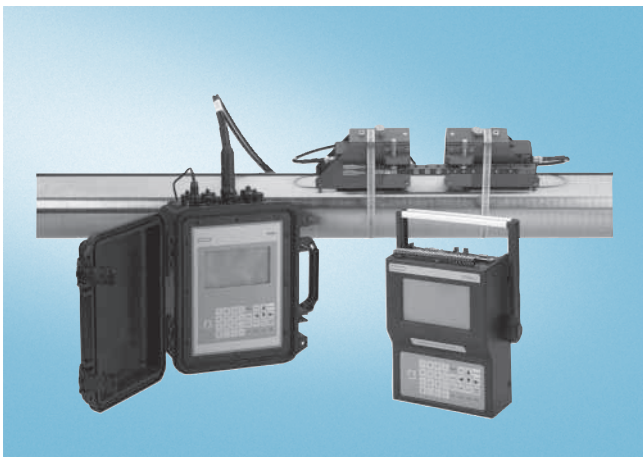


# SITRANS F flowmeters

## SITRANS F US

### SITRANS FUP1010 Portable clamp-on

#### Overview



SITRANS FUP1010 clamp-on non-intrusive ultrasonic flow display computer 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 your choice of IP67 waterproof or IP40 (NEMA 1) enclosures.

#### 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 model can be used outdoors and left in place without concern for rain damage
- Weatherproof model's 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 transducers 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 display computer 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
  - Sludges
  - 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

FUP1010 is available in two configurations:

- IP40 (NEMA 1) Enclosure
  - Single channel
  - Dual channel / dual path
- IP67 Weatherproof / Impact resistant enclosure
  - 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
- Optional pipe wall thickness gauge

# SITRANS F flowmeters

## SITRANS F US

### SITRANS FUP1010 Portable clamp-on

#### Technical specifications

##### SITRANS FUP1010

###### Input

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

###### Output

Outputs, single channel	<ul style="list-style-type: none"> <li>• Current: 2x 4 ... 20 mA DC (1 kΩ at 30 V DC)</li> <li>• Voltage: 2x 0 ... 10 V DC (5 kΩ minimum)</li> <li>• Status Alarm: 4x SPDT Relays</li> <li>• Frequency: 2x 0 ... 5000 Hz</li> <li>• RS232</li> </ul>
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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"> <li>• Standard portable enclosure</li> <li>• Weatherproof/impact resistant</li> </ul>	<ul style="list-style-type: none"> <li>• IP40 (NEMA 1)</li> <li>• IP67</li> </ul>
Liquid temperature	<ul style="list-style-type: none"> <li>• Standard</li> <li>• Optional</li> </ul>	-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 NiCd battery
Battery operation	4 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 only	UL ULc CE: <ul style="list-style-type: none"> <li>• LVD IEC 61010-1; CB Test Certificate</li> <li>• EMC EN61000-6-2, -4</li> </ul>
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# SITRANS F flowmeters SITRANS F US

## SITRANS FUP1010 Portable clamp-on

Selection and Ordering data	Order-No.	Ord. code
<b>SITRANS FUP1010 Portable clamp-on</b>		
• IP67 weather proof battery powered	F) ◆	<b>7ME3510-</b>
• IP40 (NEMA 1) battery powered	F) ◆	<b>7ME3511-</b>
	■ ■ ■ ■ ■ - 0 ■ ■ 0 ■ ■ ■ ■	
<b>Number of channels/ultrasonic beams</b>		
Single channel	◆	1
Dual channel / Dual beam		2
<b>Standard flowmeter types and I/O configurations</b>		
• Type 1 Standard - Reflexor capable - Graphic display - 2x 0 ... 10 V - 2x 4 ... 20 mA - 2x pulse outputs - 4x status logic	◆	A
• Type 3 option adder - 2x 4 ... 20 mA analog in - 2x RTD		C
<b>Transducer cables</b> (select proper quantity for active channels)		
no transducer cable		A
1x Plenum rated, length 6 m (20 ft) (for NEMA 6) <sup>1)</sup>		B
2x Plenum rated, length 6 m (20 ft) (for NEMA 6) <sup>1)</sup>		C
1x Plenum rated, length 15 m (50 ft) (for NEMA 6) <sup>1)</sup>		D
2x Plenum rated, length 15 m (50 ft) (for NEMA 6) <sup>1)</sup>		E
1x PVC jacket, length 6 m (20 ft) (for NEMA 12) <sup>2)</sup>	◆	F
2x PVC jacket, length 6 m (20 ft) (for NEMA 12) <sup>2)</sup>		G
1x PVC jacket, length 15 m (50 ft) (for NEMA 12) <sup>2)</sup>	◆	H
2x PVC jacket, length 15 m (50 ft) (for NEMA 12) <sup>2)</sup>		J
Other versions add Order code and plain text.		Z
		<b>K 1 Y</b>
<b>RTD temperature sensor</b> (for type 3 meter only, mounting hardware and cable included)		
No RTDs		0
1x standard clamp-on RTD (NEMA 12) with 6 m (20 ft) cable <sup>1)</sup>		1
2x standard clamp-on RTD (NEMA 12) with 6 m (20 ft) cable <sup>1)</sup>		2
1x standard clamp-on RTD (NEMA 12) with 15 m (50 ft) cable <sup>1)</sup>		3
2x standard clamp-on RTD (NEMA 12) with 15 m (50 ft) cable <sup>1)</sup>		4
1x standard clamp-on RTD (NEMA 6) with 6 m (20 ft) cable <sup>1)</sup>		5
2x standard clamp-on RTD (NEMA 6) with 6 m (20 ft) cable <sup>1)</sup>		6
1x standard clamp-on RTD (NEMA 6) with 15 m (50 ft) cable <sup>1)</sup>		7
2x standard clamp-on RTD (NEMA 6) with 15 m (50 ft) cable <sup>1)</sup>		8
Other versions add Order code and plain text.		9
		<b>L 1 Y</b>

**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)

Selection and Ordering data	Order-No.	Ord. code
<b>SITRANS FUP1010 Portable clamp-on</b>		
• IP67 weather proof battery powered	F) ◆	<b>7ME3510-</b>
• IP40 (NEMA 1) battery powered	F) ◆	<b>7ME3511-</b>
	■ ■ ■ ■ ■ - 0 ■ ■ 0 ■ ■ ■ ■	
<b>Battery charger options</b>		
no battery charger		0
Charger Type A for Europe (CEE7/7)	◆	1
Charger Type C for Australia (AS3112)		2
Charger Type D for U.K. (BS1363)		3
Charger Type J for Japan (JIS8303)		4
Charger Type K for U.S. (NEMA 5-15P)	◆	5
Charger Type L for Switzerland (SEV1011)		6
Special: External battery for extended service, add Order code and plain text.		9
External 4 hours battery with US plug for IP40 (NEMA 12) Portable		9
External 4 hours battery with US plug for IP67 (NEMA 6) Portable		9
External 4 hours battery with European plug for IP40 (NEMA 1) Portable		9
External 4 hours battery with European plug for IP67 Portable		9
		<b>M 1 Y</b>
		<b>M 1 A</b>
		<b>M 1 B</b>
		<b>M 1 C</b>
		<b>M 1 D</b>
<b>Transducer for channel 1</b> (includes pipe mounting kit and spacer bar for indicated max. outer diameter listed) See „Transducer selection charts“ for specifications.		
no transducer		A
A2 universal to 3"/track mount		B
B3 universal to 5"/track mount	◆	C
C3 universal to 13"/mounting frame		D
D3 universal to 24"/mounting frame	◆	E
E2 universal to 48"/mounting frame	◆	F
A1H (high precision) to 3"/track mount		G
A2H (high precision) to 3"/track mount		H
A3H (high precision) to 3"/track mount		J
B1H (high precision) to 5"/track mount	◆	K
B2H (high precision) to 5"/track mount		L
C1H (high precision) to 24"/mounting frame		M
C2H (high precision) to 24"/mounting frame	◆	N
D1H (high precision) to 48"/mounting frame	◆	P
D2H (high precision) to 48"/mounting frame		Q
D4H (high precision) to 48"/mounting frame		R
Doppler to 12" with chain kit		S
Other versions (different size, mount, type or pipe larger than DN 1200 (48"), or corrosion resistant), add Order code and plain text.		Z
		<b>P 1 Y</b>
High temperature transducer size 2 for up to 230 °C (446 °F) (30 to 200 mm diam. (1.18 to 7.67 inch diam.))		Z
		<b>P 1 A</b>
High temperature transducer size 3 for up to 230 °C (446 °F) (150 to 610 mm diam. (5.90 to 24 inch diam.))		Z
		<b>P 1 B</b>
High temperature transducer size 4 for up to 230 °C (446 °F) (400 to 1200 mm diam. (15.75 to 47.25 inch diam.))		Z
		<b>P 1 C</b>
High temperature range HP transducer size B1H for temperatures up to 104 °C (220 °F)		Z
		<b>P 1 K</b>
High temperature range HP transducer size B2H for temperatures up to 104 °C (220 °F)		Z
		<b>P 1 L</b>
High temperature range HP transducer size C1H for temperatures up to 104 °C (220 °F)		Z
		<b>P 1 M</b>
High temperature range HP transducer size C2H for temperatures up to 104 °C (220 °F)		Z
		<b>P 1 N</b>
◆ Mainstream products (delivery time 4 to 6 weeks)		



F) Subject to export regulations AL: 91999, ECCN: N.



# SITRANS F flowmeters

## SITRANS F US

SITRANS FUP1010 Portable clamp-on

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### Transducer Selection Charts

#### Universal transducers for any pipe material

Transducer	Order Code	Outer diameter range (mm)		Outer diameter range (inches)	
		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	240

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

Transducer	Order Code	Pipe wall (mm)		Pipe wall (inches)	
		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	<b>M</b>	4.06	5.84	0.16	0.23
C2H	<b>N</b>	5.84	8.13	0.23	0.32
D1H	<b>P</b>	8.13	11.17	0.32	0.44
D2H	<b>Q</b>	11.18	15.75	0.44	0.62
D4H	<b>R</b>	15.75	31.75	0.62	1.25