75)	194 (7.64)	37.8 (83.33)	38.4 (84.66)
200	25	206.5 (8.13)	159.3 (6.27)	107.1 (4.22)	360 (14.17)	300 (11.81)	400 (15.75)	194 (7.64)	46.8 (103.18)	47.4 (104.50)
200	40	206.5 (8.13)	159.3 (6.27)	107.1 (4.22)	375 (14.76)	300 (11.81)	400 (15.75)	194 (7.64)	54.8 (120.81)	55.4 (122.14)
250	10	260.4 (10.25)	206.5 (8.13)	159.3 (6.27)	395 (15.55)	380 (14.96)	420 (16.54)	224 (8.82)	57.4 (126.55)	58.0 (127.87)
250	16	260.4 (10.25)	206.5 (8.13)	159.3 (6.27)	405 (15.94)	380 (14.96)	420 (16.54)	224 (8.82)	58.4 (128.75)	59.0 (130.07)
250	25	258.8 (10.19)	206.5 (8.13)	159.3 (6.27)	425 (16.73)	380 (14.96)	420 (16.54)	224 (8.82)	74.4 (164.02)	75.0 (165.35)
250	40	258.8 (10.19)	206.5 (8.13)	159.3 (6.27)	450 (17.72)	380 (14.96)	420 (16.54)	224 (8.82)	92.4 (203.71)	93.0 (205.03)
300	10	309.7 (12.19)	260.4 (10.25)	206.5 (8.13)	445 (17.52)	450 (17.72)	445 (17.52)	244 (9.61)	75.7 (166.89)	76.3 (168.21)
300	16	309.7 (12.19)	260.4 (10.25)	206.5 (8.13)	460 (18.11)	450 (17.72)	445 (17.52)	244 (9.61)	82.2 (181.22)	82.8 (182.54)
300	25	307.9 (12.12)	260.4 (10.25)	206.5 (8.13)	485 (19.09)	450 (17.72)	445 (17.52)	244 (9.61)	98.7 (217.60)	99.3 (218.92)
300	40	307.9 (12.12)	260.4 (10.25)	206.5 (8.13)	515 (20.28)	450 (17.72)	445 (17.52)	244 (9.61)	127.5 (281.09)	128.1 (282.41)

1) For dual converter: specified weight + 2.80 kg (6.17 lb).

2) FR - single reduction

3) F2R - double reduction

Flow Measurement

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SITRANS FX300

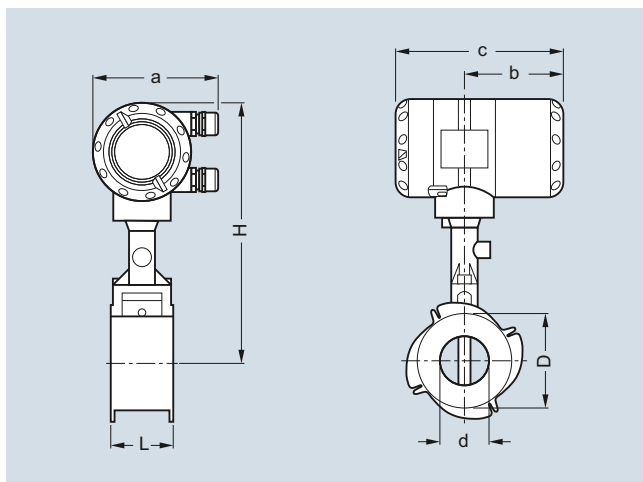
Flange version ANSI B16.5

Size	Pressure rating	Dimensions [mm (inch)]							Weight [kg (lb)] ¹⁾	
		a = 135 (5.32), b = 108 (4.26), c = 184 (7.25)							Flowmeter (without pressure sensor)	Flowmeter (with pressure sensor)
DN	Class	d	d FR ²⁾	d F2R ³⁾	D	L	H	I		
½	150	15.8 (0.62)	-	-	90 (3.54)	200 (7.87)	315 (12.40)	144 (5.67)	4.5 (9.92)	5.1 (11.24)
½	300	15.8 (0.62)	-	-	95 (3.74)	200 (7.87)	315 (12.40)	144 (5.67)	4.9 (10.80)	5.5 (12.13)
½	600	13.9 (0.55)	-	-	95 (3.74)	200 (7.87)	315 (12.40)	144 (5.67)	5.1 (11.24)	5.7 (12.57)
1	150	26.6 (1.05)	15.8 (0.62)	-	110 (4.33)	200 (7.87)	315 (12.40)	144 (5.67)	6.2 (13.67)	6.8 (14.99)
1	300	26.6 (1.05)	15.8 (0.62)	-	125 (4.92)	200 (7.87)	315 (12.40)	144 (5.67)	7.2 (15.87)	7.8 (17.20)
1	600	24.3 (0.96)	15.8 (0.62)	-	125 (4.92)	200 (7.87)	315 (12.40)	144 (5.67)	7.5 (16.53)	8.1 (17.86)
1½	150	40.9 (1.61)	26.6 (1.05)	15.8 (0.62)	125 (4.92)	200 (7.87)	320 (12.60)	144 (5.67)	8.3 (18.30)	8.9 (19.62)
1½	300	40.9 (1.61)	26.6 (1.05)	15.8 (0.62)	155 (6.10)	200 (7.87)	320 (12.60)	144 (5.67)	10.4 (22.93)	11 (24.25)
1½	600	38.1 (1.50)	26.6 (1.05)	15.8 (0.62)	155 (6.10)	200 (7.87)	320 (12.60)	144 (5.67)	11.4 (25.13)	12 (26.46)
2	150	52.6 (2.07)	40.9 (1.61)	26.6 (1.05)	150 (5.91)	200 (7.87)	325 (12.80)	144 (5.67)	11 (24.25)	11.6 (25.57)
2	300	52.6 (2.07)	40.9 (1.61)	26.6 (1.05)	165 (6.50)	200 (7.87)	325 (12.80)	144 (5.67)	12.4 (27.34)	13 (28.66)
2	600	49.3 (1.94)	40.9 (1.61)	26.6 (1.05)	165 (6.50)	200 (7.87)	325 (12.80)	144 (5.67)	13.9 (30.64)	14.5 (31.97)
3	150	78 (3.07)	52.6 (2.07)	40.9 (1.61)	190 (7.48)	200 (7.87)	340 (13.39)	154 (6.06)	19.8 (43.65)	20.4 (44.97)
3	300	78 (3.07)	52.6 (2.07)	40.9 (1.61)	210 (8.27)	200 (7.87)	340 (13.39)	154 (6.06)	22.8 (50.27)	23.4 (51.59)
3	600	73.7 (2.90)	52.6 (2.07)	40.9 (1.61)	210 (8.27)	200 (7.87)	340 (13.39)	154 (6.06)	23.8 (52.47)	24.4 (53.79)
4	150	102.4 (4.03)	78 (3.07)	52.6 (2.07)	230 (9.06)	250 (9.84)	360 (14.17)	164 (6.46)	23.4 (51.59)	24 (52.91)
4	300	102.4 (4.03)	78 (3.07)	52.6 (2.07)	255 (10.04)	250 (9.84)	360 (14.17)	164 (6.46)	31.4 (69.23)	32 (70.55)
4	600	97.2 (3.83)	78 (3.07)	52.6 (2.07)	275 (10.83)	250 (9.84)	360 (14.17)	164 (6.46)	40.4 (89.07)	41 (90.39)
6	150	154.2 (6.07)	102.4 (4.03)	78 (3.07)	280 (11.02)	300 (11.81)	375 (14.76)	174 (6.85)	36.2 (79.81)	36.8 (81.13)
6	300	154.2 (6.07)	102.4 (4.03)	78 (3.07)	320 (12.60)	300 (11.81)	375 (14.76)	174 (6.85)	51.2 (112.88)	51.8 (114.20)
6	600	146.3 (5.76)	102.4 (4.03)	78 (3.07)	355 (13.98)	300 (11.81)	375 (14.76)	174 (6.85)	46.2 (101.85)	76.8 (169.31)
8	150	202.7 (7.98)	154.2 (6.07)	102.4 (4.03)	345 (13.58)	300 (11.81)	400 (15.75)	194 (7.64)	50.0 (110.23)	50.6 (111.55)
8	300	202.7 (7.98)	154.2 (6.07)	102.4 (4.03)	380 (14.96)	300 (11.81)	400 (15.75)	194 (7.64)	74.8 (164.91)	75.4 (166.23)
10	150	254.5 (10.02)	202.7 (7.98)	154.2 (6.07)	405 (15.94)	380 (14.96)	420 (16.54)	224 (8.82)	74.4 (164.02)	75.0 (165.35)
10	300	254.5 (10.02)	202.7 (7.98)	154.2 (6.07)	455 (17.91)	380 (14.96)	420 (16.54)	224 (8.82)	106.4 (234.57)	107.0 (235.89)
12	150	304.8 (12.00)	254.5 (10.02)	202.7 (7.98)	485 (19.09)	450 (17.72)	445 (17.52)	244 (9.61)	106.3 (234.35)	106.9 (235.67)
12	300	304.8 (12.00)	254.5 (10.02)	202.7 (7.98)	520 (20.47)	450 (17.72)	445 (17.52)	244 (9.61)	151.3 (333.56)	151.9 (334.88)

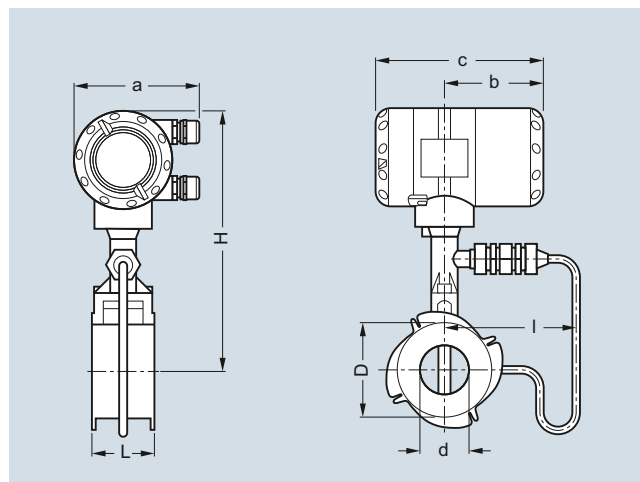
¹⁾ For dual converter: specified weight + 2.80 kg (6.17 lb).

²⁾ FR - single reduction

³⁾ F2R - double reduction



Sandwich version



Sandwich version with pressure sensor

Sandwich version EN

Size DN	Pressure rating PN	Dimensions [mm (inch)]								Weight [kg (lb)]	
		a	b	c	d	D	L	H	I	Flowmeter (without pressure sensor)	Flowmeter (with pressure sensor)
15	16 ... 100	133 (5.24)	105 (4.13)	179 (7.05)	16 (0.63)	45 (1.77)	65 (2.56)	265 (10.43)	144 (5.67)	3.5 (7.72)	4.1 (9.04)
25	16 ... 100	133 (5.24)	105 (4.13)	179 (7.05)	24 (0.94)	65 (2.56)	65 (2.56)	265 (10.43)	144 (5.67)	4.3 (9.48)	4.9 (10.80)
40	16 ... 100	133 (5.24)	105 (4.13)	179 (7.05)	38 (1.50)	82 (3.23)	65 (2.56)	270 (10.63)	144 (5.67)	4.9 (10.80)	5.5 (12.13)
50	16 ... 100	133 (5.24)	105 (4.13)	179 (7.05)	50 (1.97)	102 (4.02)	65 (2.56)	275 (10.83)	144 (5.67)	6 (13.23)	6.6 (14.55)
80	16 ... 100	133 (5.24)	105 (4.13)	179 (7.05)	74 (2.91)	135 (5.31)	65 (2.56)	290 (11.42)	155 (6.10)	8.2 (18.08)	8.8 (19.40)
100	16 ... 100	133 (5.24)	105 (4.13)	179 (7.05)	97 (3.82)	158 (6.22)	65 (2.56)	310 (12.20)	164 (6.46)	9.5 (20.94)	10.1 (22.27)

Sandwich version ANSI

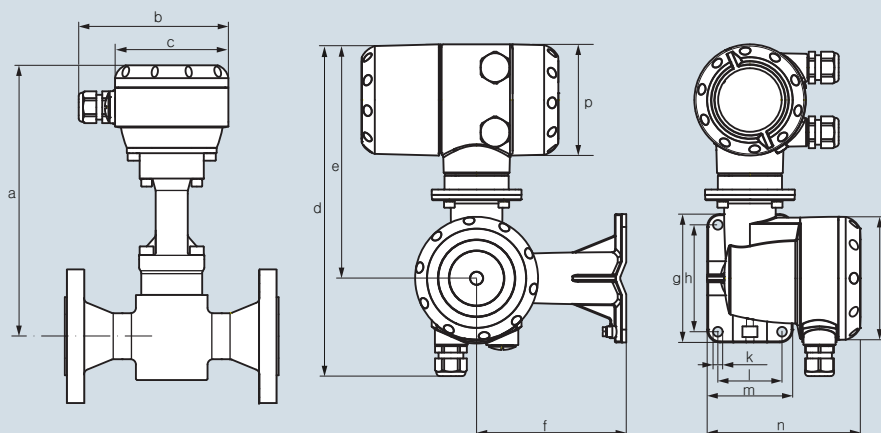
Size DN	Pressure rating Class	Dimensions [inch]								Weight [lb]	
		a	b	c	d	D	L	H	I	Flowmeter (without pressure sensor)	Flowmeter (with pressure sensor)
½"	150, 300, 600	5.24	4.13	7.05	0.63	1.77	2.56	10.43	5.67	7.72	9.04
1"	150, 300, 600	5.24	4.13	7.05	0.94	2.56	2.56	10.43	5.67	9.48	10.80
1½"	150, 300, 600	5.24	4.13	7.05	1.50	3.23	2.56	10.63	5.67	10.80	12.13
2"	150, 300, 600	5.24	4.13	7.05	1.97	4.02	2.56	10.83	5.67	13.23	14.55
3"	150, 300, 600	5.24	4.13	7.05	2.91	5.31	2.56	11.42	6.10	18.08	19.40
4"	150, 300, 600	5.24	4.13	7.05	3.82	6.22	2.56	12.20	6.46	20.94	22.27

Flow Measurement

SITRANS F X

SITRANS FX300

Remote version



Flanged version

DN	15	25	40	50	80	100	150	200	250	300			
	½"	1"	1½"	2"	3"	4"	6"	8"	10"	12"			
	a												
[mm]	248	248	253	258	273	293	308	333	353	378			
[inch]	9.77	9.77	9.97	10.2	10.8	11.5	12.1	13.1	13.9	14.9			
	b	c	d	e	f	g	h	j	k	l	m	n	p
[mm]	140	Ø106	310	219	140	120	100	Ø115	Ø9 (4x)	60	80	144	104
[inch]	5.52	Ø4.18	12.2	8.63	5.52	4.73	3.94	Ø4.53	Ø0.36 (4x)	2.36	3.15	5.67	4.09

Sandwich version

DN	15	25	40	50	80	100							
	½"	1"	1½"	2"	3"	4"							
	a												
[mm]	248	248	253	258	273	293							
[inch]	9.77	9.77	9.97	10.2	10.8	11.5							
	b	c	d	e	f	g	h	j	k	l	m	n	p
[mm]	140	Ø106	310	219	140	120	100	Ø115	Ø9 (4x)	60	80	144	104
[inch]	5.52	Ø4.18	12.2	8.63	5.52	4.73	3.94	Ø4.53	Ø0.36 (4x)	2.36	3.15	5.67	4.09

Flow tablesMeasuring Range Limits**Water**

Size DN to EN 1092-1	DN to ANSI B16.5	Q _{min} EN 1092-1 [m ³ /h]	Q _{max} EN 1092-1 [m ³ /h]	Q _{min} ANSI B16.5 [m ³ /h]	Q _{max} ANSI B16.5 [m ³ /h]
15	½"	0.45	5.07	0.44	4.94
25	1"	0.81	11.40	0.81	11.40
40	1½"	2.04	28.58	2.04	28.58
50	2"	3.53	49.48	3.53	49.48
80	3"	7.74	108.37	7.74	108.37
100	4"	13.30	186.22	13.30	186.21
150	6"	30.13	421.86	30.13	421.86
200	8"	56.60	792.42	56.60	792.42
250	10"	90.48	1 266.8	90.48	1 266.8
300	12"	131.41	1 839.8	131.41	1 839.8

Values based on water at 20 °C (68 °F)

Air

Size DN to EN 1092-1	DN to ANSI B16.5	Q _{min} EN 1092-1 [m ³ /h]	Q _{max} EN 1092-1 [m ³ /h]	Q _{min} ANSI B16.5 [m ³ /h]	Q _{max} ANSI B16.5 [m ³ /h]
15	½"	6.80	25.33	6.72	24.70
25	1"	10.20	81.43	10.20	81.43
40	1½"	25.35	326.63	25.35	326.63
50	2"	43.89	565.49	43.89	565.49
80	3"	96.14	1 238.64	96.14	1 238.60
100	4"	165.19	2 128.27	165.19	2 128.27
150	6"	374.23	4 821.60	374.23	4 821.60
200	8"	702.95	9 056.8	702.95	9 056.8
250	10"	1 123.7	14 478.0	1 123.7	14 478.0
300	12"	1 632.1	21 028.0	1 632.1	21 028.0

Values based on air at 20 °C (68 °F) and 1.013 bar_{abs} (14.7 psi_{abs})Flow rate limits

Product	Nominal diameters		Minimum flow rates [m/s]	Maximum flow rates [m/s]
	to EN	to ANSI		
Liquids	DN 15 ... DN 300	DN ½"...DN 12"	$0.5 \times (998/\rho)^{0.5 \ 1)}$	$7 \times (998/\rho)^{0.47 \ 1)}$
Gas, steam/vapor	DN 15 ... DN 300	DN ½"...DN 12"	$6 \times (1.29/\rho)^{0.5 \ 2)}$	$7 \times (998/\rho)^{0.47 \ 3)}$

 ρ = operating density [kg/m³]

1) Minimum flow rate 0.3 m/s (0.984 ft/s), maximum flow rate 7 m/s (23 ft/s)

2) Minimum flow rate 2 m/s (6.6 ft/s)

3) Maximum flow rate 80 m/s (262 ft/s); DN 15: 45 m/s (148 ft/s) and DN 25: 70 m/s (230 ft/s)

Flow Measurement

SITRANS F X

SITRANS FX300

Measuring range saturated steam: 1 to 7 bar

Overpressure [bar]		1		3.5		5.2		7	
Density [kg/m³]		1.13498		2.4258		3.27653		4.16732	
Temperature [°C]		120.6		148.2		160.4		170.6	
Flow [kg/h]		min.	max.	min.	max.	min.	max.	min.	max.
DN to EN 1092-1	DN to ANSI B16.5								
15	½"	5.87	28.75	7.68	61.46	8.93	83.01	10.06	105.57
25	1"	11.82	92.42	17.28	197.53	20.09	266.81	22.66	339.35
40	1½"	29.64	370.71	43.33	792.33	50.63	1 070.2	56.8	1 361.2
50	2"	51.31	641.82	75.02	1 371.8	87.19	1 852.8	98.33	2 356.6
80	3"	112.41	1 405.8	164.33	3 004.7	191	4 058.4	215.39	5 161.8
100	4"	193.14	2 415.5	282.36	5 162.7	328.16	6 973.3	370.09	8 869.2
150	6"	437.56	5 472.4	639.69	11 696	743.45	15 798	838.44	20 093
200	8"	821.9	10 279.0	1 201.6	21 970.0	1 396.5	29 675.0	1 574.9	37 743
250	10"	1 313.9	16 433.0	1 920.9	35 122.0	2 232.5	47 439.0	2 517.7	60 337
300	12"	1 908.3	23 866.0	2 789.8	51 010.0	3 242.4	68 899.0	3 656.6	87 630

Measuring range saturated steam: 10.5 to 20 bar

Overpressure [bar]		10.5		14		17.5		20	
Density [kg/m³]		5.88803		7.60297		9.31702		10.5442	
Temperature [°C]		186.2		198.5		208.7		215	
Flow [kg/h]		min.	max.	min.	max.	min.	max.	min.	max.
DN to EN 1092-1	DN to ANSI B16.5								
15	½"	12.78	149.17	16.51	192.61	20.23	236.04	22.89	267.12
25	1"	26.93	479.46	30.6	619.11	33.87	758.69	36.04	858.62
40	1½"	67.51	1 878.2	76.72	2 150.7	84.93	2 395.3	90.35	2 557.7
50	2"	116.89	3 251.7	132.82	3 723.4	147.03	4 147	156.42	4 428.1
80	3"	256.03	7 122.4	290.93	8 155.8	322.06	9 083.7	342.62	9 699.3
100	4"	439.91	12 238	499.9	14 013	553.38	15 608	588.69	16 666
150	6"	996.62	27 725	1 132.5	31 747	1 253.7	35 359	1 333.7	37 756
200	8"	1 872.1	52 079	2 127.3	59 634	2 354.9	66 419	2 505.2	70 921
250	10"	2 992.7	83 254	3 400.7	95 333	3 764.6	106 180	4 004.9	113 380
300	12"	4 346.5	120 920	4 939.1	138 460	5 467.5	154 210	5 816.5	164 660

Measuring range saturated steam: 15 to 100 psig

Overpressure [psig]		15		50		75		100	
Density [lb/ft ³]		0.0719		0.1497		0.2036		0.2569	
Temperature [°F]		249.98		297.86		320.36		338.184	
Flow [lb/h]		min.	max.	min.	max.	min.	max.	min.	max.
DN to EN 1092-1	DN to ANSI B16.5								
15	½"	12.95	64.35	16.83	133.87	19.62	182.02	22.04	229.63
25	1"	26.25	206.83	37.86	430.3	44.15	585.06	49.59	738.09
40	1½"	65.81	829.61	94.92	1 726	110.68	2 346.7	124.32	2 960.5
50	2"	113.94	1 436.3	164.34	2 988	191.63	4 062.9	215.23	5 125.6
80	3"	249.57	3 146.1	360	6 545.3	419.74	8 899.4	471.45	11 227
100	4"	428.81	5 405.7	618.51	11 246	721.21	15 291	810.06	19 291
150	6"	971.47	12 246	1 401.2	25 478	1 633.9	34 642	1 835.2	43 703
200	8"	1 824.8	23 004	2 632.1	47 859	3 069.1	65 072	3 447.2	82 092
250	10"	2 917.2	36 774	4 207.7	76 508	4 906.4	104 030	5 510.8	131 230
300	12"	4 236.8	53 410	6 111.1	111 120	7 125.8	151 080	8 003.6	190 600

Measuring range saturated steam: 150 to 300 psig

Overpressure [psig]		150		200		250		300	
Density [lb/ft ³]		0.3627		0.4681		0.5735		0.6792	
Temperature [°F]		366.08		388.04		406.22		422.06	
Flow [lb/h]		min.	max.	min.	max.	min.	max.	min.	max.
DN to EN 1092-1	DN to ANSI B16.5								
15	½"	27.79	324.21	35.86	418.47	43.94	512.66	52.04	607.12
25	1"	58.93	1 042.1	66.94	1 345.1	74.1	1 647.8	80.63	1 951.5
40	1½"	147.72	4 107.2	167.83	4 702.8	185.76	5 237	202.15	5 728
50	2"	255.75	7 111.9	290.56	8 141.9	321.6	9 066.8	350	9 917
80	3"	560.19	15 578	636.44	17 834	704.43	19 860	766.6	21 722
100	4"	962.54	26 766	1 093.5	30 643	1 210.4	34 124	1 317.2	37 324
150	6"	2 180.6	60 639	2 477.4	69 421	2 742.1	77 307	2 984	84 556
200	8"	4 096.1	113 900	4 653.6	130 400	5 150.7	145 210	5 605.2	158 830
250	10"	6 548.1	182 090	7 439.3	208 460	8 234.1	232 140	8 960.6	253 910
300	12"	9 510.2	264 460	10 805	302 760	11 959	337 150	13 014	368 770