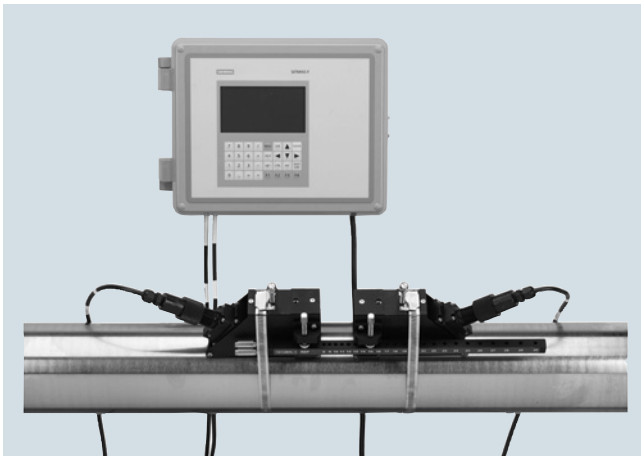


## Flow Measurement

### SITRANS F US Clamp-on

#### 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 and IP66 (NEMA 7) wall mount 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 fiber-glass reinforced polyester with stainless steel hardware and polyester keypad
  - Single channel
  - Dual channel/dual path
  - Four channel (optional)
- 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
- 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

### 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<br>Single channel | <ul style="list-style-type: none"> <li>• Current: 20 mA DC</li> <li>• Temperature: 4 wire 1 kΩ RTD</li> </ul>   |
| Output                            |   |
| Standard 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 min.)</li> <li>• Status Alarm: 4 x SPDT relays</li> <li>• Form C relays</li> <li>• Pulse rate: 5 kHz</li> </ul>  |
| Optional outputs                  | <ul style="list-style-type: none"> <li>• Expanded I/Os (additional 4 ... 20 mA outputs) with form C relays</li> <li>• UniMass (requires RTD)</li> <li>• Communications: HART, BACnet MSTP/BACnet IP, Modbus RTU &amp; TCP/IP, Ethernet IP, Johnson N2 and VT100 RS 232</li> </ul> |
| Accuracy                          |   |
| Accuracy                          | ± 0.5 % ... 1.0 % of flow, for velocities greater than 0.3 m/s (1 ft/s)<br>± 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)<br>± 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         | <ul style="list-style-type: none"> <li>• Transmitter<br/>N-I Class I, Div 2<br/>S Class II, Div 2</li> <li>• Sensor<br/>I.S. Class I, II, Div 1</li> </ul>                      |
| CE                         | EMC Directive 2014/30/EU<br>ATEX Directive 2014/34/EU   |
| C-TICK                     |   |
| ATEX ratings               | <ul style="list-style-type: none"> <li>• Transmitter:<br/>Ex II (1) G [Ex ia] IIC<br/>Ex II 3 (1) G Ex nC [ia] IIC T5</li> <li>• Sensors:<br/>Ex II 1 G Ex ia IIC T5</li> </ul> |
| IECEx                      | Pending   |

## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUS1010 (Standard)

##### SITRANS FUS1010 IP66 (NEMA 7) wall mount explosionproof



#### Enclosure IP66 (NEMA 7)

##### Input

|                             |   |
|-----------------------------|---|
| Flow range                  | $\pm 12$ m/s ( $\pm 40$ 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 | <ul style="list-style-type: none"> <li>• Current: 20 mA DC</li> <li>• Temperature: 2 x 4 wire 1 k<math>\Omega</math> RTD</li> </ul> |

##### Output

|                        |   |
|------------------------|---|
| Outputs single channel | <ul style="list-style-type: none"> <li>• Current: 20 mA DC (1 k<math>\Omega</math> at 30 V DC)</li> <li>• Voltage: 10 V DC (5 k<math>\Omega</math> min.)</li> <li>• Status Alarm: 4 x SPDT Relays</li> <li>• Pulse rate: 5 kHz</li> <li>• Communications: HART, BACnet MSTP/BACnet IP, Modbus RTU &amp; TCP/IP, Ethernet IP, Johnson N2 and VT100 RS 232</li> </ul> |
|------------------------|---|

##### Accuracy

|                     |   |
|---------------------|---|
| Accuracy            | $\pm 0.5$ % ... 1.0 % of flow, for velocities greater than 0.3 m/s (1 ft/s)<br>$\pm 0.0015$ ... 0.003 m/s ( $\pm 0.005$ ... 0.01 ft/s), for velocities less than 0.3 m/s (1 ft/s) |
| Batch repeatability | $\pm 0.15$ % of flow, for velocities greater than 0.3 m/s (1 ft/s)<br>$\pm 0.0005$ m/s ( $\pm 0.0015$ 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  |

|                                   |   |
|-----------------------------------|---|
| <b>Power supply</b>               | 90 ... 240 V AC, 50 ... 60 Hz, 30 VA or 9 ... 36 V DC, 12 W   |
| <b>Indication and operation</b>   |   |
| 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   |
| <b>Certificates and approvals</b> |   |
| FM and CSA ratings                | <ul style="list-style-type: none"> <li>• Transmitter<br/>XP Class I, Div 1<br/>D-I Class II, Div 1<br/>N-I Class I, Div 2<br/>S Class II, Div 2</li> <li>• Sensor<br/>I.S. Class I, II, Div 1</li> </ul>                        |
| CE                                | EMC Directive 2014/30/EU<br>ATEX Directive 2014/34/EU   |
| C-TICK                            |   |
| ATEX ratings                      | <ul style="list-style-type: none"> <li>• Flow transmitter<br/>Ex II (1) G [Ex ia] IIC<br/>Ex II 3 (1) G Ex nC [ia] IIC T5<br/>Ex II 2 (1) G Ex d [ia IIC] IIB + H2 T5</li> <li>• Sensors:<br/>Ex II 1 G Ex ia IIC T5</li> </ul> |
| IECEX                             | Pending   |

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

| Selection and Ordering data  | Article No.   | Order code                         |
|--|---|------------------------------------|
| <b>SITRANS FUS1010 (Standard)</b>  | <b>7ME353</b> - - - - - <b>0</b> - - - - -                              | - - - - - <b>+ K02 + K02 + R02</b> |
| <a href="#">↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>  |   |                                    |
| IP65 (NEMA 4X) wall mount  | 0   |                                    |
| <b>Number of channels/ultrasonic paths</b>   |   |                                    |
| Single channel   | 1   |                                    |
| Dual channel/Dual path   | 2   |                                    |
| <b>Flowmeter functions and I/O configurations</b><br>includes graphic display and Reflexor capability  |   |                                    |
| Standard I/O   | A   |                                    |
| <ul style="list-style-type: none"> <li>• 2 x 0 ... 10 V</li> <li>• 2 x 4 ... 20 mA (active)</li> <li>• 2 x 0 ... 5 kHz pulse output (TTL)</li> <li>• 4 x relay form C type</li> <li>• 4 x logic inputs (totalizer control, TTL)</li> </ul> |   |                                    |
| <b>Meter power options</b>   |   |                                    |
| 90 ... 240 V AC  | A   |                                    |
| 9 ... 36 V DC  | B   |                                    |
| <b>Communication options</b>   |   |                                    |
| VT100 RS 232 (standard)  | 0   |                                    |
| <b>RTD temperature sensor</b><br>(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   |                                    |
| <b>Sensor for channel 1</b><br>(includes pipe mounting kit and spacer bar for indicated max. OD listed)<br>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 <sup>(3)</sup>  | Mounting frame and straps provided up to 300 mm (13")                   | D                                  |
| D3 universal <sup>(3)</sup>  | Mounting frame and straps provided up to 600 mm (24")                   | E                                  |
| E2 universal <sup>(3)</sup>  | Mounting frame and straps provided up to 1200 mm (48") <sup>(1)</sup>   | F                                  |
| C1H (high precision) <sup>(3)</sup>  | Mounting frame and straps provided up to 600 mm (24") <sup>(2)</sup>    | M                                  |
| C2H (high precision) <sup>(3)</sup>  | Mounting frame and straps provided up to 600 mm (24") <sup>(2)</sup>    | N                                  |
| D1H (high precision) <sup>(3)</sup>  | Mounting frame and straps provided up to 1200 mm (48") <sup>(2)</sup>   | P                                  |
| D4H (high precision) <sup>(3)</sup>  | Mounting frame and straps provided up to 1200 mm (48") <sup>(2)</sup>   | R                                  |
| Doppler  | to 12" with strap kit (not for IP65 (NEMA7)), for up to 121 °C (250 °F) | S                                  |
| D1H <sup>(3)</sup>   | High temperature range 104 °C/220 °F HP <sup>(2)</sup>                  | Z                                  |
|  |   | P 1 P                              |

## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUS1010 (Standard)

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

<sup>1)</sup> 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)

<sup>2)</sup> 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)

<sup>3)</sup> 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.

| Selection and Ordering data  | Article No.     | Ord. code | Selection and Ordering data  | Article No.   | Ord. code |
|--|-----------------|-----------|--|---|-----------|
| <b>SITRANS FUS1010 (Standard)</b> <ul style="list-style-type: none"> <li>• IP65 (NEMA 4X) wall mount</li> <li>• IP66 (NEMA 7) wall mount explosionproof</li> </ul> <p>➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</p>  | <b>7ME3530-</b> |           | <b>SITRANS FUS1010 (Standard)</b> <ul style="list-style-type: none"> <li>• IP65 (NEMA 4X) wall mount</li> <li>• IP66 (NEMA 7) wall mount explosionproof</li> </ul>   | <b>7ME3530-</b>   |           |
|  | <b>7ME3533-</b> |           |  | <b>7ME3533-</b>   |           |
|  | 0 -             |           |  | 0 -   |           |
| <b>Number of channels/ultrasonic paths</b> <p>Single channel</p> <p>Dual channel/Dual path</p> <p>Special: Four channel/Four path (NEMA 4X wall mount and NEMA 7 wall mount explosionproof only)</p>   | 1               |           | <b>Communication options</b> <p>VT100 RS 232</p> <p>Modbus RTU &amp; TCP/IP, HART, BACnet<br/>MSTP/BACnet IP, Ethernet IP, Johnson N2</p>  | 0   |           |
|  | 2               |           | <b>RTD temperature sensor</b><br>(includes mounting hardware for pipes between 1.5" and 24" outer diameter)<br>No RTDs   | 6   |           |
|  | 9               | H 1 A     | <b>1 x Standard clamp-on RTD</b>   | 0   |           |
| <b>Flowmeter functions and I/O configurations</b><br>includes graphic or digital display and Reflexor capability   |                 |           | <b>2 x Standard clamp-on RTD</b>   | 1   |           |
| <u>IP65 (NEMA 4X) wall mount and IP66 (NEMA 7 wall mount explosionproof) units</u>   |                 |           | <b>1 x Submersible clamp-on RTD</b>  | 2   |           |
| <ul style="list-style-type: none"> <li>• Standard I/O</li> <li>- Graphic display</li> <li>- 2 x 0 ... 10 V</li> <li>- 2 x 4 ... 20 mA (active)</li> <li>- 2 x 0 ... 5 kHz pulse (TTL)</li> <li>- 4 x relay form C type</li> <li>- 4 x logic inputs (Totalizer control, TTL)</li> </ul> <p>For H1A multi channel option above:</p> <li>- 4 x 0 ... 10 V</li> <li>- 4 x 4 ... 20 mA (active)</li> <li>- 4 x relay form C type</li>   | A               |           | <b>2 x Submersible clamp-on RTD</b>  | 3   |           |
|  |                 |           | <b>1 x Insertion style RTD with thermowell and lagging</b>   | 4   |           |
|  |                 |           | <b>2 x Insertion style RTD with thermowell and lagging</b>   | 9   | N 1 A     |
| <ul style="list-style-type: none"> <li>• Expanded I/O includes Standard I/O plus</li> <li>- UniMass capability with 1 x Pt100 RTD input per channel (1 x RTD only for H1A multi channel option)</li> <li>- 4 x 4 ... 20 mA analog input</li> </ul>   | C               |           | <b>Sensor for channel 1</b><br>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". | 9   | N 1 B     |
| <ul style="list-style-type: none"> <li>• Extended I/O (Dual channel only)</li> <li>Graphic display</li> <li>Outputs:</li> <li>- 2 x 0 ... 10 V</li> <li>- 2 x 4 ... 20 mA (active)</li> <li>- 4 x 4 ... 20 mA (passive)</li> <li>- 2 x 0 ... 5 kHz pulse (TTL)</li> <li>- 4 x relay form C type</li> <li>- 4 x logic inputs (Totalizer control, TTL)</li> <li>Inputs:</li> <li>- 4 x 4 ... 20 mA</li> <li>- UniMass capability with 1 x Pt100 RTD input per channel</li> </ul> | Z               | J 1 B     | 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 <sup>(3)</sup>  | Mounting frame and straps provided up to 300 mm (13")                 | D         |
|  |                 |           | D3 universal <sup>(3)</sup>  | Mounting frame and straps provided up to 600 mm (24")                 | E         |
|  |                 |           | E2 universal <sup>(3)</sup>  | Mounting frame and straps provided up to 1200 mm (48") <sup>(1)</sup> | F         |
| <b>Meter power options</b> <p>90 ... 240 V AC</p> <p>9 ... 36 V DC</p>   | A               |           |  |   |           |
|  | B               |           |  |   |           |

## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUS1010 (Standard)

##### Selection and Ordering data

Article No. Ord. code

##### SITRANS FUS1010 (Standard)

- IP65 (NEMA 4X) wall mount
- IP66 (NEMA 7) wall mount explosionproof

7ME3530-

7ME3533-

##### Sensor for channel 1 (continued)

For the following High Precision sensors, temperature range is -40 °C ... +120 °C, 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 1200 mm (48") <sup>2)</sup>     | P |       |
| D2H (high precision) <sup>3)</sup>  | Mounting frame and straps provided up to 1200 mm (48") <sup>2)</sup>     | Q |       |
| D4H (high precision) <sup>3)</sup>  | Mounting frame and straps provided up to 1200 mm (48") <sup>2)</sup>     | 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 High Precision sensors, temperature range is -40 °C ... +120 °C, 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) <sup>3)</sup>   |  | Z | P 1 M |
| C2H (high temperature range HP) <sup>3)</sup>   |  | Z | P 1 N |
| D1H (high temperature range HP) <sup>2)3)</sup>   |  | Z | P 1 P |
| D2H (high temperature range HP) <sup>2)3)</sup>   |  | Z | P 1 Q |
| D4H (high temperature range HP) <sup>2)3)</sup>   |  | Z | P 1 R |

##### Selection and Ordering data

Article No. Ord. code

##### SITRANS FUS1010 (Standard)

- IP65 (NEMA 4X) wall mount
- IP66 (NEMA 7) wall mount explosionproof

7ME3530-

7ME3533-

##### 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 <sup>3)</sup>   | Mounting frame and straps provided up to 300 mm (13")                    |  | D |
| D3 universal <sup>3)</sup>   | Mounting frame and straps provided up to 600 mm (24")                    |  | E |
| E2 universal <sup>3)</sup>   | Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>     |  | F |
| For the following High Precision sensors, temperature range is -40 °C ... +120 °C, 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 1200 mm (48") <sup>e)2)</sup>   |  | P |
| D2H (high precision) <sup>3)</sup>   | Mounting frame and straps provided up to 1200 mm (48") <sup>2)</sup>     |  | Q |
| D4H (high precision) <sup>3)</sup>   | Mounting frame and straps provided up to 1200 mm (48") <sup>2)</sup>     |  | R |
| Doppler  | to 12" with strap kit (not for IP65 (NEMA 7)), for up to 121 °C (250 °F) |  | S |

| Selection and Ordering data   | Article No.     | Ord. code      | Selection and Ordering data  | Order code   |
|---|-----------------|----------------|--|--|
| <b>SITRANS FUS1010 (Standard)</b>   | <b>7ME3530-</b> |                | <b>Further designs</b>   |  |
| <ul style="list-style-type: none"> <li>• IP65 (NEMA 4X) wall mount</li> <li>• IP66 (NEMA 7) wall mount explosionproof</li> </ul>                              | <b>7ME3533-</b> |                | Please add "-Z" to Article No. and specify Order code(s).  |  |
|   | 0 -             |                | Cable assembly for sensors (add for No. of channels)<br>See "Sensor cable selection chart"   | <b>K..</b>   |
| <b>Sensor for channel 2 (continued)</b>   |                 |                | Cable assembly for RTDs (add for No. of RTDs)<br>See "RTD cable selection chart"   | <b>R..</b>   |
| High temperature sensor size 2 for up to 230 °C (446 °F) (30 to 200 mm diam. (1.18 to 7.67 inch diam.))   |                 | <b>Z Q 1 A</b> | Cable termination kit for external supplied cables (for one cable pair)  |  |
| High temperature sensor size 3 for up to 230 °C (446 °F) (150 to 610 mm diam. (5.90 to 24 inch diam.))  |                 | <b>Z Q 1 B</b> | <ul style="list-style-type: none"> <li>• Termination for standard, plenum and armored sensor cable</li> </ul>  | <b>T01</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.))   |                 | <b>Z Q 1 C</b> | <ul style="list-style-type: none"> <li>• Termination for submersible sensor cable</li> </ul>   | <b>T11</b>   |
| For the following High temperature sensors, temperature range is -40 °C ... +120 °C, nominal 65 °C (150 °F):  |                 |                | <ul style="list-style-type: none"> <li>• RTD cable termination kit for standard RTD</li> <li>• RTD cable termination kit for submersible RTD</li> <li>• Insert RTD cable termination kit</li> <li>• Cable gland kit</li> </ul>   | <b>T21</b><br><b>T31</b><br><b>T41</b><br><b>T51</b>   |
| B1H (high temperature range HP)   |                 | <b>Z Q 1 K</b> | Wet flow transfer calibration (priced on request)  |  |
| B2H (high temperature range HP)   |                 | <b>Z Q 1 L</b> | 6 point calibration 2/water (Price per channel)  |  |
| C1H (high temperature range HP) <sup>3)</sup>   |                 | <b>Z Q 1 M</b> | <ul style="list-style-type: none"> <li>• 2SS40 pipe</li> </ul>   | <b>D01</b>   |
| C2H (high temperature range HP) <sup>3)</sup>   |                 | <b>Z Q 1 N</b> | <ul style="list-style-type: none"> <li>• 3CS40 pipe</li> </ul>   | <b>D02</b>   |
| D1H (high temperature range HP) <sup>2)3)</sup>   |                 | <b>Z Q 1 P</b> | <ul style="list-style-type: none"> <li>• 4CS40 pipe</li> </ul>   | <b>D03</b>   |
| D2H (high temperature range HP) <sup>2)3)</sup>   |                 | <b>Z Q 1 Q</b> | <ul style="list-style-type: none"> <li>• 4SS40 pipe</li> </ul>   | <b>D04</b>   |
| D4H (high temperature range HP) <sup>2)3)</sup>   |                 | <b>Z Q 1 R</b> | <ul style="list-style-type: none"> <li>• 6CS40 pipe</li> <li>• 6SS40 pipe</li> <li>• 6CS120 pipe</li> <li>• 8CS40 pipe</li> <li>• 8SS40 pipe</li> <li>• 8CS120 pipe</li> <li>• 10CS Standard pipe</li> <li>• 10CS40 pipe</li> <li>• 10SS40 pipe</li> <li>• 12CS Standard pipe</li> <li>• 12CS40 pipe</li> <li>• 14CS30 pipe</li> <li>• 14CS40 pipe</li> <li>• 16CS Standard pipe</li> <li>• 16CS40 pipe</li> <li>• 18CS Standard pipe</li> <li>• 20CS20 pipe</li> <li>• 20CS30 pipe</li> <li>• 24CS Standard pipe</li> <li>• 24CS20 pipe</li> <li>• 24CS30 pipe</li> <li>• 30CS Standard pipe</li> <li>• 36CS Standard pipe</li> <li>• Other pipe, other liquid, additional points, witness</li> </ul> | <b>D05</b><br><b>D06</b><br><b>D07</b><br><b>D08</b><br><b>D09</b><br><b>D10</b><br><b>D11</b><br><b>D12</b><br><b>D13</b><br><b>D14</b><br><b>D15</b><br><b>D16</b><br><b>D17</b><br><b>D18</b><br><b>D19</b><br><b>D20</b><br><b>D21</b><br><b>D22</b><br><b>D23</b><br><b>D24</b><br><b>D25</b><br><b>D26</b><br><b>D27</b><br><b>Y28</b> |
| <b>Approvals</b>  |                 |                | Tag name plate   |  |
| FM/CSA, CE  |                 | <b>1</b>       | <ul style="list-style-type: none"> <li>• Stainless steel tag with 3.2 mm (0.13 inch) character size (68 characters max.)</li> </ul>  | <b>Y19</b>   |
| ATEX, CE, C-TICK  |                 | <b>2</b>       |  |  |
| 1) Supplied spacer bar supports pipes up to 1050 mm (42 inch).<br>For pipes larger than 1050 mm (42 inch) purchase also, spare part 7ME3960-0MS40 (1012BN-4). |                 |                | <b>Operating Instructions for SITRANS FUS1010</b>  | Article No.  |
| 2) Supplied spacer bar supports pipes up to 750 mm (30 inch).<br>For pipes larger than 750 mm (30 inch) purchase also, spare part 7ME3960-0MS40 (1012BN-4).   |                 |                | English NEMA 4X wall mount & NEMA 7 wall mount explosionproof  | <b>A5E02951520</b>   |
| 3) Made with stainless steel construction.  |                 |                | German NEMA 4X & wall mount NEMA 7 wall mount explosionproof   | <b>A5E02951532</b>   |
|   |                 |                | This device is shipped with a Quick Start guide and a CD containing further SITRANS F literature.  |  |
|   |                 |                | All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">www.siemens.com/processinstrumentation/documentation</a>   |  |



## Flow Measurement

### SITRANS F US Clamp-on

#### SITRANS FUS1010 (Standard)

#### 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  |
|---------------------------------------|-----------------------------|------------|
| <b>SITRANS FUS1010 meter family</b>   | <b>7ME3530-2AB00-0QQ1-Z</b> | <b>K03</b> |
| 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 |                             | K03        |
| 30 m (100 ft) sensor cable for path 2 |                             | K03        |

#### Sensor cable (pair) selection chart

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

#### RTD cable (single) selection chart

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

<sup>1)</sup> Standard MLFB for quick delivery

#### 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>B</b>   | 12.7                      | 50.8  | 0.5                         | 2    |
| B3  | <b>C</b>   | 19                        | 127   | 0.75                        | 5    |
| C3 <sup>1)</sup>                            | <b>D</b>   | 51                        | 305   | 2                           | 12   |
| D3 <sup>1)</sup>                            | <b>E</b>   | 203                       | 610   | 8                           | 24   |
| E2 <sup>1)</sup>                            | <b>F</b>   | 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   | <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 with stainless steel construction.