



Overview



SITRANS FUP1010 clamp-on non-intrusive ultrasonic flow transmitter offers maximum versatility plus battery power for portable field use. It can operate in either WideBeam transit time or reflexor (Doppler) mode, making it suitable for virtually any liquid, even those with high aeration or suspended solids.

SITRANS FUP1010 is available in single and dual channel or dual path configurations, with IP67 weatherproof enclosure.

Benefits

- Battery power facilitates field use; the meter is easily transported from one installation to another – saving time for surveys, monitoring and temporary installations
- Weatherproof enclosure can be used outdoors and left in place without concern for rain damage
- Rugged plastic case enables it to withstand rough treatment that would destroy most other meters
- Versatility - there is no need to change meters when operating conditions change
- Easy installation; no need to cut pipe or stop flow
- Minimal maintenance; external sensors do not require periodic cleaning
- No moving parts to wear or foul
- No pressure drop or energy loss
- Wide turn-down ratio
- Choice of single or dual channel models minimizes total cost
- ZeroMatic Path automatically sets zero without stopping flow and reduces zero drift, even at low flow
- Note that the FUP1010 flow transmitter is not available with hazardous area approvals

Application

FUP1010 is suitable for a wide variety of liquid applications, including the following:

- Water industry
 - Raw water
 - Potable water
 - Chemicals
- Wastewater industry
 - Raw sewage
 - Effluent
 - Sludges
 - Mixed liquor
 - Chemicals
- HVAC industry
 - Chillers
 - Condensers
 - Hot and cold water systems
 - Thermal energy rate and total
- Power industry
 - Nuclear
 - Fossil
 - Hydroelectric
- Processing industry
 - Process control
 - Batching
 - Rate indication
 - Volumetric and mass measurement

Design

- IP67 Weatherproof / Impact resistant enclosure constructed of mineral reinforced copolymer polypropylene
 - Single channel
 - Dual channel / dual path

Function

- Integral 33 button keypad and large (128 x 240 pixel) graphic display visible up to 12 m (40 ft) away
- Current, voltage, frequency and RS232 outputs (see specification section for details)
- Optional current, voltage and temperature inputs (see specification section for details)
- ZeroMatic Path automatically sets zero
- Bi-directional flow operation
- 1 MByte data logger with both site and data logger storage
- English, spanish, german, italian and french language options

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SITRANS FUP1010 (portable)

Technical specifications

Input

Flow range	± 12 m/s (± 40 ft/s), bidirectional
Pipe size	6.4 mm ... 9.14 m (0.25" ... 360")
Inputs, single channel	<ul style="list-style-type: none">• Current: 2 x 4 ... 20 mA DC• Voltage: 2 x 0 ... 10 V DC• Temperature: 2 x 4 wire 1 kΩ RTD

Output

Outputs	<ul style="list-style-type: none">• Current: 2 x 4 ... 20 mA DC (1 kΩ at 30 V DC)• Voltage: 2 x 0 ... 10 V DC (5 kΩ minimum)• Status Alarm: 4 x SPDT Relays• Frequency: 2 x 0 ... 5000 Hz• RS232
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Accuracy

Accuracy	± 0.5% ... 2% of flow, for velocities greater than 0.3 m/s (1 ft/s) ± 0.0015 ... 0.006 m/s (± 0.005 ... 0.02 ft/s), for velocities less than 0.3 m/s (1 ft/s)
Batch repeatability	± 0.15% of flow, for velocities greater than 0.3 m/s (1 ft/s) ± 0.0005 m/s (± 0.0015 ft/s), for velocities less than 0.3 m/s (1 ft/s)

Rated operation conditions

Degree of protection	<ul style="list-style-type: none">• Weatherproof/impact resistant	<ul style="list-style-type: none">• IP67
Liquid temperature	<ul style="list-style-type: none">• Standard• Optional	-40 ... +120 °C (-40 ... +250 °F) -40 ... +230 °C (-40 ... +450 °F)
Ambient temperature		-18 ... +60 °C (0 ... 140 °F)

Design

Dimensions	see SITRANS F US Clamp-on "System info and selection guide"
Weight	see diagrams

Power supply

Power	Internal rechargeable battery
Battery operation	7 hours

Indication and operation

Data logger memory	1 MByte
Site storage memory	50 sites minimum
Display	128 x 240 pixel LCD with back-light
Keypad	33 keypad buttons with tactile feedback
Language options	English, spanish, german, italian, french

Certificates and approvals

Unclassified locations	UL ULc
Classified locations	
CE	EMC Directive 2004/108/EC LVD Directive 2006/95/EG

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Standard MLFB for quick delivery on SITRANS FUP1010 Portables (excluding energy)

Selection and Ordering data	Order No.	Order Code	Selection and Ordering data	Order No.	Order Code
SITRANS FUP1010 Portable clamp-on			SITRANS FUP1010 Portable clamp-on		
<ul style="list-style-type: none"> IP67 Weather proof battery powered 	L)	7ME3510-	<ul style="list-style-type: none"> IP67 Weather proof battery powered 	L)	7ME3510-
		■ ■ ■ ■ - 0 ■ 0 ■ ■ ■ ■			■ ■ ■ ■ - 0 ■ 0 ■ ■ ■ ■
Number of channels/ultrasonic paths			Sensor for channel 2		
Single channel	1		(includes pipe mounting kit and spacer bar for indicated max. outer diameter listed)		
Dual channel/Dual path	2		See „Sensor selection charts“ for specifications.		
Standard flowmeter types and I/O configurations			no sensor		A
<ul style="list-style-type: none"> Standard I/O - 2 x 4 ... 20 mA analog in - 2 x RTD input 		C	A2 universal	Trackmount and straps provided up to 75 mm (3")	B
Sensor cables			B3 universal	Trackmount and straps provided up to 125 mm (5")	C
No sensor cable		A	C3 universal	Mounting frame and straps provided up to 300 mm (13")	D
1 x PVC Jacket cable, length 6 m/20 ft		B	D3 universal	Mounting frame and straps provided up to 600 mm (24")	E
2 x PVC Jacket cable, length 6 m/20 ft		C	E2 universal	Mounting frame and straps provided up to 600 mm (24")	F
1 x PVC Jacket cable, length 15 m/50 ft		D	C1H (high precision)	Mounting frame and straps provided up to 600 mm (24")	M
2 x PVC Jacket cable, length 15 m/50 ft		E	C2H (high precision)	Mounting frame and straps provided up to 600 mm (24")	N
RTD temperature Sensor			D1H (high precision)	Mounting frame and straps provided up to 600 mm (24")	P
(Mounting hardware & cable included)			D2H (high precision)	Mounting frame and straps provided up to 600 mm (24")	Q
No RTDs		0	Doppler	to 12" with strap kit (not for IP65 (NEMA 7))	S
1 x standard clamp-on RTD, 6 m/20 ft cable		5	D1H	High temperature range 104 °C / 220 °F HP ²⁾	Z
2 x standard clamp-on RTD with 6 m/20 ft cable		6			Q 1 P
1 x standard clamp-on RTD with 15 m/50 ft cable		7			
2 x standard clamp-on RTD with 15 m/50 ft cable		8			
Battery charger options					
No battery charger		0			
Charger Type A for Europe (CEE7/7)		1			
Charger Type G for U.S. (NEMA 5-15P)		5			
Sensor for channel 1					
(includes pipe mounting kit and spacer bar for indicated max. outer diameter listed)					
See „Sensor selection charts“ for specifications.					
no sensor		A			
A2 universal	Trackmount and straps provided up to 75 mm (3")	B			
B3 universal	Trackmount and straps provided up to 125 mm (5")	C			
C3 universal	Mounting frame and straps provided up to 300 mm (13")	D			
D3 universal	Mounting frame and straps provided up to 600 mm (24")	E			
E2 universal	Mounting frame and straps provided up to 600 mm (24")	F			
C1H (high precision)	Mounting frame and straps provided up to 600 mm (24")	M			
C2H (high precision)	Mounting frame and straps provided up to 600 mm (24")	N			
D1H (high precision)	Mounting frame and straps provided up to 600 mm (24")	P			
D4H (high precision)	Mounting frame and straps provided up to 600 mm (24")	R			
Doppler	to 12" with strap kit (not for IP65 (NEMA 7))	S			
D1H	High temperature range 104 °C/ 220 °F HP ²⁾	Z			P 1 P

Approvals: No options (UL, ULc, CE by default)

Standard MLFB product offering represents 4 to 6 weeks delivery time

L) Subject to export regulations AL: N, ECCN: 3A991X

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SITRANS FUP1010 (portable)

Selection and Ordering data	Order No.	Ord. code
SITRANS FUP1010 Portable clamp-on		
• IP67 weather proof battery powered	L) 7ME3510-	
	■ ■ ■ ■ - 0 ■ ■ 0 ■ ■ ■	
Sensor for channel 1 (continued)		
For the following B1H to D4H sensors, temperature range is -1 °C up to 104 °C (30 °F up to 220 °F), nominal 65 °C (150 °F):		
B1H (high temperature range HP)	Z	P 1 K
B2H (high temperature range HP)	Z	P 1 L
C1H (high temperature range HP)	Z	P 1 M
C2H (high temperature range HP)	Z	P 1 N
D1H (high temperature range HP)	Z	P 1 P
D2H (high temperature range HP)	Z	P 1 Q
D4H (high temperature range HP)	Z	P 1 R
Sensor for channel 2		
(includes pipe mounting kit and spacer bar for indicated max. outer diameter listed)		
See „Sensor selection charts“ for specifications.		
no sensor		A
A2 universal Trackmount and straps provided up to 75 mm (3")		B
B3 universal Trackmount and straps provided up to 125 mm (5")		C
C3 universal Mounting frame and straps provided up to 300 mm (13")		D
D3 universal Mounting frame and straps provided up to 600 mm (24")		E
E2 universal Mounting frame and straps provided up to 600 mm (24")		F
For the following A1H to D4H sensors, temperature range is -40 °C to 65 °C (-41 °F to 150 °F), nominal 21 °C (70 °F):		
A2H (high precision) Trackmount and straps provided up to 75 mm (3")		H
A3H (high precision) Trackmount and straps provided up to 75 mm (3")		J
B1H (high precision) Trackmount and straps provided up to 125 mm (5")		K
B2H (high precision) Trackmount and straps provided up to 125 mm (5")		L
C1H (high precision) Mounting frame and straps provided up to 600 mm (24")		M
C2H (high precision) Mounting frame and straps provided up to 600 mm (24")		N
D1H (high precision) Mounting frame and straps provided up to 600 mm (24")		P
D2H (high precision) Mounting frame and straps provided up to 600 mm (24")		Q
D4H (high precision) Mounting frame and straps provided up to 600 mm (24")		R
Doppler to 12" with chain kit		S

Selection and Ordering data	Order No.	Ord. code
SITRANS FUP1010 Portable clamp-on		
• IP67 weather proof battery powered	L) 7ME3510-	
	■ ■ ■ ■ - 0 ■ ■ 0 ■ ■ ■	
Sensor for channel 2 (continued)		
High temperature sensor size 2 for up to 230 °C (446 °F) (30 to 200 mm diam. (1.18 to 7.67 inch diam.))	Z	Q 1 A
High temperature sensor size 3 for up to 230 °C (446 °F) (150 to 610 mm diam. (5.90 to 24 inch diam.))	Z	Q 1 B
High temperature sensor size 4 for up to 230 °C (446 °F) (400 to 1200 mm diam. (15.75 to 47.25 inch diam.))	Z	Q 1 C
For the following B1H to D4H sensors, temperature range is -1 °C up to 104 °C (30 °F up to 220 °F), nominal 65 °C (150 °F):		
B1H (high temperature range HP)	Z	Q 1 K
B2H (high temperature range HP)	Z	Q 1 L
C1H (high temperature range HP)	Z	Q 1 M
C2H (high temperature range HP)	Z	Q 1 N
D1H (high temperature range HP)	Z	Q 1 P
D2H (high temperature range HP)	Z	Q 1 Q
D4H (high temperature range HP)	Z	Q 1 R
Approvals: No options (UL, ULc, CE by default)		
1) -40 ... +200 °C (-40 ... +392 °F)		
2) -40 ... +80 °C (-40 ... +176 °F)		
L) Subject to export regulations AL: N, ECCN: 3A991X.		

Selection and Ordering data	Order No.
Operating Instructions for FUP1010	
English IP67	A5E02951522A
German IP67	A5E02951534A

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SITRANS FUP1010 (portable)

Selection and Ordering data

Order code

Further designs

Please add „-Z“ to Order No. and specify Order code(s).

Languages (Meter and Documentation), English (default). All languages now come standard in all flow-meters

Wet flow transfer calibration (priced on request)

- 6 point up to DN 100 (4 inch) **D10**
- 6 point up to DN 125 to DN 200 (5 to 8 inch) **D11**
- 6 point up to DN 250 to DN 300 (10 to 12 inch) **D12**
- 6 point up to DN 350 to DN 400 (14 to 16 inch) **D13**
- 6 point up to DN 450 to DN 500 (18 to 20 inch) **D14**
- 6 point up to DN 550 to DN 600 (22 to 24 inch) **D15**
- 6 point up to DN 650 to DN 750 (26 to 30 inch) **D16**
- 6 point up to DN 800 to DN 900 (32 to 36 inch) **D17**

1x Insertion RTD with thermowell and lagging **M1A**

2x Insertion RTD with thermowell and lagging **M1B**

Tag name plate

- Stainless steel tag with 3.2 mm (0.13 inch) character size (68 characters max.) **Y19**

1) Supplied spacer bar supports pipes up to 1050 mm (42 inches). For pipes larger than 1050 mm (42 inches) purchase also, spare part 7ME3960-0MS40 (1012BN-4)

2) Supplied spacer bar supports pipes up to 750 mm (30 inches). For pipes larger than 750 mm (30 inches) purchase also, spare part 7ME3960-0MS40 (1012BN-4)

MLFB example

Application example

A general survey portable flowmeter is required for pipes sizes ranging from 76 ... 500 mm (3" ... 20") with both cast iron and steel material. Doppler may be required as liquid may be moderately aerated.

Requires language support for German.

MLFB Order No.: **7ME3511-2AB01-0DE0-Z
B10**

Sensor Selection Charts

Universal sensors for any pipe material

Sensor Size Code	Order Code	Outer diameter range (mm)		Outer diameter range (inches)	
		min	max	min	max
A2	B	12.7	50.8	0.5	2
B3	C	19	127	0.75	5
C3	D	51	305	2	12
D3	E	203	610	8	24
E2	F	254	6096	10	240

High precision sensors for steel pipe with outer diameter/wall thickness ratio > 10

Sensor Size Code	Order Code	Pipe wall (mm)		Pipe wall (inches)	
		min	max	min	max
A1H	G	0.64	1.02	0.025	0.04
A2H	H	1.02	1.52	0.04	0.06
A3H	J	1.52	2.03	0.06	0.08
B1H	K	2.03	3.05	0.08	0.12
B2H	L	3.05	4.06	0.12	0.16
C1H	M	4.06	5.84	0.16	0.23
C2H	N	5.84	8.13	0.23	0.32
D1H	P	8.13	11.17	0.32	0.44
D2H	Q	11.18	15.75	0.44	0.62
D4H	R	15.75	31.75	0.62	1.25

Selection and Ordering data

Order No.

Ord. code

FUP1010 meter family

7 ME 3 5 1 - - 0 0

IP67 weather proof

1

Dual channel

2

Portable Type 3 I/O with Doppler capable, temperature

C

1 x PVC-Jacket, length 6 m (20 ft)

B

No RTDs required

0

Charger Type A for Europe (CEE7/7)

1

Sensor for DN 50 ... DN 300 (2" ... 12") pipes

D

Sensor for DN 200 ... DN 600 (8" ... 24") pipes

E

German language support

B 1 0

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Overview



There are two check kits available: SITRANS FUP1010 Water Check Metering Kit for water and wastewater applications, and SITRANS FUP1010 Liquid Check Metering Kit for liquid applications other than water. The kits have been developed especially for verifying the accuracy and performance of any brand or type of flowmeter. They can be used to verify the performance of meters based on any existing flow measurement principle: orifice, electromagnetic, ultrasonic, rotary piston, coriolis, etc. In addition, they measure practically all conductive or non-conductive clean or moderately aerated liquids or liquids with suspended solids.

Benefits

- Performance check or verification of any type or brand of flowmeter
- Field use is facilitated by meter portability and 7 hours or normal battery operation.
- Weatherproof enclosure withstands even severe weather conditions
- 1 MByte datalogger capability downloadable to PC via included RS 232 cable
- Fast, easy and cost-efficient on-site measurement of any convoluted pipe from 20 to 1200 mm (0.75 to 48")
- Delivered as an all inclusive kit in a sturdy rolling case that holds all the equipment needed to conduct performance and verification tests (cables, multiple sensors, flow transmitter etc.)

Application

The SITRANS FUP1010 Water and Liquid Metering Kits measure practically all conductive or non-conductive clean or moderately aerated liquids or liquids with suspended solids. This basic feature enables the performance check and verification of existing meters used in various water and wastewater applications such as:

Raw Water and sewage

- Potable water
- Chemicals
- Effluent and sludges
- Process control
- Batching
- Rate indication
- Hot and cold water systems

Design

- IP67 weatherproof/impact resistant enclosure, constructed of mineral reinforced copolymer polypropylene
- Single channel

Function

- Integral 33 button keypad and large (128 x 240 pixel) graphic display visible up to 12 m (40 ft) away
- Current, voltage, frequency and RS 232 outputs (see Technical specification section for details)
- Optional current, voltage and temperature inputs (see specification section for details)
- ZeroMatic Path automatically sets zero
- Bi-directional flow operation
- 1 MByte data logger with both site and data logger storage
- English, spanish, german, italian and french language options

Technical specifications

Pipe sizes	
• Water Check Metering Kit	50 ... 1050 mm (2 ... 42")
• Liquid Check Metering Kit	20 ... 1200 mm (0.75 ... 48")
Accuracy	±0.5 % ... ±2.0 % of flow rate
Flow range	12 m/s (40 ft/s) bidirectional
Media temperature	-40 ... +104 °C (-40 ... 220 °F)
Enclosure ratings	IP67 (waterproof)

See page 4/310 for complete technical specifications

Certificates and approvals

Unclassified locations	UL ULc
Classified locations	
CE	EMV Directive 2004/108/EC LVD Directive 2006/95/EG

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SITRANS FUP1010
Water/Liquid Check metering kit

Selection and Ordering data	Order No.
SITRANS FUP1010 Water Check Metering Kit	CQO:FUPW-WWKIT^{D)}
<i>Content of delivery</i>	
1 Single channel portable submersible flow transmitter	
1 pair Universal sensor C3	
1 pair Universal sensor E2	
1 pair Doppler sensors	
1 pair Mounting Ezclamp (2 mounting Ezclamp chains)	
1 Ladder chain	
1 Battery charger	
1 pair 20 ft sensor cable	
1 Cable - 1010WP/WDP to PC	
1 PinStop spacer bar (universal)	
1 Flow case	
1 Flowmeter manual	
1 Laminated card set	
1 Certificate of intrinsic calibration	

Selection and Ordering data	Order No.
SITRANS FUP1010 Liquid Check Metering Kit	CQO:FUS-LIQKIT^{D)}
<i>Content of delivery</i>	
1 Single channel portable submersible transmitter	
1 pair Universal sensor B3	
1 pair Universal sensor C3	
1 pair Universal sensor D3	
1 pair Universal sensor E2	
1 pair Doppler sensors	
1 pair Sensor cables 6m (20 ft)	
1 pair Mounting track	
1 pair Mounting Ezclamp	
1 Spacer bar (portable)	
1 Ladder chain	
1 Battery charger	
1 RS232 cable for PC connection	
1 Flow case	
1 Clamp-on flowmeter manual CD	
1 Flowmeter manual	
1 Laminated card set	
1 Certificate of intrinsic calibration	

D) Subject to export regulations AL: N, ECCN: EAR99H.

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