

# Standard MLFB for quick delivery on SITRANS FUH1010 (Oil)

## Selection and Ordering data

Order No.

Order code

SITRANS FUH1010 (Oil)

L) 7ME360 - 0 - K12 + K12 + R12

### Design

IP65 (NEMA 4X) wall mount

### Number of ultrasonic paths/meter type

Dual path Standard Volume

### Flowmeter functions and I/O configurations

includes graphic or digital display, IP66 (BNB6665 (NEMA 4X)) and IP66 (NEMA 7) wall mount explosionproof units:

Standard

- Graphic display
- 4x 4 ... 20 mA analog input
- 2x 0 ... 10 V
- 2x 4 ... 20 mA
- 2x pulse outputs
- 4 Mercury wetted relays
- 2x RTD input

### Meter power options

90 ... 240 V AC

### Communication options

RS232 (standard)

### RTD temperature sensor

(includes mounting hardware for pipes above 1.5"/38 mm OD)

No RTDs

- 1 x standard clamp-on RTD
- 2 x standard clamp-on RTD
- 1 x submersible clamp-on RTD
- 2 x submersible clamp-on RTD

RTD

Notes:

1. Temperature input is required for SITRANS FUH1010 systems
2. Only the Interface detector set up as a dual channel can use 2 RTD's

### Sensor for channel 1

(includes pipe mounting kit and spacer bar for indicated max. outer diam. listed)

no sensor

C2H (high precision) Mounting frame and straps provided up to 1200 mm (48")

D1H (high precision) Mounting frame and straps provided up to 1200 mm (48")

D4H (high precision) Mounting frame and straps provided up to 1200 mm (48")

D1H (high precision) High Temperature to 104 °C / 219 °F

### Sensor for channel 2

(includes pipe mounting kit and spacer bar for indicated max. OD listed)

See "Sensor selection charts" for specifications.

no sensor

C2H (high precision) Mounting frame and straps provided up to 1200 mm (48")

D1H (high precision) Mounting frame and straps provided up to 1200 mm (48")

D4H (high precision) Mounting frame and straps provided up to 1200 mm (48")

D1H (high precision) High Temperature to 104 °C / 219 °F

### Approvals

FM/CSA/CE (default)

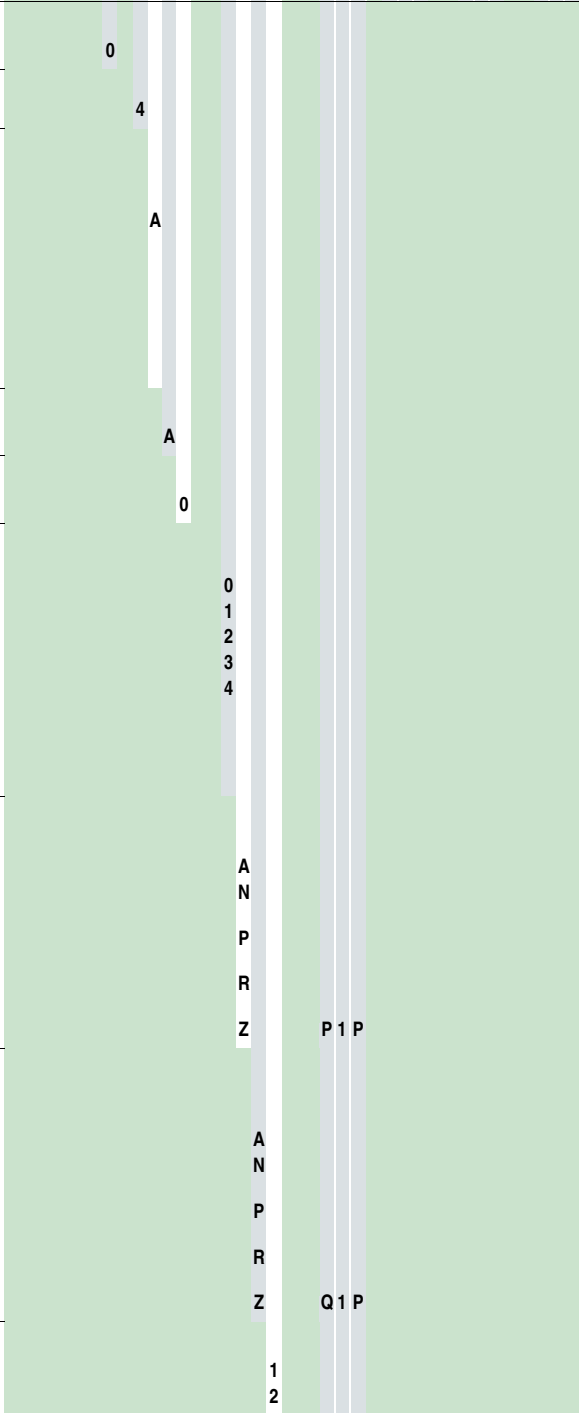
ATEX, CE, C-TICK

Standard MLFB product offering represents 4 to 6 weeks delivery time

<sup>1)</sup> Supplied spacer bar supports pipes up to 750 mm (30"). For pipes larger than 750 mm (30") also, spare part 7ME3960-OMS40 (1012BN-4).

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

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



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**SITRANS FUH1010 (Oil)**

- IP65 (NEMA 4X) wall mount L **7ME3600-**
- IP65 (NEMA 7) compact explosionproof L **7ME3601-**
- IP66 (NEMA 7) wall mount explosionproof L **7ME3603-**

0 -

**Number of ultrasonic paths/meter type**

Single path (precision volume)	0				
Single path (interface detector)	1				
Dual channel/Dual path (interface detector)	2				
Dual path (precision volume)	3				
Dual path (standard volume / mass)	4				
Special: Four path (standard volume/mass) only	9			<b>H 1 A</b>	

**Flowmeter functions and I/O configurations**

Includes graphic or digital display

IP65 (NEMA 4X) wall mount and IP66 (NEMA 7 wall mount explosionproof) units

- Standard **A**
  - Graphic display
  - 4 x 4 ... 20 mA analog input
  - 2 x 0 ... 10 V
  - 2 x 4 ... 20 mA analog output
  - 2 x pulse output
  - 4 x Mercury wetted relays (form C for interface detector)
  - 2 x RTD input

- Extended I/O option **C**
  - additional 2 x 4 ... 20 mA outputs
  - Form C relays
  - 4 x digital pulse outputs (2 x open collector and 2 x 0 ... 5 V TTL)

IP65 (NEMA 7) compact explosionproof units

- Standard **D**
  - Digital display
  - 2 x 4 ... 20 mA (Loop)
  - 2 x 4 ... 20 mA analog input
  - 2 x status (open collector)
  - 1 x RTD input
- Digital pulse option **F**
  - 1 x digital pulse open collector output
  - 2 x 4 ... 20 mA (Loop)
  - 2 x 4 ... 20 mA analog input
  - 1 x status (open collector)
  - 1 x RTD input
- Other version (Mercury wetted or dry contact relays) Add order code and plain text.

 - Dry contact form C relays for standard meter **Z J 1 A**

 - Mercury wetted relays for extended I/O meters **Z J 1 D**
**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**

**Communication options**

- RS232 (standard) **0**
- MODBUS (excludes NEMA 7 compact) **1**

**Selection and Ordering data**

Order No. Ord. code

**SITRANS FUH1010 (Oil)**

- IP65 (NEMA 4X) wall mount L **7ME3600-**
- IP65 (NEMA 7) compact explosionproof L **7ME3601-**
- IP66 (NEMA 7) wall mount explosionproof L **7ME3603-**

0 -

**RTD temperature sensor**

(includes mounting hardware for pipes above 1.5" OD)

 No RTDs (Note: temperature input is required for SITRANS FUH systems) **0**

- 1 x Standard clamp-on RTD **1**
- 2 x Standard clamp-on RTD<sup>2)</sup> **2**
- 1 x Submersible clamp-on RTD **3**
- 2 x Submersible clamp-on RTD<sup>2)</sup> **4**

**Sensor for channel/path 1**

(includes standard pipe mounting kit and spacer bar for indicated max. outer diameter listed)

See "Sensor selection charts" for specifications.

 no sensor **A**

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**
- B3H (high precision) Trackmount and straps provided up to 125 mm (5") **T**
- C1H (high precision) Mounting frame and straps provided up to 1200 mm (48")<sup>1)</sup> **M**
- C2H (high precision) Mounting frame and straps provided up to 1200 mm (48")<sup>1)</sup> **N**
- D1H (high precision) Mounting frame and straps provided up to 1200 mm (48")<sup>1)</sup> **P**
- D2H (high precision) Mounting frame and straps provided up to 1200 mm (48")<sup>1)</sup> **Q**
- D3H (high precision) Mounting frame and straps provided up to 1200 mm (48")<sup>1)</sup> **U**
- D4H (high precision) Mounting frame and straps provided up to 1200 mm (48")<sup>1)</sup> **R**

<sup>1)</sup> Supplied spacer bar supports pipes up to 750 mm (30 inches). For pipes larger than 750 mm (30 inches) purchase also, spare part 7ME3960-0MS40 (1012BN-4).

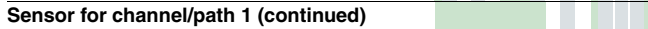
<sup>2)</sup> Dual channel interface detector only

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

**Selection and Ordering data** Order No. Ord. code

**SITRANS FUH1010 (Oil)**

- IP65 (NEMA 4X) wall mount L) **7ME3600-**
- IP65 (NEMA 7) compact explosionproof L) **7ME3601-**
- IP66 (NEMA 7) wall mount explosionproof L) **7ME3603-**



**Sensor for channel/path 1 (continued)**

For the following B1H to D4H sensors, temperature range is -1 °C up to 104 °C (30 °F up to 220 °F), nominal 65 °C (150 °F):

B1H (high temperature range HP)	Z	P 1 K
B2H (high temperature range HP)	Z	P 1 L
B3H (high temperature range HP)	Z	P 1 T
C1H (high temperature range HP)	Z	P 1 M
C2H (high temperature range HP)	Z	P 1 N
D1H (high temperature range HP) <sup>1)</sup>	Z	P 1 P
D2H (high temperature range HP) <sup>1)</sup>	Z	P 1 Q
D3H (high temperature range HP) <sup>1)</sup>	Z	P 1 U
D4H (high temperature range HP) <sup>1)</sup>	Z	P 1 R

**Sensor for channel/path 2**  
(includes pipe mounting kit and spacer bar for indicated max. outer diameter listed)  
See "Sensor selection charts" for specifications.

no sensor A

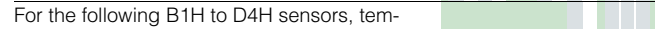
For the following A1H to D4H sensors, temperature range is -40 °C to 65 °C (-41 °F to 150 °F), nominal 21 °C (70 °F):

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
B3H (high precision) Trackmount and straps provided up to 125 mm (5")	T
C1H (high precision) Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>	M
C2H (high precision) Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>	N
D1H (high precision) Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>	P
D2H (high precision) Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>	Q
D3H (high precision) Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>	U
D4H (high precision) Mounting frame and straps provided up to 1200 mm (48") <sup>1)</sup>	R

**Selection and Ordering data** Order No. Ord. code

**SITRANS FUH1010 (Oil)**

- IP65 (NEMA 4X) wall mount L) **7ME3600-**
- IP65 (NEMA 7) compact explosionproof L) **7ME3601-**
- IP66 (NEMA 7) wall mount explosionproof L) **7ME3603-**



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
B3H (high temperature range HP)	Z	Q 1 T
C1H (high temperature range HP)	Z	Q 1 M
C2H (high temperature range HP)	Z	Q 1 N
D1H (high temperature range HP) <sup>1)</sup>	Z	Q 1 P
D2H (high temperature range HP) <sup>1)</sup>	Z	Q 1 Q
D3H (high temperature range HP) <sup>1)</sup>	Z	Q 1 U
D4H (high temperature range HP) <sup>1)</sup>	Z	Q 1 R

**Approvals**

FM/CSA/CE/C-TICK (default), also for non hazardous area	1
ATEX	2
INMETRO (Brazil)	3

<sup>1)</sup> Supplied spacer bar supports pipes up to 750 mm (30 inches).  
For pipes larger than 750 mm (30 inches) purchase also, spare part 7ME3960-0MS40 (1012BN-4).  
L) Subject to export regulations AL: N, ECCN: 3A991X.

**Selection and Ordering data** Order code

**Further designs**

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

Cable assembly for sensors (add for # of paths) See "Sensor cable selection chart"	<b>K..</b>
Cable assembly for RTDs (add for # of RTDs) See "RTD cable selection chart"	<b>R..</b>
Cable termination kit (for one cable pair)	
• Termination for standard, plenum and armored sensor cable	<b>T01</b>
• Termination for submersible cable	<b>T11</b>
• RTD cable termination kit for standard RTD	<b>T21</b>
• RTD cable termination kit for submersible RTD	<b>T31</b>
Languages (Meter and Documentation), English (default)	
• German	<b>B10</b>
• French	<b>B12</b>
• Spanish	<b>B13</b>
• Italian	<b>B14</b>
Tag name plate	
• Stainless steel tags with 3.2 mm (0.13 inch) characters (68 characters max.)	<b>Y19</b>

### Selection and Ordering data

Order No.

#### Operating Instructions for SITRANS FUH1010

English NEMA 4X & NEMA 7 wall mount Standard Volume

**A5E02951449**

German NEMA 4X & NEMA 7 wall mount Standard Volume

**A5E02951529**

English NEMA 4X & NEMA 7 wall mount explosionproof Precision Volume

D) **CQO:1010PVNFM-3**

English NEMA 4X & NEMA 7 wall mount explosionproof Interface Detector

**A5E02951504**

English NEMA 7 compact explosionproof Standard Volume

D) **CQO:1010DVXFM-3**

English NEMA 7 compact explosionproof Precision Volume

D) **CQO:1010PVXFM-3**

English NEMA 7 compact explosionproof Interface Detector

D) **CQO:1010BXXFM-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/flowdocumentation>

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

### MLFB example

#### Application example

A clamp-on meter is required for a 12" carbon steel hydrocarbon line flowing multiple products, with a wall thickness of 12.7 mm (0.5"). Meter electronics are to be located in a Class I Div 2 area only 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. Pulse output will be primary flow data source.

MLFB Order No.: **7ME3600-3CB00-3QQ1-Z  
K03 + K03 + R03**

### Selection and Ordering data

Order No.

Ord. code

#### SITRANS FUH1010 meter family

IP65 (NEMA 4X) enclosure

0

Dual path precision volume

3

Custody Transfer option with digital pulse

C

9 ... 36 V DC power option

B

RS232 Standard

0

RTD required for viscosity comp

3

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**

30 m (100 ft) cable for RTD

**R 0 3**

### High precision sensor selection chart

#### Based on pipe wall thickness (steel pipes only)

Sensor Pipe wall	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	11.18	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
B3H	<b>T</b>	2.7	3.3	0.106	0.128
D3H	<b>U</b>	7.4	9.0	0.293	0.354

### Sensor Cable Selection Chart

#### Sensor cable codes for length and type options

Cable length m (ft)	Standard (PVC jacket)	Submersible (polyethylene jacket)	Plenum Rated (teflon jacket)	Armored
	-40...+80 °C (-40...+176 °F)	-40...+80 °C (-40...+176 °F)	-40...+200 °C (-40...+392 °F)	-40...+80 °C (-40...+176 °F)
Order code				
6 (20)	<b>K01<sup>1)</sup></b>	<b>K11</b>	<b>K21</b>	<b>K31</b>
15 (50)	<b>K02</b>	<b>K12<sup>1)</sup></b>	<b>K22</b>	<b>K32<sup>1)</sup></b>
30 (100)	<b>K03<sup>1)</sup></b>	<b>K13<sup>1)</sup></b>	<b>K23</b>	<b>K33</b>
46 (150)	<b>K04<sup>1)</sup></b>	<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>	<b>K16</b>	<b>K26</b>	<b>K36</b>

### RTD Cable Selection Chart

#### RTD cable codes for length and type

Cable length m (ft)	Standard (teflon wrapped)	Submersible (extruded jacket)
	-40 ... +200 °C (-40 ... +392 °F)	-40 ... +200 °C (-40 ... +392 °F)
Order code		
6 (20)	<b>R01<sup>1)</sup></b>	<b>R11</b>
15 (50)	<b>R02<sup>1)</sup></b>	<b>R12</b>
30 (100)	<b>R03<sup>1)</sup></b>	<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