Flowmeter FUE380 with approval

Overview

The 2-track flowmeter SITRANS FUE380 comes as battery or mains powered and is designed to measure water flow in district heating plants, local networks, boiler stations, substations, chiller plants and other general water applications.
The flowmeter FUE380 is approved according to heat meter standards EN 1434 class 2 and OIML R75 MID class 2 and metrological parameters are protected against manipulation. The type approved flowmeter version is named SITRANS FUE380. For a standard flowmeter type FUS380 without a type approval see separate FUS380 chapter.
Technically the meter types SITRANS FUS380 and SITRANS FUE380 are completely identical, only difference is the calibration limit and the type approval.

Benefits

- Battery powered up to 6 years
- 115/230 V mains powered with back-up battery option in case of mains power failure
- Fast measuring frequency 20 Hz/0.5 Hz (230 V AC/Battery)
- Easy one button straight forward display
- 2-track measuring principle for optimum accuracy
- Compact or remote mounting
- Measures on all district water qualities and water conductivities
- No pressure drop
- Long-term stability
- 2 galvanic isolated digital outputs for easy connection to a calculator (potential free)
- Bidirectional measurement, with 2 totalizers and outputs
- Dynamic range Q_{min}:Q_{max} up to 1:400
- MODBUS RTU/RS 232, RS 485

Application

The main application for SITRANS FUE380 is measurement of water flow or water flow in heat meter systems for custody transfer in district heating networks or chilled water.
Combined with an energy calculator and a pair of temperature sensors, SITRANS FUE380 can be used as part of an energy meter system. For this purpose Siemens offers energy calculator SITRANS FUE950.

Design

The 2-track design of SITRANS FUE380 ensures maximum accuracy under short inlet conditions. The flowmeter consists of a flow sensor pipe, 4 transducers/transducer cables and a transmitter SITRANS FUS080.

The unit is available in a compact or a remote version with up to 30 meter distance from flowmeter to transmitter. When ordering a compact version the transducer cables are pre-mounted and ready for installation.

Compact mounting is only possible up to 120 °C (248 °F). The sensor must be isolated to protect transmitter from heat. The transmitter is available in an IP67/NEMA 4X/6 enclosure.

Integration

The flowmeter digital output is often used as input for an energy meter or as input for digital systems for remote reading.
SITRANS FUE380 has two digital output functions that can be individually selected, and optional MODBUS RTU communication modules.
Pulse output rate is defined when ordering.
If the flowmeter forms part of an energy meter system for custody transfer, no further approvals are needed, except eventually local approvals on the flowmeter.

Configuration SITRANS FUE380 type approved

Selection guide SITRANS FUE380, type approved flowmeter

Flowmeter values according to EN 1434 class 2 or MID

Flowmeter size nominal to EN 1092-1			**DN 50**	**DN 65**	**DN 80**	**DN 100**	**DN 125**	**DN 150**	**DN 200**	**DN 250**	**DN 300**
Flow range [1]	Q_{max} (Q_s)	m^3/h	15 or 45	25 or 72	40 or 120	120 or 180	200 or 280	300 or 420	500 or 700	800 or 1120	1120 or 1560
	Q_{nom} (Q_p)	m^3/h	15	25	40	60	100	150	250	400	560
- range 1:100	Q_{min} (Q_i)	m^3/h	0.15	0.25	0.4	0.6	1.0	1.5	2.5	4.0	5.6
- range 1:50	Q_{min} (Q_i)	m^3/h	0.3	0.5	0.8	1.2	2	3	5	8	11.2
Pulse value [2]		l/pulse	1	1	2.5	2.5	2.5	10	10	10	50

Flowmeter size nominal to EN 1092-1			**DN 350**	**DN 400**	**DN 500**	**DN 600**	**DN 700**	**DN 800**	**DN 900**	**DN 1000**	**DN 1200**
Flow range [1]	Q_{max} (Q_s)	m^3/h	1500 or 2100	1900 or 2660	2950 or 4130	4300 or 6020	5800 or 8120	7600 or 10640	10000 or 14000	12000 or 16800	18000 or 25200
	Q_{nom} (Q_p)	m^3/h	750	950	1475	2150	2900	3800	5000	6000	9000
- range 1:100	Q_{min} (Q_i)	m^3/h	7.5	9.5	14.75	21.5	29.0	38.0	50	60	90
- range 1:50	Q_{min} (Q_i)	m^3/h	15	19	29.5	43	58	76	100	120	180
Pulse value [2]		l/pulse	50	50	100	100	100	100	100	100	100

Flowmeter values according to OIML R75, class 2 or MID

Flowmeter size nominal to EN 1092-1			**DN 50**	**DN 65**	**DN 80**	**DN 100**	**DN 125**	**DN 150**	**DN 200**	**DN 250**	**DN 300**
Flow range [1]	Q_{max} (Q_s)	m^3/h	45	72	120	180	280	420	700	1120	1560
	Q_{nom} (Q_p)	m^3/h	30	50	80	120	200	300	500	800	1120
	Q_{min} (Q_i)	m^3/h	0.3	0.5	0.8	1.2	2.0	3.0	5.0	8.0	11.2
	cut off	m^3/h	0.06	0.1	0.16	0.24	0.4	0.6	1	1.6	2.24
Pulse value [2]		l/pulse				2.5	2.5	10	10	10	50

Flowmeter size nominal to EN 1092-1			**DN 350**	**DN 400**	**DN 500**	**DN 600**	**DN 700**	**DN 800**	**DN 900**	**DN 1000**	**DN 1200**
Flow range [1]	Q_{max} (Q_s)	m^3/h	2100	2660	4160	6020	8120	10640	14000	16800	25200
	Q_{nom} (Q_p)	m^3/h	1500	1900	2950	4300	5800	7600	10000	12000	18000
	Q_{min} (Q_i)	m^3/h	15.0	19.5	29.5	43.0	58.0	76.0	100	120	180
	cut off	m^3/h	3	3.8	5.9	8.6	11.6	15.2	20	24	36
Pulse value [2]		l/pulse	50	50	100	100	100	100	100	100	100

Dynamic range Q_i:Q_p: better than 1:100 or 1:50 according to EN 1434, OIML R75 class 2 and MID.
Low flow cut off: 0.2% of Q_p (Q_p: nominal flow rate)
In order to obtain best pulse output resolution in the range Q_{min} - Q_{max} of approx. 100 Hz at Q_s, two or three flow values for every dimension can be selected at ordering. Q_p (Q_n). This flow rate is between Q_i (Q_{min}) and Q_s (Q_{max}) and means the normal flow according to the approval requirements. Q_p and Q_s is shown on the system label of the FUS380.

[1] Other typical flow ranges - see Selection and Ordering data table.

[2] In connection with SITRANS FUE950 - other pulse values - see Selection and Ordering data table

Technical specifications SITRANS FUE380

Pipe design	2-track sensor with flanges and integrated transducers wet calibrated from factory
Nominal size welded version	DN 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 500, 600, 700, 800, 900, 1000, 1200
Pressure rate	PN 16, PN 25, PN 40 EN 1092-1
Pipe material	• DN 100 ... 1200: Carbon Steel EN 1.0345 / p235 GH, painted in light-gray. • DN 50 ... 80: Bronze brass G-CuSn10/W2.1050.01 (EN1982)
Transducer design	• DN 100 ... 1200: Integrated version and welded onto the pipe • DN 50 ... 80: Screwed into the pipe
Transducer material	Stainless steel (AISI 316/1.4404)/ brass (CuZn36Pb2as)

Sensor operating conditions

Storage	-40 … +85 °C (-40 … +185 °F)
Liquid temperature	DN 100 ... 1200: • Remote: 2 … 200 °C (35.6 … 392 °F) DN 50 ... 80: • Remote: 2 … 150 °C (35.6 … 302 °F) DN 50 ... 1200: • Compact: 2 … 120 °C (35.6 … 248 °F)
Degree of protection	Sensor connection IP67/NEMA 4X/6
Max. flow velocity	DN 50 … 1200: 6 m/s (19.7 ft/s)

Flowmeter FUE380 with approval

Transmitter

Display	LCD, 8 digits, additional 2 digits and symbols for status information
Push button	One push button for display information
Communication	IrDA – optical communication interface with MODBUS RTU protocol Add-on modules: • RS 232 serial interface with MODBUS RTU (Rx/Tx/GND), point to point with max. 15 m cable • RS 485 serial interface with MODBUS RTU (+/-/GND), multi-drop with up to 32 devices with max. 1000 m cable MODBUS RTU protocol is an open protocol (further information available on request) Serial speed 1200, 2400, 4800, 9600, 19200, 38400 Baud
Enclosure	IP67/NEMA 4X/6 to EN 60529 and DIN 40050
Temperature ambient	0 … 60 °C (32 … 140 °F)
Temperature storage	-40 … +85 °C (-40 … +185 °F) (battery included)
Installation	Compact on sensor: max. 120 °C (248 °F), Separate: max. 30 m (98.4 ft) from transmitter
Mechanical vibration	2 g, 1 … 800 Hz sinusoidal in all directions to IEC 68-2-6
Design	Fibre-glass reinforced polyamide
Power supply	• Battery: replaceable 3.6 V LiSOCl (Lithium Thionyl Chloride) battery pack 32 Ah • Mains: 87 … 265 V AC (50 … 60 Hz)
Measuring rate	Battery mode: 0.5 Hz Mains supply: 20 Hz Back-up mode: 0.5 Hz (at mains supply drop)
Digital output	Two passive individual galvanically isolated MOS relay outputs, A and B, max. ± 35 V AC/DC, 50 mA
Max pulse frequency	100 Hz
Alarm indication	Track 1 (F1), track 2 (F2), Low battery indication (F5), Q_s overflow (F6), pulse overflow (F7)
Cable length	Max. 30 m (98.4 ft) between transmitter and sensor
EMC	• Emission EN 61000-6-4 • Immunity EN 61000-6-2
Approvals	• EN 1434 and OIML R75 Class 2 (PTB approval based on EN1434) • MID approval and certification

Type dependent settings

	FUE380
Flow value	Predefined according to EN 1434 / OIML R75 / MID
Approval	Country specific
Flow rate v_f	0.02 … 6 m/s (0.065 … 19.7 ft/s)
Output A	Preset: Forward pulses
Output B	Preset: Alarm
Pulse value A & B (depending on DN value)	Preset: See scheme - previous page Preset for SITRANS FUE950 or free selectable depending on flow rate (Q_s)
Pulse width	Preset: 5 ms
Flow unit setup	Preset: m^3/h
Volume unit setup	Preset: m^3

SITRANS FUE380 uncertainty

To ensure continuous accurate measurement, flowmeters must be calibrated. The calibration is conducted at SIEMENS flow facilities accredited according to ISO/IEC 17025 by DANAK or UKAS.

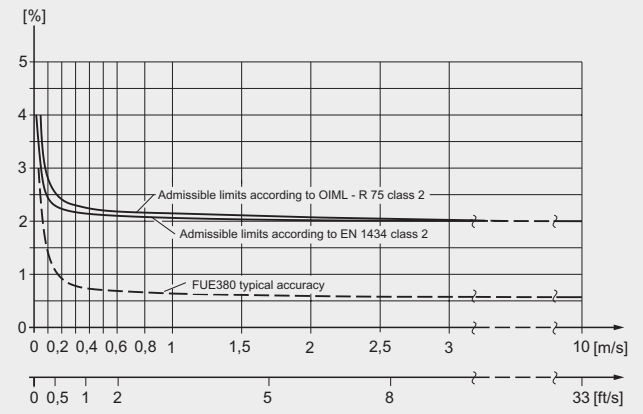
The accreditation bodies DANAK and UKAS have signed the ILAC MRA agreement (International Laboratory Accreditation Corporation - Mutual Recognition Arrangement). Therefore the accreditation ensures international traceability and recognition of the test results in 39 countries world wide, including the US (NIST traceability).

A standard calibration certificate is shipped with every SITRANS FUE380.

Typical accuracy SITRANS FUE380:

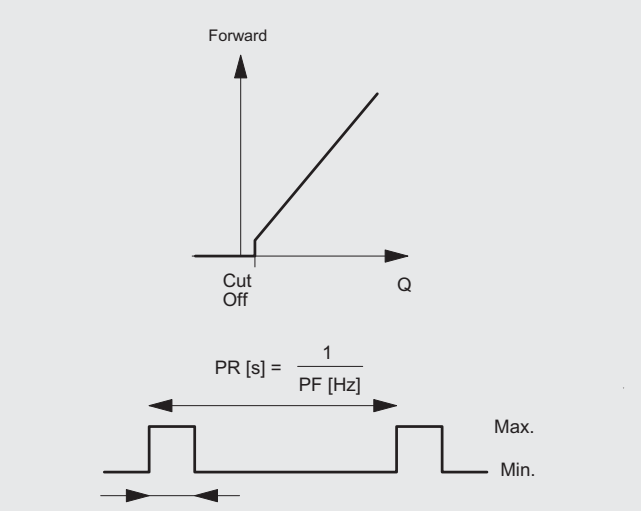
$0.5 + 0.02\ Q_p/Q$ [%]
Q_p according to EN 1434/OIML requirements.

Example: DN 100, Q_p = 60 m^3/h at Q = 1.2 m^3/h:
Accuracy = typical 1.5 %

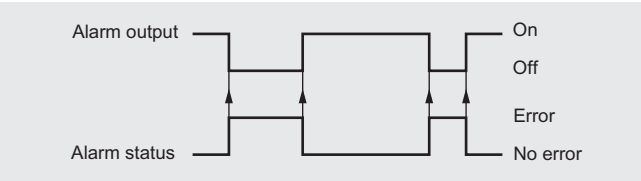


SITRANS FUE380 fulfils the requirements
$E_f = \pm (2 + 0.02\ Q_p/Q_i)$ max. ± 5%, according to EN 1434 and OIML R75, class 2 or MID requirements.

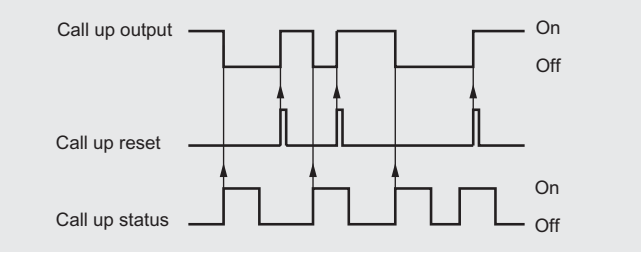
Output configuration SITRANS FUE380



Pulse volume: output A/B configured as volume per pulse, calculated on forward/reverse or net forward/reverse flow. The volume per pulse is free scaleable (via PDM software) if the sealing is open.



Pulse output B can be used as stated above or as alarm or call up function



Call up: the call up output is active until manually reset by use of PDM program. The callup function is activated when an alarm is activated.

Flowmeter FUE380 with approval

Selection and Ordering data			Order No.	Order code
Flowmeter SITRANS FUE380 (type approved)			F)	7ME3410 -
Diameter	**Flow setting [m³/h] Qp[m³/h]1)**	**Qs [m³/h]**		
DN 50 (2")2)	153)	30		1 B
DN 50 (2")2)	153)	45		1 C
DN 50 (2")2)	304)	45		1 D
DN 60 (2½")2)	253)	50		1 F
DN 60 (2½")2)	253)	72		1 G
DN 60 (2½")2)	504)	72		1 H
DN 80 (3")2)	403)	80		1 K
DN 80 (3")2)	403)	120		1 L
DN 80 (3")2)	804)	120		1 M
DN 100 (4")	603)	120		1 P
DN 100 (4")	603)	180		1 Q
DN 100 (4")	1204)	180		1 R
DN 125 (5")	1003)	200		1 T
DN 125 (5")	1003)	280		1 U
DN 125 (5")	2004)	280		1 V
DN 150 (6")	1503)	300		2 B
DN 150 (6")	1503)	420		2 C
DN 150 (6")	3004)	420		2 D
DN 200 (8")	2503)	500		2 F
DN 200 (8")	2503)	700		2 G
DN 200 (8")	5004)	700		2 H
DN 250 (10")	4003)	800		2 K
DN 250 (10")	4003)	1120		2 L
DN 250 (10")	8004)	1120		2 M
DN 300 (12")	5603)	1120		2 P
DN 300 (12")	5603)	1560		2 Q
DN 300 (12")	11204)	1560		2 R
DN 350 (14")	7503)	1500		2 T
DN 350 (14")	7503)	2100		2 U
DN 350 (14")	15004)	2100		2 V
DN 400 (16")	9503)	1900		3 B
DN 400 (16")	9503)	2660		3 C
DN 400 (16")	19004)	2660		3 D
DN 500 (20")	14753)	2950		3 K
DN 500 (20")	14753)	4130		3 L
DN 500 (20")	29504)	4130		3 M
DN 600 (24")	21503)	4300		3 T
DN 600 (24")	21503)	6020		3 U
DN 600 (24")	43004)	6020		3 V
DN 700 (28")	29003)	5800		4 F
DN 700 (28")	29003)	8120		4 G
DN 700 (28")	58004)	8120		4 H
DN 800 (32")	38003)	7600		4 P
DN 800 (32")	38003)	10640		4 Q
DN 800 (32")	76004)	10640		4 R
DN 900 (36")	50003)	10000		5 B
DN 900 (36")	50003)	14000		5 C
DN 900 (36")	100004)	14000		5 D
DN 1000 (40")	60003)	12000		5 K
DN 1000 (40")	60003)	16800		5 L
DN 1000 (40")	120004)	16800		5 M
DN 1200 (48")	90003)	18000		5 T
DN 1200 (48")	90003)	25200		5 U
DN 1200 (48")	180004)	25200		5 V

Selection and Ordering data	Order No.	Order code
Flowmeter SITRANS FUE380 (type approved)	F)	7ME3410 -
Flange norm and pressure rating		
System without sensor - only a transmitter		
EN 1092-1		
PN 16 (DN 100 ... 1200)		C
PN 25 (DN 200 ... 1000)		D
PN 40 (DN 50 ... 250)5)		E
Compact / remote connection		
Compact version, max. 120 °C (248 °F)		0
Remote version, max. 200 °C (392 °F)		
5 m (16.4 ft)		2
10 m (32.8 ft)		3
20 m (65.6 ft)		4
30 m (98.4 ft)		5
Approvals / pulse output		
Without approval (neutral) Selectable pulse output (following code can be 1 ... 9)		0
With approval marks Selectable pulse output (following code can be 1 ... 9)		1
With approval marks and seal Selectable pulse output (following code can be 1 ... 9)		2
Without approval (neutral) Preset pulse output for FUE950 energy meter (following code must be 2 ... 6)		3
With approval marks Preset pulse output for FUE950 energy meter (following code must be 2 ... 6, dimension depending)		4
With approval marks and seal Preset pulse output for FUE950 energy meter (following code must be 2 ... 6)		5
Pulse output value setup		
0.1 l/p (option for DN 50 ... DN 65) with 5 ms		1
1 l/p (typical for DN 50 ... DN 65) with 5 ms		2
2.5 l/p (typical for DN 80 ... DN 125) with 5 ms		3
10 l/p (typical for DN 150 ... DN 250) with 5 ms		4
50 l/p (typical for DN 300 ... DN 400) with 5 ms		5
100 l/p (typical for DN 500 ... DN 1200) with 5 ms		6
Optional pulse values		
250 l/pulse		7
1 m³/pulse		8
0.25 l/pulse		9 N0A
0.5 l/pulse		9 N0B
5 l/pulse		9 N0C
25 l/pulse		9 N0D
500 l/pulse		9 N0E
2.5 m³/pulse		9 N0F
5 m³/pulse		9 N0G
10 m³/pulse		9 N0H
25 m³/pulse		9 N0J
50 m³/pulse		9 N0K
100 m³/pulse		9 N0L
250 m³/pulse		9 N0M
500 m³/pulse		9 N0N
1000 m³/pulse		9 N0P

For notes 1) to 7) see next page

F) Subject to export regulations AL: 9I999, ECCN: N.

Flowmeter FUE380 with approval

Selection and Ordering data	Order No.	Order code			
Flowmeter SITRANS FUE380 (type approved)	F)	7ME3410 -			
Transmitter SITRANS FUE080					
IP67/NEMA 4X/6 115 ... 230 V AC			B		
IP67/NEMA 4X/6 (3.6 V battery supply)			D		
IP67/NEMA 4X/6 115 ... 230 V AC, including 3.6 V battery back up			E		
IP67/NEMA 4X/6 3.6 V battery version (no battery included)[6]			G		
Country / approval type [7]					
Neutral, no approval mark			A		
Denmark, EN 1434/OIML R75			E		
Finland, EN 1434/OIML R75			F		
Germany, EN 1434 (PTB approval, DN 80 ... 1200)			G		
Russia, EN 1434/OIML R75			M		
Ukraine, EN1434/OIML R75			P		
China			Z	Q 0 C	
MID-Approval, (EN 1434/OIML R75), English			R		
MID-Approval, (EN 1434/OIML R75), German			S		
MID-Approval, (EN 1434/OIML R75), Polish			T		
MID-Approval, (EN 1434/OIML R75), French			U		
Pulse width setup					
5 ms (standard)			2		
10 ms			3		
20 ms			4		
50 ms			5		
100 ms			6		
200 ms			7		
500 ms			8		

1) Q_p (Q_n) is the normal flow according to the approval requirements. Q_p and Q_s is shown on the system label.
2) Pipe material bronze brass
3) EN 1434 flow values
4) OIML R75 flow values
5) PN 40 standard for DN 50 ... 80 bronze brass pipes
6) Lithium batteries are subject to special transportation regulations according to United Nations "Regulation of Dangerous Goods, UN 3090 and UN 3091". Special transport documentation is required to observe these regulations. This may influence both transport time and costs.
7) Other countries in progress

Please also see www.siemens.com/SITRANSFordering for practical examples of ordering.

Selection and Ordering data	Order code
Additional information	
Please add „-Z“ to Order No. and following add-on code(s) with plain text.	
Calibration / certificate FUE380	
Approval, verification and sealing as defined with the order number. See order code	
Production calibration for DN 50 ... DN 1200 with Q_n as selected in diameter Calibration protocol: 2 x 3 points, Q_i, 10% Q_p and Q_p (max. 4200 m^3/h).	**Included**
Accredited Siemens ISO/IEC 17025 calibration for DN 50 ... 200 with Q_n as selected in diameter. Certificate: 2 x 3 points, Q_i, 10% Q_p and Q_p (max. 250 m^3/h).	**D20**
Accredited Siemens ISO/IEC 17025 calibration for DN 100 ... 500 with Q_n as selected in diameter. Certificate: 2 x 3 points, Q_i, 10% Q_p and Q_p (max. 1300 m^3/h).	**D21**
Accredited Siemens ISO/IEC 17025 calibration, DN 300 ... 1200 with Q_n as selected in diameter. Certificate: 2 x 3 points, Q_i, 10% Q_p and Q_p (max. 4200 m^3/h).	**D22**
Material certificate	
EN 10204-3.1	**F10**
Tag name plate	
Stainless steel tag with 12 mm characters, max. 15 characters (add plain text)	**Y17**
Self-adhesive plastic tag with 8 mm characters, max. 15 characters (add plain text)	**Y18**

MLFB Ordering example

Customer requires a flowmeter for custody transfer:

- DN 250, PN 25, compact version (media temperature max. 120 °C), battery version.
- Type approved according to EN 1434, verified and sealed for Germany.
- Material certificate and metal tag name plate.
- Pulse output for energymeter SITRANS FUE950.

Ordering:

FUE380: **7ME3410-2LD05-4DG2-Z, F10, Y17**

Example of appropriate energy meter:

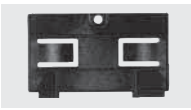
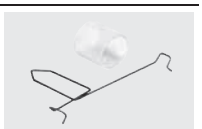
Energy meter type: **FUE950-03110-0R1CB-10300-DK2-00012**

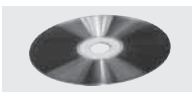
Please use online Product selector to get latest updates.
Product selector link:
www.pia-selector.automation.siemens.com

F) Subject to export regulations AL: 9I999, ECCN: N.

Accessories / Spare parts to Flowmeter FUS380 and FUE380

SITRANS FUS380/FUE380 - Spare parts

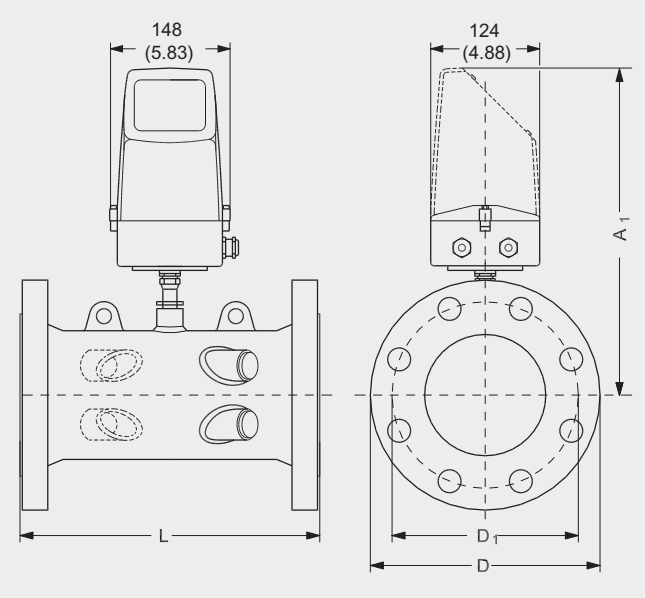
Type/description	Order No.[F)]	Symbol
Dual battery pack (6 year lifetime) 33 Ah	**FDK-087H2255**	
Single battery back-up to main supply 13.5 Ah	**FDK-087L4201**	
Battery cover for transmitter FUS080	**A5E00694468**	
PG 13.5 set (2 pcs.) for main cable/pulse cable	**FDK-083G0228**	
PG 13.5 set (2 pcs.) for dual coax cable (6 mm)	**A5E00694500**	
SITRANS FUS/FUE380 wall mounting kit for remote transmitter mounting, including connection plate (DN 50 ... 1200/2" ... 48")	**A5E00694509**	
SITRANS FUS/FUE380 terminal box for compact transmitter mounting, including connection plate, (bronze sensors only, DN 50 ... 80/2" ... 3")	**A5E01208138**	
SITRANS FUS/FUE380 terminal box for compact transmitter mounting, including connection plate, (steel sensors only, DN 100 ... 1200/4" ... 48")	**A5E00694660**	
Brace (holder) for optical IrDA eye	**A5E00695277**	
IrDA infrared interface adapter with USB for data acquisition with 1.2 m (3.9 ft) cable	**FDK-087L4163**	
RS 232 add-on module, point to point communication interface with MODBUS RTU protocol	**FDK-087L4212**	
RS 485 add-on module, multidrop communication interface with MODBUS RTU protocol	**FDK-087L4213**	

Type/description	Order No.[F)]	Symbol
5 m (16.4 ft) cable set (4 pcs.) for DN 50 ... 80 (2" ... 3") remote mounting	**A5E01208092**	
10 m (32.8 ft) cable set (4 pcs.) for DN 50 ... 80 (2" ... 3") remote mounting	**A5E01208114**	
20 m (65.6 ft) cable set (4 pcs.) for DN 50 ... 80 (2" ... 3") remote mounting	**A5E01208117**	
30 m (98.4 ft) cable set (4 pcs.) for DN 50 ... 80 (2" ... 3") remote mounting	**A5E01208121**	
1 m (3.28 ft) cable set (4 pcs.) for DN 50 ... 80 (2" ... 3") for compact version	**A5E01208126**	
5 m (16.4 ft) cable set (4 pcs.) for DN 100 ... 1200 (4" ... 48") remote mounting	**A5E00695476**	
10 m (32.8 ft) cable set (4 pcs.) for DN 100 ... 1200 (4" ... 48") remote mounting	**A5E00695479**	
20 m (65.6 ft) cable set (4 pcs.) for DN 100 ... 1200 (4" ... 48") remote mounting	**A5E00695480**	
30 m (98.4 ft) cable set (4 pcs.) for DN 100 ... 1200 (4" ... 48") remote mounting	**A5E00695483**	
1 m (3.28 ft) cable set (4 pcs.) for DN 100 ... 1200 (4" ... 48") for compact version	**A5E00695486**	
Process Device Manager SIMATIC PDM		
SIMATIC PDM Single Point V6.0 For operation and parameterization of one field device, communication using PROFIBUS DP/PA or HART modem, incl. 1 TAG **Cannot** be expanded by further functions or TAG option/power-pack 5 languages (German, English, French, Spanish, Italian) executes with Windows 2000 Professional or Windows XP Professional	**6ES7658-3HX06-0YA5**	

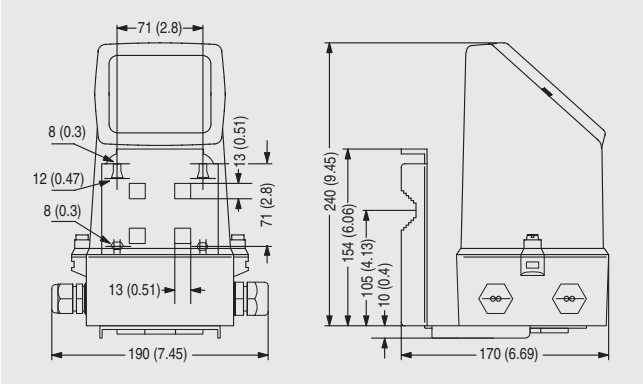
Downloads for DEVICE description FUE380
http:/support.automation.siemens.com/WW/view/en/17320235

F) All products on this page subject to export regulations AL: 9I999, ECCN: N.

Dimensional drawings



Transmitter IP67/NEMA 4X/6, wall mounting



Pipe Dimensions for FUS380 and FUE380

Size	PN 16		PN 25		PN 40					
	L	Weight	L	Weight	L	Weight	A1	D	D_1	Lift hug
DN	mm	kg	mm	kg	mm	kg	mm	mm	mm	
50	-	-	-	-	300 +0/-2	10	350	165	125	No
65	-	-	-	-	300 +0/-2	15	360	185	145	No
80	-	-	-	-	350 +0/-3	18	370	200	160	No
100	350 +0/-2	15	-	-	350 +0/-3	18	375	220	180	No
125	350 +0/-2	18	-	-	350 +0/-3	24	380	250	210	No
150	500 +0/-3	28	-	-	500 +0/-3	34	390	285	240	Yes
200	500 +0/-3	38	500 +0/-3	47	500 +0/-3	55	414	340	295	Yes
250	600 +0/-3	60	600 +0/-3	76	600 +0/-3	91	440	405	355	Yes
300	500 +0/-3	66	500 +0/-3	81	-	-	466	460	410	Yes
350	550 +0/-3	94	550 +0/-3	121	-	-	495	520	470	Yes
400	600 +0/-3	124	600 +0/-3	153	-	-	507	580	525	Yes
500	625 +0/-3	176	625 +0/-3	235	-	-	558	715	650	Yes
600	750 +0/-3	244	750 +0/-3	292	-	-	609	840	770	Yes
700	875 +0/-3	258	875 +0/-3	416	-	-	660	910	840	Yes
800	1 000 +0/-3	338	1 000 +0/-3	562	-	-	710	1 025	950	Yes
900	1 230 +6/-6	475	1 300 +6/-6	835	-	-	810	1 125	1 050	No
1000	1 300 +6/-6	594	1 370 +6/-6	1 078	-	-	910	1 255	1 170	No
1200	1 360 +6/-6	860	-	-	-	-	1 110	1 485	1 390	No

Notes:
- Weight for transmitter/electronics 1.5 kg (3.3 lb)
- D and D1 are values for standard versions (with standard flanges). For versions with higher pressure ratings - see EN 1092-1.
- - Means not available
- All weigths are **approximately**

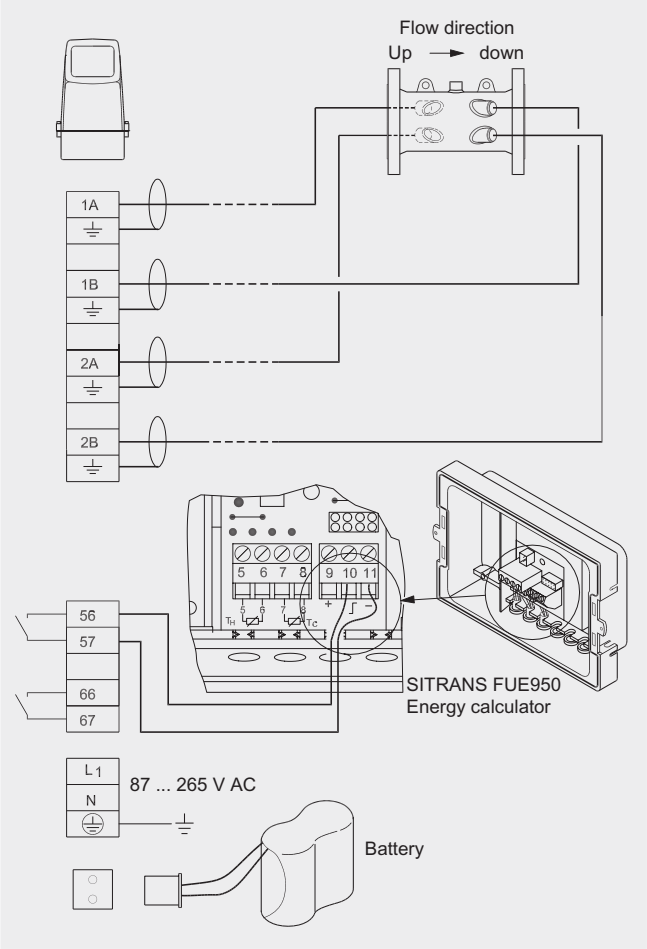
Flowmeter FUS380 and FUE380

Size	PN 16		PN 25		PN 40					
	L	Weight	L	Weight	L	Weight	A1	D	D_1	Lift hug
inch	inch	lb	inch	lb	inch	lb	inch	inch	inch	
2	-	-	-	-	12 +0/-0.08	22	14	6.6	5	No
2½	-	-	-	-	12 +0/-0.08	33	14.4	7.4	5.8	No
3	-	-	-	-	14 +0/-0.08	40	14.8	8	6.4	No
4	13.77 +0/-0.08	33	-	-	13.77 +0/-0.12	40	15	8.66	7.09	No
5	13.77 +0/-0.08	40	-	-	13.77 +0/-0.12	53	15.2	9.84	8.27	No
6	19.68 +0/-0.12	62	-	-	19.68 +0/-0.12	75	15.6	11.22	9.45	Yes
8	19.68 +0/-0.12	84	19.68 +0/-0.12	104	19.68 +0/-0.12	121	16.30	13.39	11.61	Yes
10	23.62 +0/-0.12	132	23.62 +0/-0.12	168	23.62 +0/-0.12	201	17.32	15.94	13.98	Yes
12	19.68 +0/-0.12	146	19.68 +0/-0.12	179	-	-	18.35	18.11	16.14	Yes
14	21.65 +0/-0.12	207	21.65 +0/-0.12	267	-	-	19.8	20.8	18.8	Yes
16	23.62 +0/-0.12	273	23.62 +0/-0.12	337	-	-	19.96	22.83	20.67	Yes
20	24.61 +0/-3	419	24.61 +0/-0.12	538	-	-	21.97	28.15	25.59	Yes
24	29.53 +0/-0.12	668	29.53 +0/-0.12	805	-	-	23.98	33.07	30.31	Yes
28	34.45 +0/-0.12	796	34.45 +0/-0.12	1 217	-	-	25.98	35.83	33.07	Yes
32	39.37 +0/-0.12	1 089	39.37 +0/-0.12	1 698	-	-	27.95	40.35	37.40	Yes
36	39.2 +0/-0.24	1 047	52.00 +0/-0.24	1 841	-	-	32.4	45	42	No
40	52 +0/-0.24	1 310	54.80 +0/-0.12	2 376	-	-	36.4	50.2	46.8	No
48	54.4 +0/-0.24	1 892	-	-	-	-	44.4	59.4	55.6	No

Notes:
- Weight for transmitter/electronics 1.5 kg (3.3 lb)
- D and D1 are values for standard versions (with standard flanges).
  For versions with higher pressure ratings - see EN 1092-1.
- - Means not available
- All weigths are **approximately**

Schematics

Electrical connection FUS380 and FUE380



The scheme shows the transducer cable connections between transmitter terminals and respective transducer and the electrical connection of the energy calculator SITRANS FUE950.