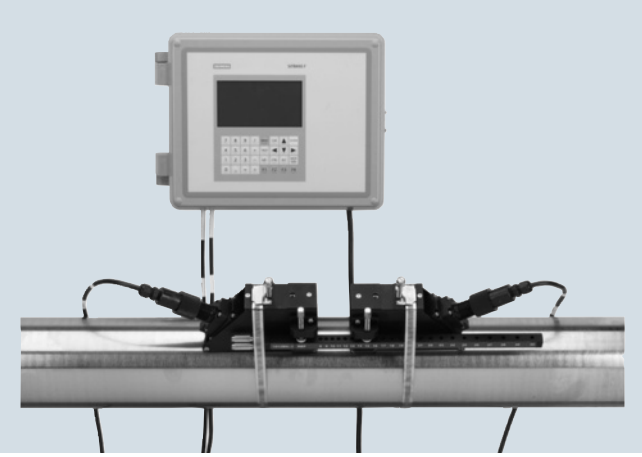
SITRANS FUS1010 (Standard)

Overview



SITRANS FUS1010 is the most versatile clamp-on ultrasonic flow display transmitter available today. It can operate in either Wide-Beam Transit time or Reflexor (Doppler) mode, making it suitable for virtually any liquid, even those with high aeration or suspended solids.

SITRANS FUS1010 is available in single, dual and optional four path configurations, with your choice of IP65 (NEMA 4X) wall mount, IP65 (NEMA7) compact explosionproof enclosures.

Benefits

- 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 foul or wear
- No pressure drop or energy loss
- Wide turn-down ratio
- Choice of single channel or dual channel/dual path, with doppler capability. Four channel/four path optional.
  - Optional four channels allow measurement of four independent pipes at the same time, reducing overall ownership costs
  - Dual mode allows for transit time and reflexor operation at the same time on the same pipe
  - Dual path allows for two sets of sensors to be set up on one pipe and averaged for higher accuracy
- ZeroMatic Path automatically sets zero without stopping flow and reduces zero drift, even at low flow

Application

SITRANS FUS1010 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
- Power industry
  - Nuclear
  - Fossil
  - Hydroelectric
- Processing industry
  - Process control
  - Batching
  - Rate indication
  - Volumetric and mass measurement

Design

SITRANS FUS1010 is available in three configurations:

- IP65 (NEMA 4X) wall mount enclosure constructed of fiberglass reinforced polyester with stainless steel hardware and polyester keypad
  - Single channel
  - Dual channel/dual path
  - Four channel (optional)
- IP65 (NEMA 7) compact explosionproof enclosure constructed of cast aluminum with glass window, stainless steel hardware
  - Single channel
  - Dual channel/dual path
- IP66 (NEMA 7) wall mount explosionproof enclosure constructed of cast aluminum, stainless steel hardware, with glass window
  - Single channel
  - Dual channel/dual path
  - Four channel (optional)

Function

- IP65 (NEMA 4X) and IP66 (NEMA 7) flow display transmitters have integral 33 button keypads and large (128 x 240 pixel) graphic displays visible up to 12 m (40 ft) away
- IP65 (NEMA 7) compact flow display transmitter has a 2 x 16 Alphanumeric LCD display
- Current, voltage, status alarm, frequency outputs and communications including HART, BACnet MSTP/BACnet IP, Modbus RTU & TCP/IP, Ethernet IP, Johnson N2 and VT100 RS 232 (see specification section for details)
- Optional current, voltage and temperature inputs (see specification section for details)
- ZeroMatic Path automatically sets zero
- Bidirectional flow operation
- 1 MByte data logger with both site and data logger storage
- English, Spanish, German,Italian and French language selectable on IP65 (NEMA 7) enclosures[1)]

[1)] Available on NEMA 7 compact as MLFB option, all others are software selectable.

Technical specifications

SITRANS FUS1010IP65 (NEMA 4X) wall mount

Enclosure IP65 (NEMA 4X)	
Input	
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“)
Optional inputs Single channel	• Current: 20 mA DC • Temperature: 4 wire 1 kΩ RTD
Output	
Standard outputs	• Current: 20 mA DC (1 kΩ at 30 V DC) • Voltage: 10 V DC (5 kΩ min.) • Status Alarm: 4 x SPDT relays • Form C relays • Pulse rate: 5 kHz
Optional outputs	• Expanded I/Os (additional 4 ... 20 mA outputs) with form C relays • UniMass (requires RTD) • Communications: HART, BACnet MSTP/BACnet IP, Modbus RTU & TCP/IP, Ethernet IP, Johnson N2 and VT100 RS 232
Accuracy	
Accuracy	± 0.5 % ... 1.0 % of flow, for velocities greater than 0.3 m/s (1 ft/s) ± 0.0015 ... 0.003 m/s (± 0.005 ... 0.01 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)
Data refresh rate	5 Hz

Rated operation conditions	
Degree of protection	IP65 (NEMA 4X)
Liquid temperature	
• Standard	-40 ... +120 °C (-40 ... +250 °F)
• Optional	-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	90 ... 240 V AC, 50 ... 60 Hz, 30 VA or 9 ... 36 V DC, 12 W
Indication and operation	
Data logger memory	1 MByte
Display	128 x 240 pixel LCD with back-light
Keypad	33 keypad buttons with tactile feedback
Language options	English, Spanish, German, Italian, French selectable by software
Certificates and approvals	
FM and CSA ratings	• Transmitter N-I Class I, Div 2 S Class II, Div 2 • Sensor I.S. Class I, II, Div 1
CE	EMC Directive 2004/108/EC ATEX Directive 94/9/EC
C-TICK	
ATEX ratings	• Transmitter: Ex II (1) G [Ex ia] IIC Ex II 3 (1) G Ex nC [ia] IIC T5 • Sensors: Ex II 1 G Ex ia IIC T5
IECEx	Pending

SITRANS FUS1010 (Standard)

SITRANS FUS1010, IP65 (NEMA 7) compact explosionproof

Enclosure IP65 (NEMA 7)	
Input	
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“)
Optional inputs per channel	• Current: 20 mA DC • Temperature: 4 wire 1 kΩ RTD
Output	
Outputs	• Current (externally powered): 1 x 4 … 20 mA DC (1 kΩ at 30 V DC) • Status Alarm: 1 x Isolated open collector • Pulse rate: 5 kHz • VT100 RS 232
Accuracy	
	± 0.5 % ... 1.0 % of flow, for velocities greater than 0.3 m/s (1 ft/s) ± 0.0015 ... 0.003 m/s (± 0.005 ... 0.01 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)
Data refresh rate	5 Hz
Rated operation conditions	
Degree of protection	IP65 (NEMA 7)
Liquid temperature	
• Standard	-40 ... +120 °C (-40 ... +250 °F)
• Optional	-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	90 ... 240 V AC, 50 ... 60 Hz, 15 VA or 9 ... 36 V DC, 10 W 9 ... 36 V DC, 10 W - ground 9 ... 36 V DC, 10 W + ground
Indication and operation	
Data logger memory	1 MByte
Display	2 x 16 alphanumeric LCD display
Keypad	5 Magnetic hall effect switches
Language options	English, Spanish, German, Italian, French
Certificates and approvals	
FM and CSA ratings	• Transmitter XP Class I, Div 1 D-I Class II, Div 1 N-I Class I, Div 2 S Class II, Div 2 • Sensor I.S. Class I, II, Div 1
ATEX ratings	• Flow transmitter: Ex II 2 (1) G Ex d [ia] IIB + H2 T5 • Sensors: Ex II 1 G Ex ia IIC T5
IECEx	Pending
CE	EMC Directive 2004/108/EC ATEX Directive 94/9/EC

SITRANS FUS1010 IP66 (NEMA 7) wall mount explosionproof

Enclosure IP66 (NEMA 7)	
Input	
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“)
Optional Inputs per channel	• Current: 20 mA DC • Temperature: 2 x 4 wire 1 kΩ RTD
Output	
Outputs single channel	• Current: 20 mA DC (1 kΩ at 30 V DC) • Voltage: 10 V DC (5 kΩ min.) • Status Alarm: 4 x SPDT Relays • Pulse rate: 5 kHz • Communications: HART, BACnet MSTP/BACnet IP, Modbus RTU & TCP/IP, Ethernet IP, Johnson N2 and VT100 RS 232
Accuracy	
Accuracy	± 0.5 % ... 1.0 % of flow, for velocities greater than 0.3 m/s (1 ft/s) ± 0.0015 ... 0.003 m/s (± 0.005 ... 0.01 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)
Data refresh rate	5 Hz
Rated operation conditions	
Degree of protection	IP66 (NEMA 7)
Liquid temperature	
• Standard	-40 ... +120 °C (-40 ... +250 °F)
• Optional	-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	90 ... 240 V AC, 50 ... 60 Hz, 30 VA or 9 ... 36 V DC, 12 W
Indication and operation	
Data logger memory	1 MByte
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	
FM and CSA ratings	• Transmitter XP Class I, Div 1 D-I Class II, Div 1 N-I Class I, Div 2 S Class II, Div 2 • Sensor I.S. Class I, II, Div 1
CE	EMC Directive 2004/108/EC ATEX Directive 94/9/EC
C-TICK	
ATEX ratings	• Flow transmitter Ex II (1) G [Ex ia] IIC Ex II 3 (1) G Ex nC [ia] IIC T5 Ex II 2 (1) G Ex d [ia IIC] IIB + H2 T5 • Sensors: Ex II 1 G Ex ia IIC T5
IECEx	Pending

3

SITRANS FUS1010 (Standard)

Standard MLFB for quick delivery on SITRANS FUS1010 (Dedicated standard)

Selection and Ordering data		Article No.	Order code
SITRANS FUS1010 (Standard)		↗ 7ME353 - ■■■■■ - 0■■	■■■ + K02 + K02 + R02
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
IP65 (NEMA 4X) wall mount		0	
Number of channels/ultrasonic paths			
Single channel		1	
Dual channel/Dual path		2	
Flowmeter functions and I/O configurations includes graphic display and Reflexor capability			
Standard outputs • 2 x 0 ... 10 V • 2 x 4 ... 20 mA • 2 x pulse output • 4 x relay C type		A	
Meter power options			
90 ... 240 V AC		A	
9 ... 36 V DC (except NEMA 7 compact)		B	
Communication options			
VT100 RS 232 (standard)		0	
RTD temperature sensor			
(include mounting hardware for pipes between 1.5" and 24" outer diameter)			
No RTDs		0	
1x standard clamp-on		1	
2x standard clamp-on		2	
1x submersible		3	
2x submersible		4	
Sensor for channel 1 (includes pipe mounting kit and spacer bar for indicated max. OD 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[3]	Mounting frame and straps provided up to 300 mm (13")		D
D3 universal[3]	Mounting frame and straps provided up to 600 mm (24")		E
E2 universal[3]	Mounting frame and straps provided up to 1200 mm (48")[1]		F
C1H (high precision)[3]	Mounting frame and straps provided up to 600 mm (24")[2]		M
C2H (high precision)[3]	Mounting frame and straps provided up to 600 mm (24")[2]		N
D1H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		P
D4H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		R
Doppler	to 12" with strap kit (not for IP65 (NEMA7)), for up to 121 °C (250 °F)		S
D1H [3]	High temperature range 104 °C/220 °F HP[2]		Z P1P

Selection and Ordering data		Article No.	Order code
SITRANS FUS1010 (Standard)		7ME353 ■ - ■■■■■ - 0 ■■■	■■■ + K02 + K02 + R02
Sensor for channel 2 (includes pipe mounting kit for indicated max. OD 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[3]	Mounting frame and straps provided up to 300 mm (13")	D	
D3 universal[3]	Mounting frame and straps provided up to 600 mm (24")	E	
E2 universal[3]	Mounting frame and straps provided up to 1200 mm (48")[1]	F	
C1H (high precision)[3]	Mounting frame and straps provided up to 600 mm (24")[2]	M	
C2H (high precision)[3]	Mounting frame and straps provided up to 600 mm (24")[2]	N	
D1H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]	P	
D4H (high precision[3])	Mounting frame and straps provided up to 1200 mm (48")[2]	R	
Doppler	to 12" with strap kit (not for IP65 (NEMA7)), for up to 121 °C (250 °F)	S	
D1H [3]	High temperature range 104 °C/220 °F HP[2]	Z	Q1P
Approvals			
FM/CSA, CE (default)		1	
ATEX, CE, C-TICK		2	

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

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

3) Made with stainless steel construction.

Standard MLFB product offering represents 4 to 6 weeks delivery time.

For sensor and RTD cables for quick delivery see tables at end of section.

SITRANS FUS1010 (Standard)

Selection and Ordering data	Article No.	Ord. code
SITRANS FUS1010 (Standard)		
• IP65 (NEMA 4X) wall mount ↗	**7ME3530-**	
• IP65 (NEMA 7) compact explosionproof ↗	**7ME3531-**	
• IP66 (NEMA 7) wall mount explosionproof ↗	**7ME3533-**	
	0 -	
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Number of channels/ultrasonic paths		
Single channel	**1**	
Dual channel/Dual path	**2**	
Special: Four channel/Four path (NEMA 4X wall mount and NEMA 7 wall mount explosionproof only)	**9**	**H 1 A**
Flowmeter functions and I/O configurations includes graphic or digital display and Reflexor capability for all except IP65 (NEMA 7) compact units		
IP65 (NEMA 4X) wall mount and IP66 (NEMA 7 wall mount explosionsproof) units		
• Standard outputs - 2 x 0 ... 10 V - 2 x 4 ... 20 mA - 2 x pulse output - 4 x relay C type For H1A multi channel option above: - 4 x 0 ... 10 V - 4 x 4 ... 20 mA - 4 x relay C type	**A**	
• Standard outputs with optional input adder - UniMass capability with 2 x RTD input (1 x RTD only for H1A multi channel option) - 4 x 4 ... 20 mA analog input	**C**	
• Extended outputs plus optional inputs (Dual channel only) Outputs: - 2 x 0 ... 10 V - 2 x 4 ... 20 mA active - 4 x 4 ... 20 mA passive - 2 x 0 ... 5K pulse - 4 x relay C type Inputs: - 4 x 4 ... 20 mA - 1 x RTD inputs per chanel	**Z**	**J 1 B**
IP65 (NEMA 7) compact explosionproof units		
• Standard outputs - 1 x 4 ... 20 mA (Loop) and 1 x status (open collector) **per channel** - 1 x pulse output for single channel units only	**D**	
• Standard outputs with optional input adder - UniMass capability with 1 RTD input (1x RTD only, for H1A multi channel option) - 1 x analog input **per channel**	**F**	
Meter power options		
90 ... 240 V AC	**A**	
9 ... 36 V DC (except compact NEMA 7)	**B**	
9 ... 36 V DC negative GND (compact only)	**J**	
9 ... 36 V DC positive GND (compact only)	**K**	

Selection and Ordering data	Article No.	Ord. code
SITRANS FUS1010 (Standard)		
• IP65 (NEMA 4X) wall mount	**7ME3530-**	
• IP65 (NEMA 7) compact explosionproof	**7ME3531-**	
• IP66 (NEMA 7) wall mount explosionproof	**7ME3533-**	
	0 -	
Communication options		
VT100 RS 232	**0**	
Modbus RTU & TCP/IP, HART, BACnet MSTP/BACnet IP, Ethernet IP, Johnson N2	**6**	
RTD temperature sensor (includes mounting hardware for pipes between 1.5“ and 24“ outer diameter)		
No RTDs	**0**	
1 x Standard clamp-on RTD	**1**	
2 x Standard clamp-on RTD	**2**	
1 x Submersible clamp-on RTD	**3**	
2 x Submersible clamp-on RTD	**4**	
1 x Insertion style RTD with thermowell and lagging	**9**	**N 1 A**
2 x Insertion style RTD with thermowell and lagging	**9**	**N 1 B**
Sensor for channel 1 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".		
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[3]	Mounting frame and straps provided up to 300 mm (13”)	**D**
D3 universal[3]	Mounting frame and straps provided up to 600 mm (24”)	**E**
E2 universal[3]	Mounting frame and straps provided up to 1200 mm (48”)[1]	**F**

Selection and Ordering data		Article No.	Ord. code
SITRANS FUS1010 (Standard)			
• IP65 (NEMA 4X) wall mount		**7ME3530-**	
• IP65 (NEMA 7) compact explosionproof		**7ME3531-**	
• IP66 (NEMA 7) wall mount explosionproof		**7ME3533-**	
		0 -	
Sensor for channel 1 (continued)			
For the following A1H to D4H sensors, temperature range is -40 °C ... 65 °C			
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)[3]	Mounting frame and straps provided up to 600 mm (24")		**M**
C2H (high precision)[3]	Mounting frame and straps provided up to 600 mm (24")		**N**
D1H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		**P**
D2H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		**Q**
D4H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		**R**
Doppler	to 12" with strap kit (not for IP65 (NEMA 7)), for up to 121 °C (250 °F)		**S**
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** **P 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** **P 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** **P 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** **P 1 K**
B2H (high temperature range HP)			**Z** **P 1 L**
C1H (high temperature range HP)[3]			**Z** **P 1 M**
C2H (high temperature range HP)[3]			**Z** **P 1 N**
D1H (high temperature range HP)[2][3]			**Z** **P 1 P**
D2H (high temperature range HP)[2][3]			**Z** **P 1 Q**
D4H (high temperature range HP)[2][3]			**Z** **P 1 R**

Selection and Ordering data		Article No.	Ord. code
SITRANS FUS1010 (Standard)			
• IP65 (NEMA 4X) wall mount		**7ME3530-**	
• IP65 (NEMA 7) compact explosionproof		**7ME3531-**	
• IP66 (NEMA 7) wall mount explosionproof		**7ME3533-**	
		0 -	
Sensor for channel 2 (includes pipe mounting kit for indicated max. OD 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[3]	Mounting frame and straps provided up to 300 mm (13")		**D**
D3 universal[3]	Mounting frame and straps provided up to 600 mm (24")		**E**
E2 universal[3]	Mounting frame and straps provided up to 1200 mm (48")[1]		**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)[3]	Mounting frame and straps provided up to 600 mm (24")		**M**
C2H (high precision)[3]	Mounting frame and straps provided up to 600 mm (24")		**N**
D1H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")e[2]		**P**
D2H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		**Q**
D4H (high precision)[3]	Mounting frame and straps provided up to 1200 mm (48")[2]		**R**
Doppler	to 12" with strap kit (not for IP65 (NEMA 7)), for up to 121 °C (250 °F)		**S**

SITRANS FUS1010 (Standard)

Selection and Ordering data	Article No.	Ord. code
SITRANS FUS1010 (Standard)		
• IP65 (NEMA 4X) wall mount	**7ME3530-**	
• IP65 (NEMA 7) compact explosionproof	**7ME3531-**	
• IP66 (NEMA 7) wall mount explosionproof	**7ME3533-**	
	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)[3]		**Z Q 1 M**
C2H (high temperature range HP)[3]		**Z Q 1 N**
D1H (high temperature range HP)[2][3]		**Z Q 1 P**
D2H (high temperature range HP)[2][3]		**Z Q 1 Q**
D4H (high temperature range HP)[2][3]		**Z Q 1 R**
Approvals		
FM/CSA, CE		**1**
ATEX, CE, C-TICK		**2**

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

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

[3] Made with stainless steel construction.

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Cable assembly for sensors (add for No. of channels)	
See "Sensor cable selection chart"	**K..**
Cable assembly for RTDs (add for No. of RTDs)	
See "RTD cable selection chart"	**R..**
Cable termination kit (for one cable pair)	
• Termination for standard, plenum and armored sensor cable	**T01**
• Termination for submersible sensor cable	**T11**
• RTD cable termination kit for standard RTD	**T21**
• RTD cable termination kit for submersible RTD	**T31**
• Insert RTD cable termination kit	**T41**
• Cable gland kit	**T51**
Languages (Meter and Documentation), English (default) for compact NEMA 7 only	
• German	**B10**
• French	**B12**
• Spanish	**B13**
• Italian	**B14**
Wet flow transfer calibration (priced on request)	
6 point calibration 2/water (Price per channel)	
• 2SS40 pipe	**D01**
• 3CS40 pipe	**D02**
• 4CS40 pipe	**D03**
• 4SS40 pipe	**D04**
• 6CS40 pipe	**D05**
• 6SS40 pipe	**D06**
• 6CS120 pipe	**D07**
• 8CS40 pipe	**D08**
• 8SS40 pipe	**D09**
• 8CS120 pipe	**D10**
• 10CS Standard pipe	**D11**
• 10CS40 pipe	**D12**
• 10SS40 pipe	**D13**
• 12CS Standard pipe	**D14**
• 12CS40 pipe	**D15**
• 14CS30 pipe	**D16**
• 14CS40 pipe	**D17**
• 16CS Standard pipe	**D18**
• 16CS40 pipe	**D19**
• 18CS Standard pipe	**D20**
• 20CS20 pipe	**D21**
• 20CS30 pipe	**D22**
• 24CS Standard pipe	**D23**
• 24CS20 pipe	**D24**
• 24CS30 pipe	**D25**
• 30CS Standard pipe	**D26**
• 36CS Standard pipe	**D27**
• Other pipe, other liquid, additional points, witness	**Y28**
Tag name plate	
• Stainless steel tag with 3.2 mm (0.13 inch) character size (68 characters max.)	**Y19**
Operating Instructions for SITRANS FUS1010	Article No.
English NEMA 4X wall mount & NEMA 7 wall mount explosionproof	**A5E02951520**
German NEMA 4X & wall mount NEMA 7 wall mount explosionproof	**A5E02951532**
NEMA 7 compact explosionproof	**CQO:1010XFM-3**

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/flowdocumtenion

MLFB example

Application example

A clamp-on meter is required for a 12“ carbon steel jet fuel line, with a wall thickness of 12.7 mm (0.5“). Meter electronics are to be located in a Class I Div 2 area only 18 m (60 ft) from the pipeline. 12 V DC power is available at the site.

Dual path operation is desired for improved accuracy and redundant measurement.

MLFB Article No.: **7ME3530-2AB00-0QQ1-Z**
K03 + K03

Selection and Ordering data	Article No.	Ord. code
SITRANS FUS1010 meter family	**7 M E 3 5 3 -**	**0 -**
IP65 (NEMA 4X) enclosure	**0**	
Dual Path	**2**	
Standard I/O option	**A**	
9 ... 36 V DC power option	**B**	
RS 232 Standard	**0**	
No RTD required		**0**
Sensor code for path 1		**Q**
Sensor code for path 2		**Q**
FM approval required		**1**
30 m (100 ft) sensor cable for path 1		**K 0 3**
30 m (100 ft) sensor cable for path 2		**K 0 3**

Universal sensor selection chart IP68

Based on pipe size (pipes other than steel)					
Sensor	**Order Code**	**Outer diameter range (mm)**		**Outer diameter range (inch)**	
Pipe size		**min.**	**max.**	**min.**	**max.**
A2	**B**	12.7	50.8	0.5	2
B3	**C**	19	127	0.75	5
C3[1]	**D**	51	305	2	12
D3[1]	**E**	203	610	8	24
E2[1]	**F**	254	6 096	10	240

High precision sensor selection chart IP68

Based on pipe wall thickness (steel pipes only)					
Sensor	**Order Code**	**Pipe wall (mm)**		**Pipe wall (inch)**	
Pipe wall		**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[1]	**M**	4.06	5.84	0.16	0.23
C2H[1]	**N**	5.84	8.13	0.23	0.32
D1H[1]	**P**	8.13	11.18	0.32	0.44
D2H[1]	**Q**	11.18	15.75	0.44	0.62
D4H[1]	**R**	15.75	31.75	0.62	1.25

[1] Made with stainless steel construction.

Sensor cable (pair) selection chart

Sensor cable codes for length and type options				
Cable length m (ft)	**Standard (PVC jacket) -40…+80 °C (-40…+176 °F)**	**Submersible (polyethylene jacket) -40…+80 °C (-40…+176 °F)**	**Plenum Rated (teflon jacket) -40…+200 °C (-40…+392 °F)**	**Armored -40…+80 °C (-40…+176 °F)**
	Order code			
6 (20)	**K01**[1]	**K11**	**K21**	**K31**
15 (50)	**K02**[1]	**K12**[1]	**K22**	**K32**[1]
30 (100)	**K03**[1]	**K13**[1]	**K23**	**K33**
46 (150)	**K04**[1]	**K14**	**K24**	**K34**
61 (200)	**K05**	**K15**	**K25**	**K35**
91 (300)	**K06**[1]	**K16**	**K26**	**K36**

RTD cable (single) selection chart

RTD cable codes for length and type		
Cable length m (ft)	**Standard (teflon wrapped) -40 ... +200 °C (-40 … +392 °F)**	**Submersible (extruded jacket) -40 ... +200 °C (-40 … +392 °F)**
	Order code	
6 (20)	**R01**[1]	**R11**
15 (50)	**R02**[1]	**R12**
30 (100)	**R03**[1]	**R13**
46 (150)	**R04**	**R14**
61 (200)	**R05**	**R15**
91 (300)	**R06**	**R16**

[1] Standard MLFB for quick delivery