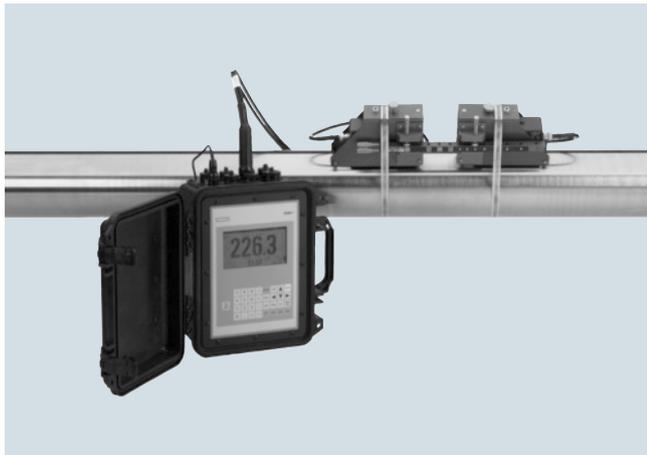


## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUP1010 (Portable)

##### 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 SITRANS FUP1010 flow transmitter is not available with hazardous area approvals

##### Application

SITRANS 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 RS 232 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
- VT100 RS 232 communications

### Technical specifications

<b>Input</b>	
Flow range	± 12 m/s (± 40 ft/s), bidirectional
Flow sensitivity	0.0003 m/s ( 0.001 ft/s), flow rate independent
Pipe size	6.4 mm ... 9.14 m (0.25" ... 360")
Inputs, single channel	<ul style="list-style-type: none"> <li>• Current: 20 mA DC</li> <li>• Temperature: 4 wire 1 kΩ RTD</li> </ul>
<b>Output</b>	
Outputs	<ul style="list-style-type: none"> <li>• Current: 20 mA DC (1 kΩ at 30 V DC)</li> <li>• Voltage: 10 V DC (5 kΩ minimum)</li> <li>• Status Alarm: SPDT Relays</li> <li>• Pulse rate: 5 kHz</li> <li>• VT100 RS 232</li> </ul>
<b>Accuracy</b>	
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)
<b>Rated operation conditions</b>	
Degree of protection	IP67
<ul style="list-style-type: none"> <li>• Weatherproof/impact resistant</li> </ul>	
Liquid temperature	-40 ... +120 °C (-40 ... +250 °F)
<ul style="list-style-type: none"> <li>• Standard</li> </ul>	
<ul style="list-style-type: none"> <li>• Optional</li> </ul>	-40 ... +230 °C (-40 ... +450 °F)
Ambient temperature	-18 ... +60 °C (0 ... 140 °F)
<b>Design</b>	
Dimensions	see SITRANS F US Clamp-on "System info and selection guide"
Weight	see diagrams
<b>Power supply</b>	
Power	Internal rechargeable battery
Battery operation	7 hours
<b>Indication and operation</b>	
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
<b>Certificates and approvals</b>	
Unclassified locations	UL ULc
Classified locations	
CE	EMC Directive 2004/108/EC ATEX Directive 94/9/EC

## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUP1010 (Portable)

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

Selection and Ordering data	Article No.	Order Code
<b>SITRANS FUP1010 (Portable)</b>	<b>7ME3510-</b>	
• IP67 weatherproof battery powered		
<a href="#">Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>		
<b>Number of channels/ultrasonic paths</b>		
Single channel	1	
Dual channel/Dual path	2	
<b>Standard flowmeter types and I/O configurations</b>		
• Standard I/O		
- 2 x 4 ... 20 mA analog in		
- 2 x RTD input		
<b>Sensor cables</b>		
No sensor cable		A
1 x PVC Jacket cable, length 6 m/20 ft <sup>2)</sup>		B
2 x PVC Jacket cable, length 6 m/20 ft <sup>2)</sup>		C
1 x PVC Jacket cable, length 15 m/50 ft <sup>2)</sup>		D
2 x PVC Jacket cable, length 15 m/50 ft <sup>2)</sup>		E
<b>RTD temperature Sensor</b> (Mounting hardware & cable included)		
No RTDs		0
1 x standard clamp-on RTD, 6 m/20 ft cable <sup>1)</sup>		5
2 x standard clamp-on RTD with 6 m/20 ft cable <sup>1)</sup>		6
1 x standard clamp-on RTD with 15 m/50 ft cable <sup>1)</sup>		7
2 x standard clamp-on RTD with 15 m/50 ft cable <sup>1)</sup>		8
<b>Battery charger options</b>		
No battery charger		0
Charger Type A for Europe (CEE7/7)		1
Charger Type G for U.S. (NEMA 5-15P)		5
<b>Sensor for channel 1</b> (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) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		M
C2H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		N
D1H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		P
D4H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		R
Doppler            to 12" with strap kit (not for IP65 (NEMA 7))		S
D1H <sup>3)</sup> High temperature range 104 °C/220 °F HP		Z    P 1 P

Selection and Ordering data	Article No.	Order Code
<b>SITRANS FUP1010 (Portable)</b>	<b>7ME3510-</b>	
• IP67 weatherproof battery powered		
<b>Sensor for channel 2</b> (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) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		M
C2H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		N
D1H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		P
D2H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")		Q
Doppler            to 12" with strap kit (not for IP65 (NEMA 7))		S
D1H <sup>3)</sup> High temperature range 104 °C/220 °F HP		Z    Q 1 P

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

Standard MLFB product offering represents 4 to 6 weeks delivery time

<sup>1)</sup> -40 ... +200 °C (-40 ... +392 °F)

<sup>2)</sup> -40 ... +80 °C (-40 ... +176 °F)

<sup>3)</sup> Made of stainless steel constructions.

Selection and Ordering data	Article No.	Ord. code	Selection and Ordering data	Article No.	Ord. code
<b>SITRANS FUP1010 (Portable)</b> <ul style="list-style-type: none"> <li>• IP67 weatherproof battery powered</li> </ul>	<b>7ME3510-</b>		<b>SITRANS FUP1010 (Portable)</b> <ul style="list-style-type: none"> <li>• IP67 weatherproof battery powered</li> </ul>	<b>7ME3510-</b>	
<a href="#">Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>					
<b>Number of channels/ultrasonic paths</b> Single channel Dual channel/Dual path	1 2		<b>Sensor for channel 1</b> Including pipe mounting tracks for sizes A & B sensors indented for pipe with a OD less than 125 mm (5") and mounting frame/spacer bars for sizes C, D & E sensors. Straps provided are for the indicated maximum OD listed below. Strap kits are available to accommodate larger pipes (refer to spare part list). Refer to "Sensor Selection Charts" for the sensor suitability of pipe size and wall thickness.		
<b>Standard flowmeter types and I/O configurations</b> <ul style="list-style-type: none"> <li>• Standard I/O               <ul style="list-style-type: none"> <li>- Reflexor capable</li> <li>- Graphic display</li> <li>- 2 x 0 ... 10 V</li> <li>- 2 x 4 ... 20 mA</li> <li>- 2 x pulse outputs</li> <li>- 4 x status logic</li> <li>- 2 x 4 ... 20 mA analog in</li> <li>- 1 x RTD per channel</li> </ul> </li> </ul>	C		no sensor A2 universal Trackmount and straps provided up to 75 mm (3") B3 universal Trackmount and straps provided up to 125 mm (5") C3 universal Mounting frame and straps provided up to 300 mm (13") D3 universal Mounting frame and straps provided up to 600 mm (24") E2 universal Mounting frame and straps provided up to 600 mm (24")	A B C D E	
<b>Sensor cables</b> (select proper quantity of active channels) No sensor cable <u>IP67 (weatherproof) only</u> 1 x PVC-jacket, length 6 m (20 ft) (for IP67 NEMA 6) <sup>2)</sup> 2 x PVC-jacket, length 6 m (20 ft) (for IP67 NEMA 6) <sup>2)</sup> 1 x PVC-jacket, length 15 m (50 ft) (for IP67 NEMA 6) <sup>2)</sup> 2 x PVC-jacket, length 15 m (50 ft) (for IP67 NEMA 6) <sup>2)</sup>	A B C D E		For the following A2H 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") A3H (high precision) Trackmount and straps provided up to 75 mm (3") B1H (high precision) Trackmount and straps provided up to 125 mm (5") B2H (high precision) Trackmount and straps provided up to 125 mm (5") C1H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24") C2H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24") D1H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24") D2H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24") D4H (high precision) <sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")	H J K L M N P Q R	
<b>RTD temperature sensor</b> (for type 3 meter only, mounting hardware and cable included) No RTDs <u>IP67 (weatherproof) only</u> 1 x standard clamp-on RTD (NEMA 6) with 6 m (20 ft) cable <sup>1)</sup> 2 x standard clamp-on RTD (NEMA 6) with 6 m (20 ft) cable <sup>1)</sup> 1 x standard clamp-on RTD (NEMA 6) with 15 m (50 ft) cable <sup>1)</sup> 2 x standard clamp-on RTD (NEMA 6) with 15 m (50 ft) cable <sup>1)</sup>	0 5 6 7 8		Doppler to 12" with chain kit High temperature sensor size 2 for up to 230 °C (446 °F) (30 to 200 mm diam. (1.18 to 7.67 inch diam.)) High temperature sensor size 3 for up to 230 °C (446 °F) (150 to 610 mm diam. (5.90 to 24 inch diam.)) High temperature sensor size 4 for up to 230 °C (446 °F) (400 to 1200 mm diam. (15.75 to 47.25 inch diam.))	S Z Z Z	P 1 A P 1 B P 1 C
<b>Battery charger options</b> no battery charger Charger Type A for Europe (CEE7/7) Charger Type C for Australia (AS3112) Charger Type D for U.K. (BS1363) Charger Type J for Japan (JIS8303) Charger Type G for U.S. (NEMA 5-15P) Charger Type L for Switzerland (SEV1011)	0 1 2 3 4 5 6				

## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUP1010 (Portable)

##### Selection and Ordering data

Article No. Ord. code

##### SITRANS FUP1010 (Portable)

- IP67 weatherproof battery powered

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)  
 B2H (high temperature range HP)  
 C1H (high temperature range HP)  
 C2H (high temperature range HP)  
 D1H (high temperature range HP)  
 D2H (high temperature range HP)  
 D4H (high temperature range HP)

Z P 1 K  
 Z P 1 L  
 Z P 1 M  
 Z P 1 N  
 Z P 1 P  
 Z P 1 Q  
 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 A2H to D4H sensors, temperature range is -40 °C ... 65 °C (-41 °F ... 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)<sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")

M

C2H (high precision)<sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")

N

D1H (high precision)<sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")

P

D2H (high precision)<sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")

Q

D4H (high precision)<sup>3)</sup> Mounting frame and straps provided up to 600 mm (24")

R

Doppler to 12" with chain kit

S

##### Selection and Ordering data

Article No. Ord. code

##### SITRANS FUP1010 (Portable)

- IP67 weatherproof battery powered

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)  
 B2H (high temperature range HP)  
 C1H (high temperature range HP)  
 C2H (high temperature range HP)  
 D1H (high temperature range HP)  
 D2H (high temperature range HP)  
 D4H (high temperature range HP)

Z Q 1 K  
 Z Q 1 L  
 Z Q 1 M  
 Z Q 1 N  
 Z Q 1 P  
 Z Q 1 Q  
 Z Q 1 R

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

<sup>1)</sup> -40 ... +200 °C (-40 ... +392 °F)

<sup>2)</sup> -40 ... +80 °C (-40 ... +176 °F)

<sup>3)</sup> Made of stainless steel constructions.

##### Selection and Ordering data

Article No.

##### Operating Instructions for SITRANS FUP1010

English IP67 Weatherproof

A5E02951522

German IP67 Weatherproof

A5E02951534

This device is shipped with a Quick Start Guide and a CD containing further SITRANS F literature.

All literature is also available for free at:

<http://www.siemens.com/flowdocumentation>

**Selection and Ordering data**

Order code

**Further designs**Please add **"-Z"** to Article 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 calibration 2/water (Price per channel)

- 2SS40 pipe
- 3CS40 pipe
- 4CS40 pipe
- 4SS40 pipe
- 6CS40 pipe
- 6SS40 pipe
- 6CS120 pipe
- 8CS40 pipe
- 8SS40 pipe
- 8CS120 pipe
- 10CS Standard pipe
- 10CS40 pipe
- 10SS40 pipe
- 12CS Standard pipe
- 12CS40 pipe
- 14CS30 pipe
- 14CS40 pipe
- 16CS Standard pipe
- 16CS40 pipe
- 18CS Standard pipe
- 20CS20 pipe
- 20CS30 pipe
- 24CS Standard pipe
- 24CS20 pipe
- 24CS30 pipe
- 30CS Standard pipe
- 36CS Standard pipe
- Other pipe, other liquid, additional points, witness

1x Insertion RTD with thermowell and lagging

2x Insertion RTD with thermowell and lagging

Tag name plate

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

**D01****D02****D03****D04****D05****D06****D07****D08****D09****D10****D11****D12****D13****D14****D15****D16****D17****D18****D19****D20****D21****D22****D23****D24****D25****D26****D27****Y28****M1A****M1B****Y19****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 Article No.: **7ME3510-2CB01-0DE0-Z**  
**B10**

**Selection and Ordering data**

Article No.

Ord. code

**SITRANS FUP1010 meter family****7ME3510-2CB01-0DE0-Z**

IP67 weatherproof

Dual channel

Portable I/O with Doppler capable, temperature

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

No RTDs required

Charger Type A for Europe (CEE7/7)

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

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

**Universal sensor selection chart IP68****Based on pipe size (all pipe materials)**

Pipe size	Order Code	Outer diameter range (mm)		Outer diameter range (inch)	
		min.	max.	min.	max.
A2	<b>B</b>	12.7	50.8	0.5	2
B3	<b>C</b>	19	127	0.75	5
C3	<b>D</b>	51	305	2	12
D3	<b>E</b>	203	610	8	24
E2	<b>F</b>	254	6096	10	249

**High precision sensor selection chart IP68****Based on pipe wall thickness (steel pipes only)**

Pipe Wall	Order Code	Pipe Wall [mm]		Pipe Wall [inch]	
		min.	max.	min.	max.
A1H	<b>G</b>	0.64	1.02	0.025	0.04
A2H	<b>H</b>	1.02	1.52	0.04	0.06
A3H	<b>J</b>	1.52	2.03	0.06	0.08
B1H	<b>K</b>	2.03	3.05	0.08	0.12
B2H	<b>L</b>	3.05	4.06	0.12	0.16
C1H <sup>1)</sup>	<b>M</b>	4.06	5.84	0.16	0.23
C2H <sup>1)</sup>	<b>N</b>	5.84	8.13	0.23	0.32
D1H <sup>1)</sup>	<b>P</b>	8.13	11.18	0.32	0.44
D2H <sup>1)</sup>	<b>Q</b>	11.18	15.75	0.44	0.62
D4H <sup>1)</sup>	<b>R</b>	15.75	31.75	0.62	1.25

<sup>1)</sup> Made of stainless steel constructions.