

# SITRANS F flowmeters

## SITRANS F M

### System information SITRANS F M electromagnetic flowmeters

#### Overview



SITRANS F M family

SITRANS F M electromagnetic flowmeters are designed for measuring the flow of electrically conductive mediums.

#### Benefits



#### Greater flexibility

- Wide product program
- Compact or remote installation using the same transmitter and sensor
- USM II communication platform for easy integration with all systems

#### Easier commissioning of MAG 5000, 6000, 6000 I

All SITRANS F M pulsed DC electromagnetic flowmeters feature a unique SENSORPROM memory unit which stores sensor calibration data and transmitter settings for the lifetime of the product.

At commissioning the flowmeter commences measurement without any initial programming.

The factory settings matching the sensor size are stored in the SENSORPROM unit. Also customer specified settings are downloaded to the unit. Should the transmitter be replaced, the new transmitter will upload all previous settings and resume measurement without any need for reprogramming.

Further, the „fingerprint“ used in connection with the SITRANS F M Verificator is stored during the initial sensor calibration.

#### Easier service

Transmitter replacement requires no programming. SENSORPROM automatically updates all settings after initialization.

#### Room for growth

USM II the Universal Signal Module with "plug & play" simplicity, makes it easy to access and integrate the flow measurement with almost any system and bus-protocol and it ensures the flowmeter will be easy to upgrade to future communication/bus platforms.

#### Application

Electromagnetic flowmeters are suitable for measuring the flow of almost all electrically conducting liquids, pastes and slurries.

A prerequisite is that the medium must have a minimum conductivity of 5  $\mu\text{S}/\text{cm}$ . The temperature, pressure, density and viscosity have no influence on the result.

The main applications of the electromagnetic flowmeters can be found in the following sectors:

- Water and waste water
- Chemical and pharmaceutical industries
- Food and beverage industry
- Mining, aggregates and cements industries
- Pulp and paper industry
- Steel industry
- Power; utility and chilled water industry

The wide variety of combinations and versions from the modular system means that ideal adaptation is possible to each measuring task.

# SITRANS F flowmeters

## SITRANS F M

### Transmitter MAG 5000/6000

#### Overview



Transmitter MAG 5000/6000 compact version (left) and 19" insert version (right)

The MAG 5000 and 6000 are microprocessor-based transmitters engineered for high performance, easy installation, commissioning and maintenance. The transmitters evaluate the signals from the SITRANS F M sensors type MAG 1100, MAG 1100 F, MAG 3100 and MAG 5100 W.

Transmitter types:

- MAG 5000: Max. measuring error 0.5% of rate (incl. sensor)
- MAG 6000: Max. measuring error 0.25% of rate (incl. sensor, see also sensor specifications) and with additional features such as: Plug & Play insert bus modules; integrated batch functions.

#### Benefits

- Superior signal resolution for optimum turn down ratio
- Digital signal processing with many possibilities
- Automatic reading of SENSORPROM data for easy commissioning
- User configurable operation menu with password protection.
- 3 lines, 20 characters display in 11 languages.
- Flow rate in various units
- Totalizer for forward, reverse and net flow as well as additional information available
- Multiple functional outputs for process control, minimum configuration with analogue, pulse/frequency and relay output (status, flow direction, limits)
- Comprehensive self-diagnostic for error indication and error logging (see under SITRANS F M diagnostics)
- Batch control
- Custody transfer approval: PTB, OIML R75, R117, OIML R 49 and MI-001,
- MAG 6000 with add-on bus modules for HART, FOUNDATION Fieldbus H1, DeviceNet, MODBUS RTU/RS485, PROFIBUS PA and DP

#### Application

The SITRANS F M flowmeters are suitable for measuring the flow of almost all electrically conductive liquids, pastes and slurries. The main applications can be found in:

- Water and waste water
- Chemical and pharmaceutical industries
- Food & beverage industries
- Power generation and utility

#### Design

The transmitter is designed as either IP67 NEMA 4X enclosure for compact or wall mounting or 19" version as a 19" insert as a base to be used in:

- 19" rack systems
- Panel mounting IP65/NEMA 4
- Back of panel mounting IP20/NEMA 2
- Wall mounting IP66/NEMA 4

Several options on 19" versions are available such as:

- Transmitters mounted in safe area for Ex ATEX approved flow sensors (incl. barriers)
- Transmitters with electrode cleaning unit

#### Function

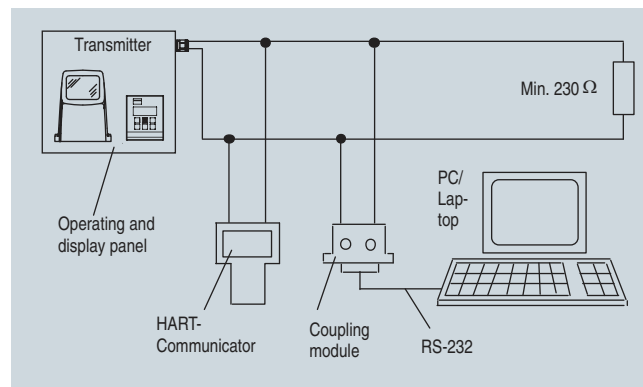
The MAG 5000/6000 are microprocessor-based transmitters with a build-in alphanumeric display in several languages. The transmitters evaluate the signals from the associated electromagnetic sensors and also fulfill the task of a power supply unit which provides the magnet coils with a constant current.

Further information on connection, mode of operation and installation can be found in the data sheets for the sensors.

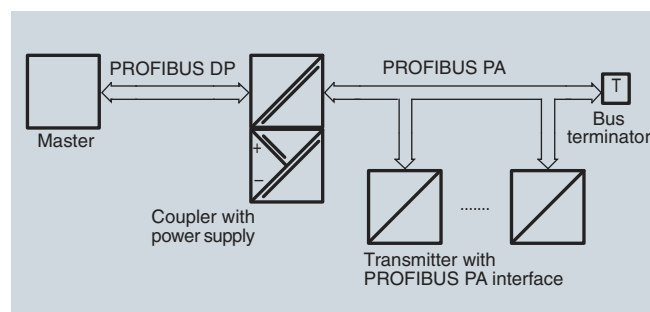
#### Displays and controls

Operation of the transmitter can be carried out using:

- Control and display unit
- HART communicator
- PC/laptop and SIMATIC PDM software via HART communication
- PC/laptop and SIMATIC PDM software using PROFIBUS or MODBUS communication



HART communication



PROFIBUS PA communication

# SITRANS F flowmeters

## SITRANS F M

### Transmitter MAG 5000/6000

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#### Technical specifications

##### Mode of operation and design

Measuring principle	Electromagnetic with pulsed constant field
Empty pipe	Detection of empty pipe (special cable required in remote mounted installation)
Excitation frequency	Depend on sensor size
Electrode input impedance	$> 1 \times 10^{14} \Omega$

##### Input

Digital input	11 ... 30 V DC, $R_i = 4.4 \text{ K}\Omega$
• Activation time	50 ms
• Current	$I_{\text{DC } 11 \text{ V}} = 2.5 \text{ mA}$ , $I_{\text{DC } 30 \text{ V}} = 7 \text{ mA}$

##### Output

Current output	
• Signal range	0 ... 20 mA or 4 ... 20 mA
• Load	$< 800 \Omega$
• Time constant	0.1 ... 30 s, adjustable

##### Digital output

Frequency	0 ... 10 kHz, 50% duty cycle (uni/bidirectional)
Pulse (active)	DC 24 V, 30 mA, $1 \text{ K}\Omega \leq R_i \leq 10 \text{ K}\Omega$ , short-circuit-protected (power supplied from flowmeter)
Pulse (passive)	DC 3 ... 30 V, max. 110 mA, $200 \Omega \leq R_i \leq 10 \text{ K}\Omega$ (powered from connected equipment)
Time constant	0.1 ... 30 s, adjustable

##### Relay output

Time constant	Changeover relay, same as current output
Load	42 V AC/2 A, 24 V DC/1 A
Low flow cut off	0 ... 9.9% of maximum flow
Galvanic isolation	All inputs and outputs are galvanically isolated

##### Max. measuring error (incl. sensor and zero point)

MAG 5000	0.5% of rate
MAG 6000	0.25% of rate

##### Rated operation conditions

Ambient temperature	
• Operation	<ul style="list-style-type: none"> <li>• Display version: -20 ... +50 °C (-4 ... +122 °F)</li> <li>• Blind version: -20 ... +60 °C (-4 ... +140 °F)</li> </ul>
• Storage	-40 ... +70 °C (-40 ... +158 °F)

##### Mechanical load

Compact version	18 ... 1000 Hz, 3,17 G rms, sinusoidal in all directions to IEC 68-2-36
19" insert	1 ... 800 Hz, 1 G, sinusoidal in all directions to IEC 68-2-36

##### Degree of protection

Compact version	IP67/NEMA 4X to IEC 529 and DIN 40050 (1 mH <sub>2</sub> O 30 min.)
19" insert	IP20/NEMA 2 to IEC 529 and DIN 40050

##### EMC performance

EN 61326-1 (all environments)  
EN 61326-2-5

##### Display and keypad

Totalizer	Two eight-digit counters for forward, net or reverse flow
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##### Display

Background illumination with alphanumeric text, 3 x 20 characters to indicate flow rate, totalized values, settings and faults; Reverse flow indicated by negative sign

Time constant	Time constant as current output time constant
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##### Design

Enclosure material	
• Compact version	Fiber glass reinforced polyamide; optional (IP67 only): AISI 316 stainless steel
• 19"-insert	Standard 19" insert of aluminium/steel (DIN 41494), width: 21 TE, height: 3 HE
• Back of panel	IP20/NEMA 2; Aluminium
• Panel mounting	IP65/NEMA 4; ABS plastic
• Wall mounting	IP66/NEMA 4; ABS plastic

##### Dimensional drawings

Compact version	See dimensional drawings
19" insert	See dimensional drawings

##### Weight

Compact version	0.75 kg (2 lb)
19" insert	See dimensional drawings

##### Power supply

- 115 ... 230 V AC +10% -15%, 50 ... 60 Hz, 17 VA
- 11 ... 30 V DC or 11 ... 24 V AC

##### Power consumption

- 230 V AC: 17 VA
- 24 V AC: 9 W,  $I_N = 380 \text{ mA}$ ,  $I_{\text{ST}} = 8 \text{ A}$  (30 ms)
- 12 V DC: 11 W,  $I_N = 920 \text{ mA}$ ,  $I_{\text{ST}} = 4 \text{ A}$  (250 ms)

##### Certificates and approvals

	CE, ULc general purpose, C-tick; CSA/FM Class 1, div 2
Custody transfer approval (MAG 5000/6000 CT)	<ul style="list-style-type: none"> <li>• PTB OIML R49 (cold water pattern approval); MI-001</li> <li>• PTB and DANAK OIML R75 (hot water pattern approval) (MAG 6000 CT)</li> <li>• PTB and DANAK OIML R117 (cold water/milk, beer etc. pattern approval) (MAG 6000 CT)</li> </ul>

##### Communication

Standard	
• MAG 5000	Without serial communication or HART as option
• MAG 6000	Prepared for client mounted add-on modules
Optional (MAG 6000 only)	HART, MODBUS RTU/RS485, FOUNDATION Fieldbus H1, DeviceNet, PROFIBUS PA, PROFIBUS DP as add-on modules
• MAG 5000/6000 CT	no communication modules approved

# SITRANS F flowmeters

## SITRANS F M

### Transmitter MAG 5000/6000

#### Safety barrier (e/ia)



<b>Application</b>	<b>For use with MAG 5000/6000 19" and MAG 1100 Ex ATEX/MAG 3100 Ex ATEX</b>		
<b>Ex approval</b>	MAG 1100 Ex [EEx e ia] IIB ATEX MAG 3100 Ex [EEx e ia] IIC ATEX		
<b>Cable parameter</b>	Group	Capacity in $\mu\text{F}$	Inductance in mH
• Electrode	IIC	$\leq 4.1$	$\leq 80$
	IIB	$\leq 45$	$\leq 87$
	IIA	$\leq 45$	$\leq 87$
<b>Ambient temperature</b>			
• During operation	-20 ... +50 °C (-4 ... +122 °F)		
• During storage	-20 ... +70 °C (-4 ... +158 °F)		
<b>Enclosure</b>			
• Material	Standard 19" insert in aluminium/steel (DIN 41494)		
• Width	21 TE (4.75")		
• Height	3 HE (5.25")		
• Rating	IP20 / NEMA 2 to EN 60529 and DIN 40050		
• Mechanical load	1 g, 1 ... 800 Hz sinusoidal in all directions to EN 60068-2-36		
<b>EMC performance</b>			
• Emission	EN 50081-1 (Light industry)		
• Immunity	EN 50082-2 (Industry)		

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#### Electrode cleaning unit



<b>Application</b>	<b>For use with transmitters MAG 5000 and 6000 19" to clean the electrodes on sensors MAG 1100 or MAG 3100</b>		
	NB: Must not be used with intrinsically safe ATEX sensors NB: Not to be used with sensors with Hastelloy and Tantalum electrodes		
<b>Cleaning voltage</b>			
AC cleaning	60 V AC		
DC cleaning	30 V DC		
<b>Cleaning period</b>	60 s + 60 s pause period		
<b>Relay</b>			
• Load	42 V/2 A		
<b>Operation</b>	Switch relay activated when cleaning is in progress		
• Automatic	Yes		
• Manual	No		
<b>Indicator lamps</b>	LEDs: "ON" and "CLEANING"		
<b>Supply voltage and power consumption</b>	115 ... 230 V AC, +10% ... -15%, 50 ... 60 Hz, 7 VA cleaning, 5 VA stand by 11 ... 30 V DC / 11 ... 24 V AC, 50 ... 60 Hz, 7 VA cleaning, 5 VA stand by		
<b>Ambient temperature</b>			
• During operation	-20 ... +50 °C (-4 ... +122 °F)		
• During storage	-20 ... +70 °C (-4 ... +158 °F)		
<b>Enclosure</b>			
• Material	Standard 19" insert in aluminium/steel (DIN 41494)		
• Width	21 TE (4.75")		
• Height	3 HE (5.25")		
• Rating	IP20 / NEMA 2 to EN 60529 and DIN 40050		
• Mechanical load	1 g, 1 ... 800 Hz sinusoidal in all directions to EN 60068-2-36		

#### Cleaning unit

The Siemens cleaning unit can be used with MAG 5000 or 6000 in 19" insert version.

The cleaning unit can be used in applications where the liner and subsequently the electrodes may be coated with deposits. If the coating is electrically insulating, the electrode signal will be reduced. If the coating is electrically inductive, the electrode signal will be partly short-circuited and in both cases the accuracy of the meter will decrease (dependent on coating type and thickness).

#### Note:

The cleaning unit cannot be used for inflammable or explosive media!

#### Mode of operation

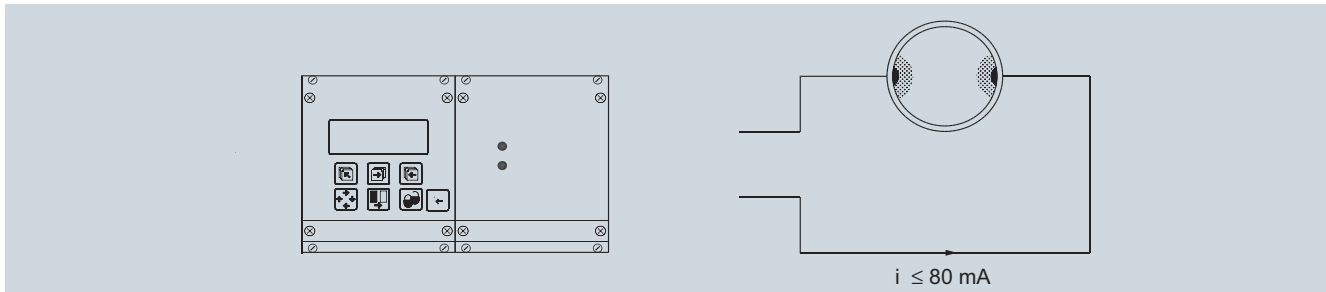
The cleaning unit cleans the electrodes electro-chemically by applying a voltage to the electrodes for approx. 60 seconds. While cleaning, the transmitter stores and holds the latest measured flow reading on the display and also the signal outputs. After an additional pausing period of 60 seconds the flowmeter resumes normal measurement and the cleaning is now completed.

The relay in the transmitter activates the cleaning cycle. In the relay output menu (under cleaning) the cleaning interval can be set between 1 hour and 24 hours.

Cleaning should only take place with liquid in the pipe. This can be detected via the empty pipe function. It is therefore recommended to select "empty pipe detection" ON when using the cleaning.

The cleaning sequence can also be controlled manually through the electrical input of the transmitter. Before this is done, ensure that the measuring pipe is full.

#### AC cleaning

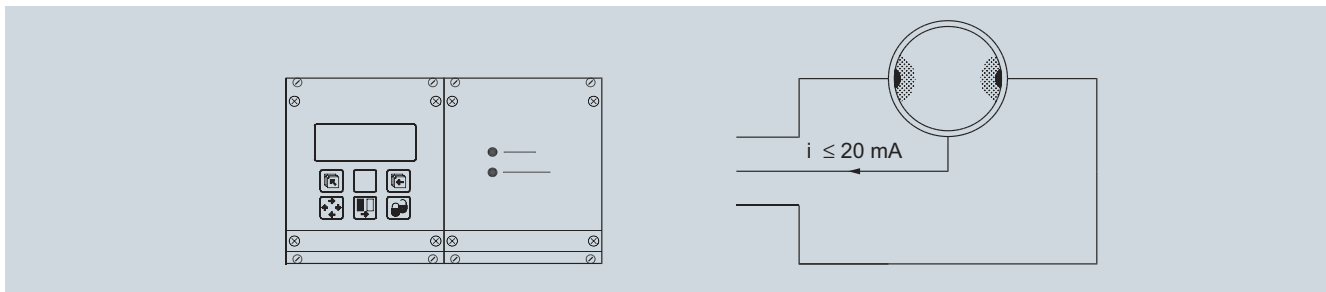


AC-cleaning is used to remove fatty deposits on the electrodes. These fatty deposits are seen in waste water applications, in abattoirs and water applications with oil residuals. During the cleaning process, the surface of the electrodes get warmer, which tends to soften grease particles and the gas bubbles generated mechanically lift deposits away from the surface of the electrodes.

#### Note:

Do not use AC-cleaning on sensors with Tantalum or Hastelloy electrodes.

#### DC cleaning



DC-cleaning is used to eliminate electrically conductive deposits in the measuring pipe influencing the measuring accuracy.

Particularly in district heating applications an electrically conductive deposit (magnetite) may occur and short-circuit the electrode signal. In this case the accuracy of the meter decreases and the signal/noise conditions of the meter become inferior. The problem only arises if the conductivity of the water is less than approx. 250  $\mu\text{S}/\text{cm}$ .

During DC-cleaning electrolysis takes place where the flow of electrons removes the particle deposits from the electrode area.

#### Note:

Do not use DC-cleaning on sensors with Tantalum or Hastelloy electrodes.





# SITRANS F flowmeters

## SITRANS F M




### Transmitter MAG 5000/6000

#### Selection and Ordering Data









##### Transmitter MAG 5000

Description	Order No.	
Transmitter MAG 5000 Blind for compact and wall mounting; IP67/NEMA 4X, fibre-glass reinforced polyamide		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6910-1AA30-0AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6910-1AA10-0AA0</b>	
Transmitter MAG 5000 Display for compact and wall mounting; IP67/NEMA 4X, fibre-glass reinforced polyamide		
• 11 ... 30 V DC / 11 ... 24 V AC	▶ <b>7ME6910-1AA30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	▶ <b>7ME6910-1AA10-1AA0</b>	
• 115/230 V AC, 50/60 Hz, with HART	<b>7ME6910-1AA10-1BA0</b>	
Transmitter MAG 5000 CT for compact and wall mounting, approved for custody transfer; IP67/NEMA 4X, fibre-glass reinforced polyamide		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6910-1AA30-1AB0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6910-1AA10-1AB0</b>	
Transmitter MAG 5000 for 19" rack and wall mounting		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6910-2CA30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6910-2CA10-1AA0</b>	

##### Transmitter MAG 6000

Description	Order No.	
Transmitter MAG 6000 Blind for compact and wall mounting; IP67/NEMA 4X, fibre-glass reinforced polyamide		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-1AA30-0AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-1AA10-0AA0</b>	
Transmitter MAG 6000 for compact and wall mounting;		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-1AA30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-1AA10-1AA0</b>	
IP67/NEMA 4X, AISI 316 stainless steel (only for sensor with SS terminal box )		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-1QA30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-1QA10-1AA0</b>	

▶ Available ex stock

Description	Order No.	
Transmitter MAG 6000 CT for compact and wall mounting, approved for custody transfer (no communication moduls possible); IP67/NEMA 4X, fibre-glass reinforced polyamide		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-1AA30-1AB0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-1AA10-1AB0</b>	
Transmitter MAG 6000 SV for compact and wall mounting; special excitation 44 Hz settings for Batch application DN ≤ 25/1" IP67/NEMA 4X, fibre-glass reinforced polyamide		
11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-1AB30-1AA0</b>	
115/230 V AC, 50/60 Hz	<b>7ME6920-1AB10-1AA0</b>	
Transmitter MAG 6000 for 19" rack and wall mounting		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-2CA30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-2CA10-1AA0</b>	
Transmitter MAG 6000 SV for 19" rack and wall mounting; special excitation 44 Hz settings for Batch application DN ≤ 25/1"		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-2CB30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-2CB10-1AA0</b>	
MAG 6000 with IP66/NEMA 4X enclosure; 115/230 V AC, 50/60 Hz		
	<b>7ME6920-2EA10-1AA0</b>	
MAG 6000 with electrode cleaning unit, complete mounted with IP66/NEMA 4X mounting enclosure		
• 11 ... 30 V DC / 11 ... 24 V AC	<b>7ME6920-2PA30-1AA0</b>	
• 115/230 V AC, 50/60 Hz	<b>7ME6920-2PA10-1AA0</b>	
MAG 6000 with safety barrier for ATEX 2G D approved sensors, complete mounted with IP66/NEMA 4X wall mounting enclosure, ATEX, 115/230 V AC, 50/60 Hz		
• For ATEX 2G D sensors	<b>7ME6920-2MA11-1AA0</b>	
MAG 6000 SV, 19" insert, in IP66/NEMA 4X , ABS plastic enclosure, excitation frequency 44 Hz for Batch application DN ≤ 25/1" , 11 ... 30 V DC, 11 ... 24 V AC, 50/60 Hz		
	<b>7ME6920-2EB30-1AA0</b>	

# SITRANS F flowmeters

## SITRANS F M

### Transmitter MAG 5000/6000

#### Communication modules for MAG 6000

Description	Order No.
HART (not for MAG 6000 I)	▶ <b>FDK-085U0226</b>
MODBUS RTU/RS485	▶ <b>FDK-085U0234</b>
PROFIBUS PA Profile 3	▶ <b>FDK-085U0236</b>
PROFIBUS DP Profile 3	▶ <b>FDK-085U0237</b>
DeviceNet	▶ <b>FDK-085U0229</b>
FOUNDATION Fieldbus H1	▶ <b>A5E02054250</b>



#### Accessories for MAG 5000 and MAG 6000

Description	Order No.
Wall mounting unit for IP67/NEMA 4X version, wall bracket, terminal box in polyamide	
• 4 x M20 cable glands	▶ <b>FDK-085U1018</b>
• 4 x 1/2" NPT cable glands	▶ <b>FDK-085U1053</b>
Cable for standard electrode or coil, 3 x 1.5 mm <sup>2</sup> / 18 gage with shield PVC	
• 10 m (33 ft)	▶ <b>FDK-083F0121</b>
• 20 m (65 ft)	▶ <b>FDK-083F0210</b>
• 40 m (130 ft)	▶ <b>FDK-083F0211</b>
• 60 m (200 ft)	▶ <b>FDK-083F0212</b>
• 100 m (330 ft)	<b>FDK-083F0213</b>
• 150 m (500 ft)	<b>FDK-083F3052</b>
• 200 m (650 ft)	<b>FDK-083F3053</b>
• 500 m (1650 ft)	<b>FDK-083F3054</b>
Electrode cable for empty pipe or low conductivity, double shielded, 3 x 0.25 mm <sup>2</sup>	
• 10 m (33 ft)	<b>FDK-083F3020<sup>D</sup></b>
• 20 m (65 ft)	▶ <b>FDK-083F3095<sup>D</sup></b>
• 40 m (131 ft)	<b>FDK-083F3094<sup>D</sup></b>
• 60 m (200 ft)	<b>FDK-083F3093<sup>D</sup></b>
• 100 m (330 ft)	<b>FDK-083F3092<sup>D</sup></b>
• 150 m (500 ft)	<b>FDK-083F3056<sup>D</sup></b>
• 200 m (650 ft)	<b>FDK-083F3057<sup>D</sup></b>
• 500 m (1650 ft)	<b>FDK-083F3058<sup>D</sup></b>
Cable kit with standard coil cable, 3 x 1.5 mm <sup>2</sup> /18 gage with shield PVC and electrode cable double shielded, 3 x 0.25 mm <sup>2</sup>	
• 10 m (33 ft)	<b>A5E01181647<sup>F</sup></b>
• 20 m (65 ft)	<b>A5E01181656<sup>F</sup></b>
• 40 m (130 ft)	<b>A5E01181686<sup>F</sup></b>
• 60 m (200 ft)	<b>A5E01181689<sup>F</sup></b>
• 100 m (330 ft)	<b>A5E01181691<sup>F</sup></b>
• 150 m (500 ft)	<b>A5E01181699<sup>F</sup></b>
• 200 m (650 ft)	<b>A5E01181703<sup>F</sup></b>
• 500 m (1640 ft)	<b>A5E01181705<sup>F</sup></b>



Description	Order No.
Cable glands, for above cable, 2 pcs.	
• M20	<b>A5E00822490</b>
• 1/2" NPT	<b>A5E00822501</b>
Sealing screws for sensor/transmitter, 2 pcs	<b>FDK-085U0221</b>
Terminal box, in polyamide, inclusive lid	
• M20	▶ <b>FDK-085U1050</b>
• 1/2" NPT	<b>FDK-085U1052</b>
Terminal box lid, in polyamid	<b>FDK-085U1003</b>
Terminal box for MAG 6000, in stainless steel, inclusive lid	
• M20	<b>A5E00836867</b>
• 1/2" NPT	<b>A5E00836868</b>
Terminal box (3A) for MAG 1100 Food in polyamide, inclusive lid	
• M20	<b>A5E00822478</b>
• 1/2" NPT	<b>A5E00822479</b>
Potting kit for terminal box of MAG sensors for IP68/NEMA 6P (not ATEX)	▶ <b>FDK-085U0220</b>
19" cleaning unit for electrode cleaning (21TE) incl. back plate	
• 11 ... 30 V DC / 11 ... 24 V AC	<b>FDK-083F5039</b>
• 115 ... 230 V AC, 50/60 Hz	<b>FDK-083F5036</b>
19" safety barrier (21 TE) [EEx e ia] IIC for MAG 1100 ATEX and MAG 3100 ATEX, incl. back plate	<b>FDK-083F5034</b>
Panel mounting enclosure for 19" insert (21 TE); IP65/NEMA 4 enclosure in ABS plastic for front panel mounting	<b>FDK-083F5030</b>
Panel mounting enclosure for 19" insert (42 TE); IP65/NEMA 4 enclosure in ABS plastic for front panel mounting	<b>FDK-083F5031</b>
Back of panel mounting enclosure for 19" insert (21 TE); IP20/NEMA 2 enclosure in aluminium	<b>FDK-083F5032</b>

▶ Available ex stock




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

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

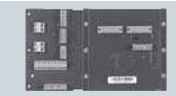
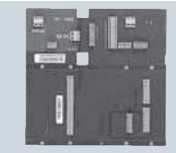
# SITRANS F flowmeters

## SITRANS F M

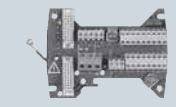





### Transmitter MAG 5000/6000

Description	Order No.	
Back of panel mounting enclosure for 19" insert (42 TE); IP20/NEMA 2 enclosure in aluminium	<b>FDK-083F5033</b>	
IP66/NEMA 4, wall mounting enclosure for 19" inserts (without backplates)	<b>FDK-083F5037</b>	
<ul style="list-style-type: none"> <li>• 21 TE</li> </ul>		
<ul style="list-style-type: none"> <li>• 42 TE</li> </ul>	▶ <b>FDK-083F5038</b>	
Front cover (7TE)	<b>FDK-083F4525</b>	
▶ Available ex stock		


### Back plates (if wall enclosure IP66 is used as part)

Description	Order No.	
Wall unit enclosure IP66, 12 ... 24 V, 115 ... 230 V		
<ul style="list-style-type: none"> <li>• Transmitter</li> </ul>	<b>FDK-083F4121</b>	
<ul style="list-style-type: none"> <li>• Transmitter ia/e and safety barrier</li> </ul>	<b>FDK-083F4122</b>	
<ul style="list-style-type: none"> <li>• Transmitter ia/ib and safety barrier (only for sensors produced before October 2007)</li> </ul>	<b>FDK-083F4120</b>	
<ul style="list-style-type: none"> <li>• Transmitter and cleaning unit</li> </ul>	<b>FDK-083F4124</b>	

### Spare parts

Description	Order No.	
Connection plate		
<ul style="list-style-type: none"> <li>• 12 ... 24 V</li> <li>• 115 ... 230 V</li> </ul>	<b>FDK-083F4149</b> <b>FDK-083F4148</b>	
19" enclosure, 12 ... 24 V, 115 ... 230 V		
<ul style="list-style-type: none"> <li>• Connection plate for standard 19" transmitter</li> </ul>	<b>FDK-083F4117</b>	
<ul style="list-style-type: none"> <li>• Connection plate for transmitter ia and safety barrier</li> </ul>	<b>FDK-083F4118</b>	
<ul style="list-style-type: none"> <li>• Connection plate for transmitter ia/ib and safety barrier (only for sensors produced before October 2007)</li> </ul>	<b>FDK-083F4119</b>	
<ul style="list-style-type: none"> <li>• Connection plate for transmitter and cleaning unit</li> </ul>	<b>FDK-083F4123</b>	
SENSORPROM memory unit (Sensor code and serial numbers must be specified on order)		
<ul style="list-style-type: none"> <li>• 2 kB (for MAG 5000/6000/ MAG 6000 I)</li> </ul>	<b>FDK-085U1005</b>	
<ul style="list-style-type: none"> <li>• 250 B (for MAG 2500/3000)</li> </ul>	<b>FDK-085U1008</b>	
Display unit for MAG 5000/6000		
<ul style="list-style-type: none"> <li>• black neutral front</li> </ul>	<b>FDK-085U1038</b>	
<ul style="list-style-type: none"> <li>• Siemens front</li> </ul>	<b>FDK-085U1039</b>	

### Sun Shields for MAG 5000/6000 transmitters

Description	Order No.	
Sun shield for remote MAG 5000/6000 transmitters	<b>A5E01209496</b>	
Sun Shield for compact MAG 5000/6000 transmitters on MAG 3100 (DN 15 ... 2000 (1/2" ... 78") or MAG 5100 (DN 150 ... 1200 (6" ... 48"))	<b>A5E01209500</b>	



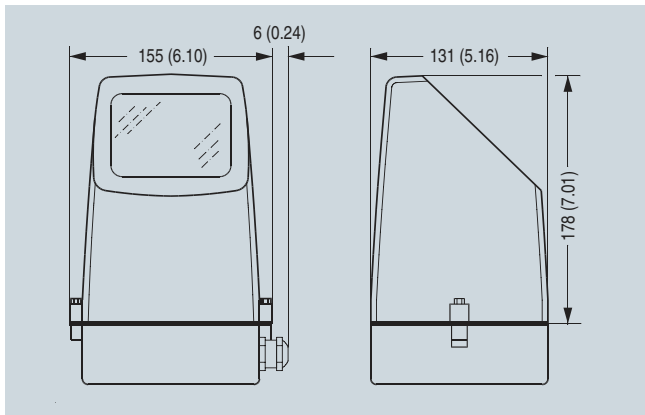
# SITRANS F flowmeters

## SITRANS F M

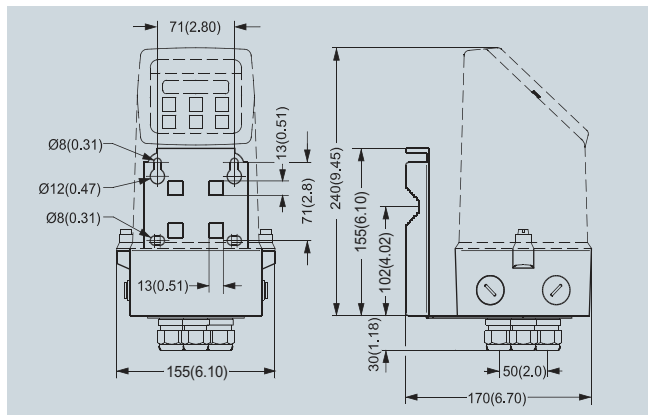
### Transmitter MAG 5000/6000

#### Dimensional drawings

##### Transmitter IP67/NEMA 4X compact polyamide

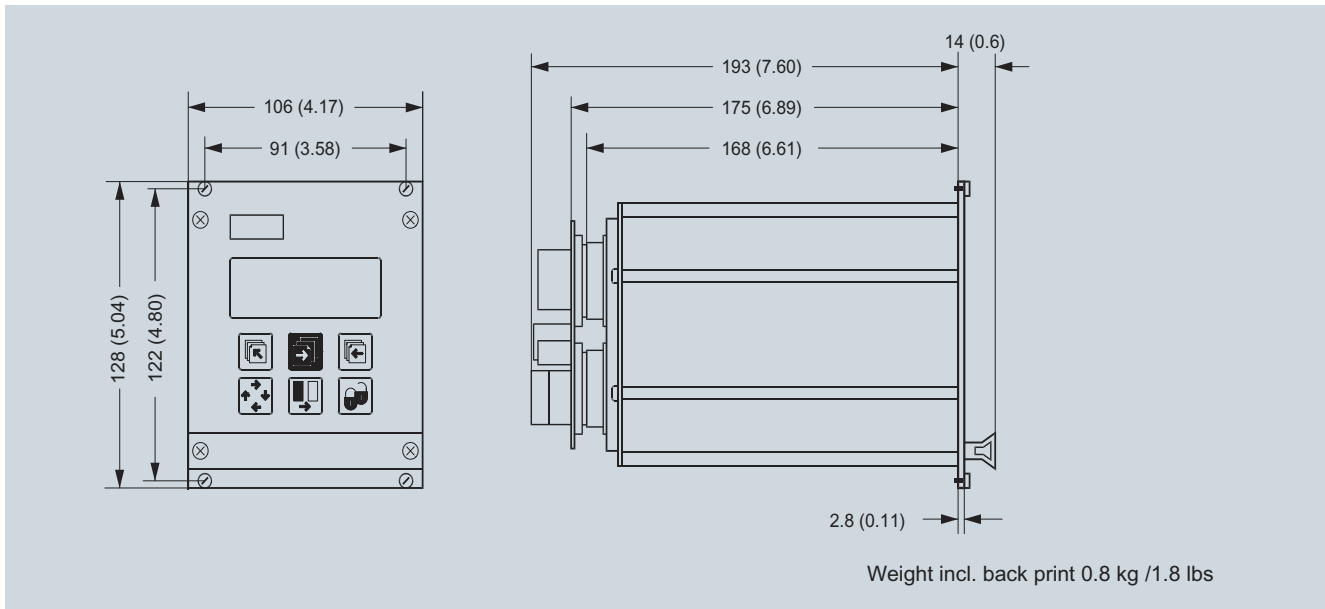


Transmitter compact mounted



Transmitter wall mounted

##### Transmitter, 19" IP20/ NEMA 2 standard unit



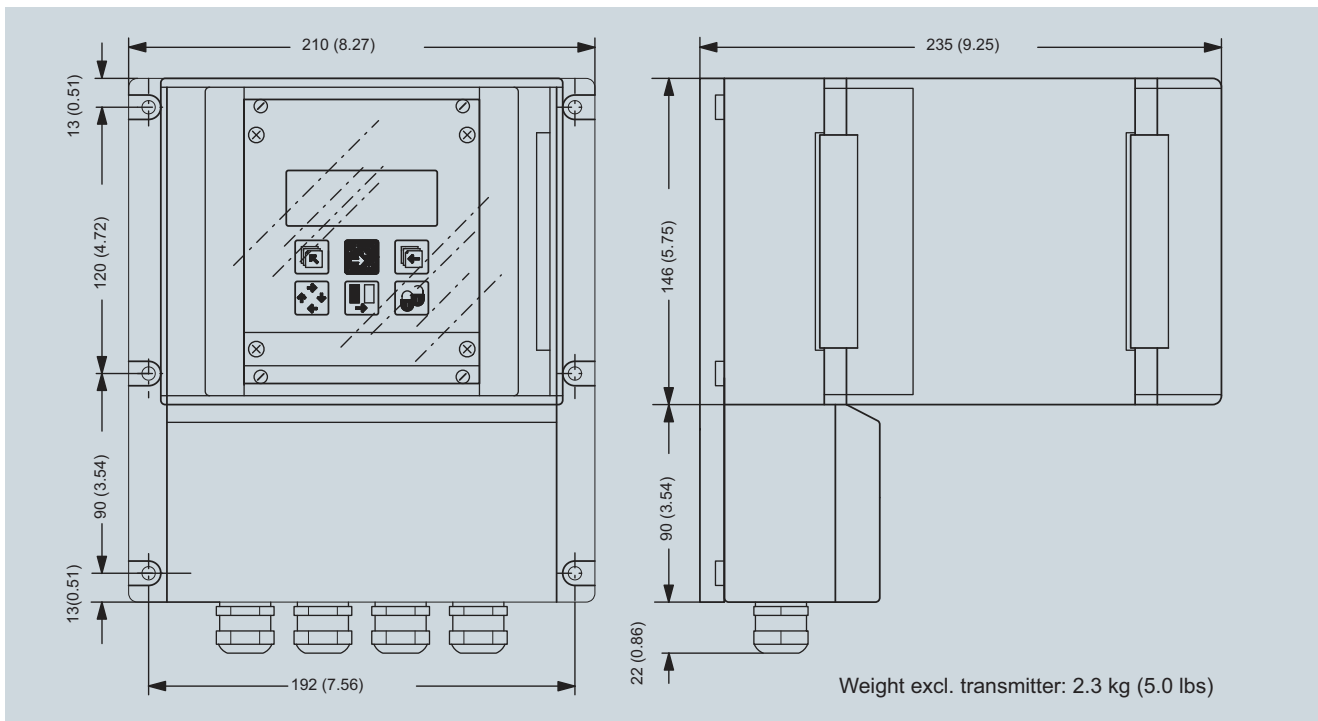
# SITRANS F flowmeters

## SITRANS F M

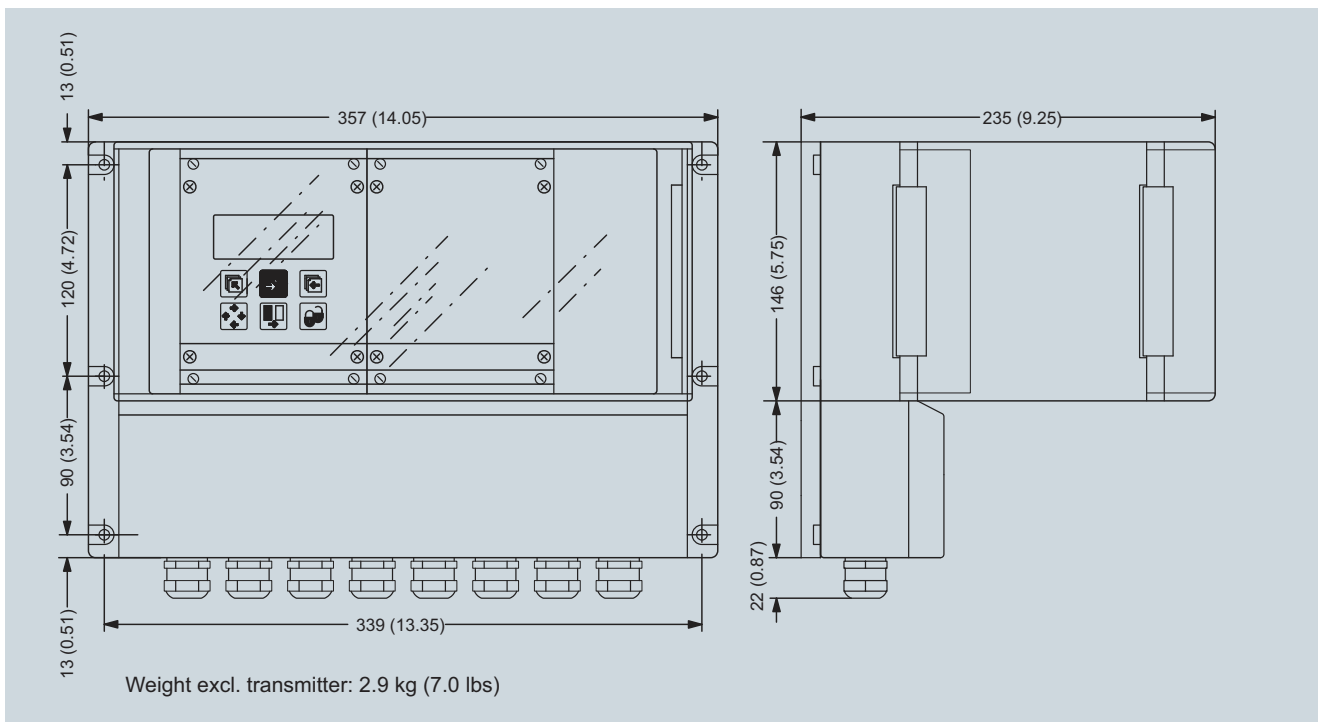
### Transmitter MAG 5000/6000

Transmitter, wall mounting IP66/NEMA 4, 21 TE

4



Transmitter, wall mounting IP66/NEMA 4, 42 TE

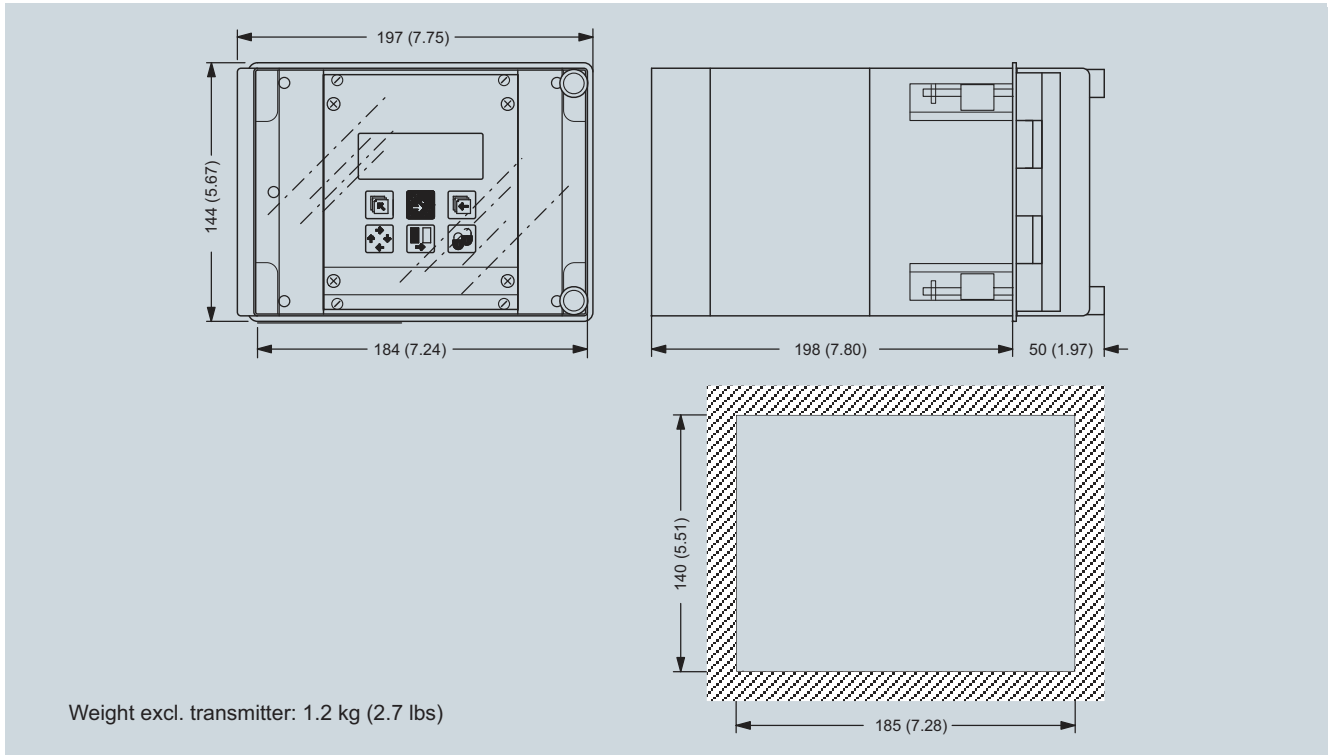


# SITRANS F flowmeters

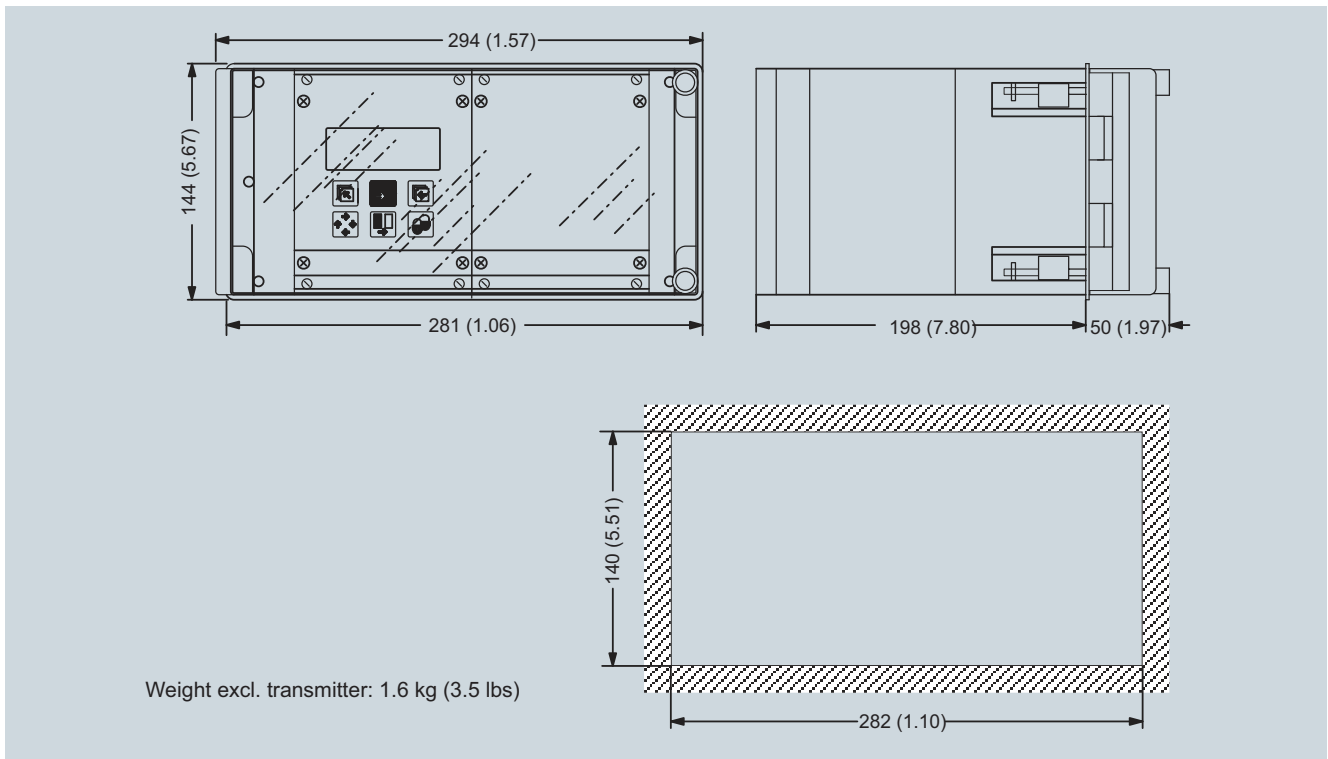
## SITRANS F M

### Transmitter MAG 5000/6000

Transmitter, panel front IP65/NEMA 4, 21 TE



Transmitter, panel front IP65/NEMA 4, 42 TE

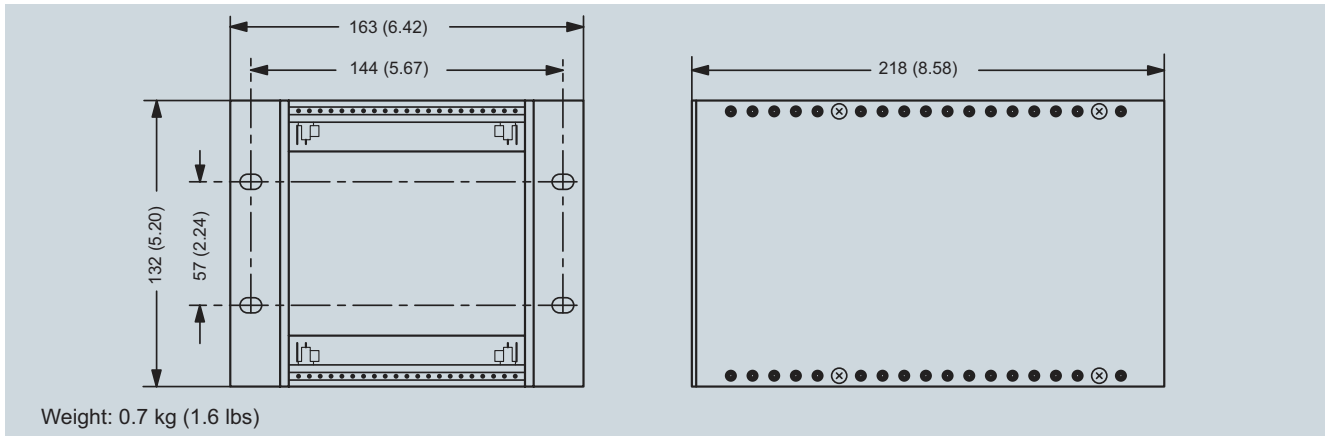


# SITRANS F flowmeters

## SITRANS F M

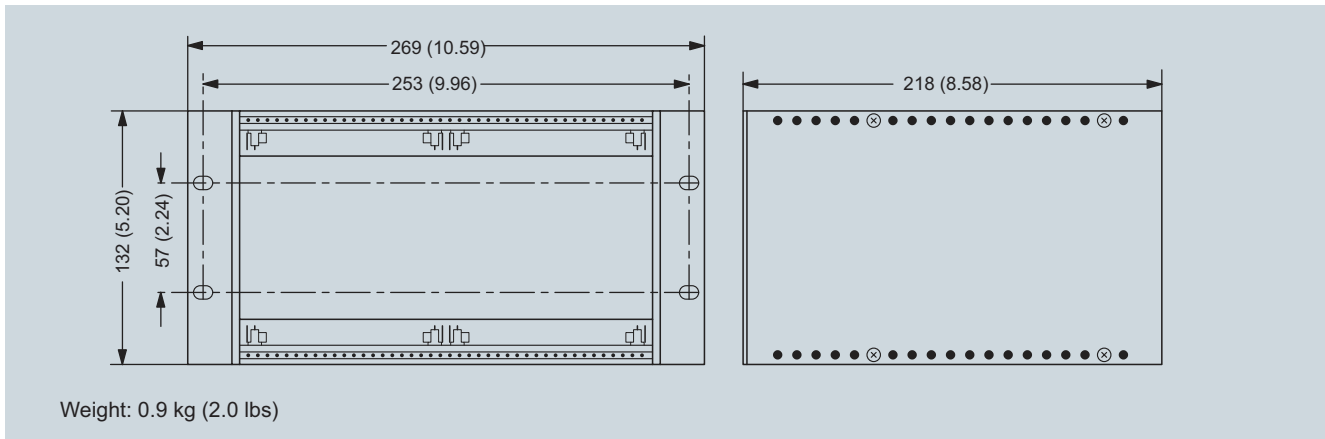
### Transmitter MAG 5000/6000

Transmitter, back of panel IP20/NEMA 2, 21 TE



4

Transmitter, back of panel IP20/NEMA 2, 42 TE



### Schematics

#### Electrical connection

##### Grounding

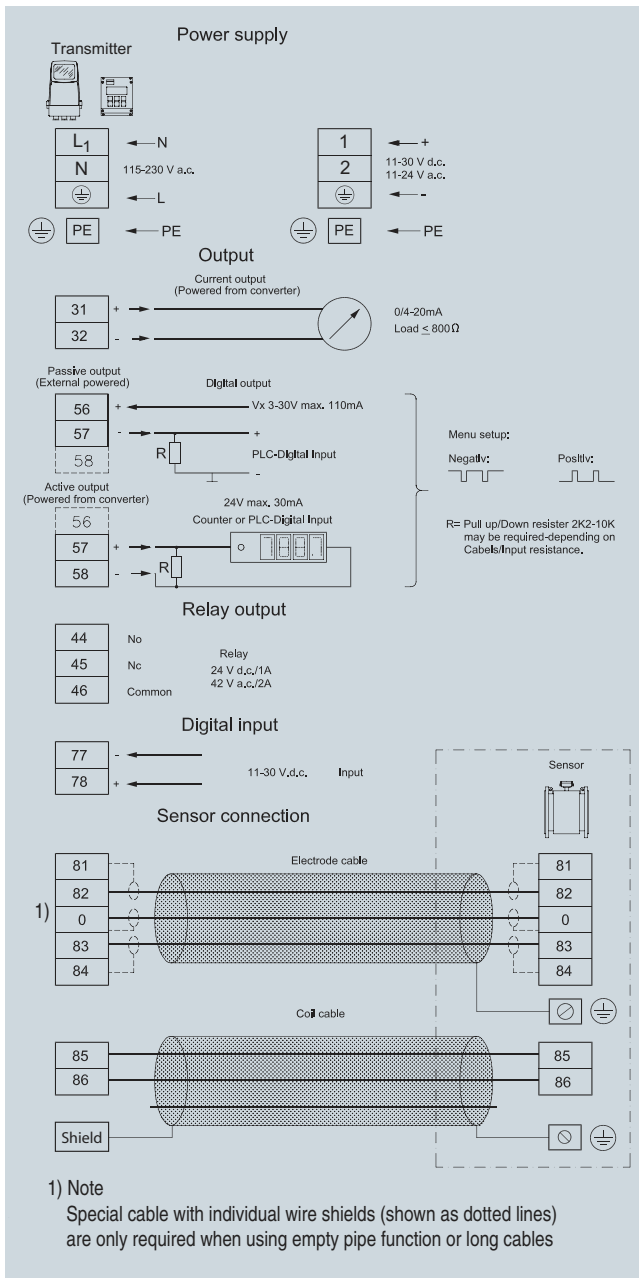
PE must be connected due to safety class 1 power supply.

##### Mechanical counters

When mounting a mechanical counter to terminals 57 and 58 (active output), a 1000  $\mu\text{F}$  capacitor must be connected to the terminals 56 and 58. Capacitor + is connected to terminal 56 and capacitor - to terminal 58.

##### Output cables

If the output cable length is long in noisy environment, we recommend to use screened cable.



# SITRANS F flowmeters

## SITRANS F M

### MAG 5100 W

#### Overview



The SITRANS F M MAG 5100 W is an electromagnetic flow sensor designed to meet ground water, drinking water, waste water, sewage or sludge applications.

#### Benefits

- DN 25 to DN 1200 (1" to 48")
- Connection flanges EN 1092-1 (DIN 2501), ANSI, AWWA and AS.
- NBR Hard Rubber liner for all water applications
- Drinking water EPDM liner with approvals
- Hastelloy integrated grounding and measuring electrodes
- Increased low flow accuracy for water leak detection, due to coned liner design.
- Drinking water approvals
- Suitable for direct burial and constant flooding
- Build-in length according to ISO 13359
- Easy commissioning, SENSORPROM unit automatically uploads calibration values and settings.
- Designed that patented in-situ verification can be conducted. Using SENSORPROM fingerprint.

#### Application

The main applications of the SITRANS F M electromagnetic flow sensors can be found in the following fields:

- Water abstraction
- Water treatment
- Water distribution network (leak detection management)
- Custody transfer water meters
- Irrigation
- Waste water treatment
- Filtration plant (e.g. reverse osmosis and ultra filtration)
- Industrial water applications

#### Mode of operation

The flow measuring principle is based on Faradays law of electromagnetic induction where the sensor converts the flow into an electrical voltage proportional to the velocity of the flow.

#### Function

- Highly resistant to a wide range of chemicals
  - Pattern approval OIML R49 (Denmark, Germany)
  - conforms to ISO 4064 and EN 14154
  - MI-001 Custody Transfer approval for billing (EU)
- Meets EEC directives: PED, 97/23/EC pressure directive for EN1092-1 flanges
- Simple onsite or factory upgrade to IP68/NEMA 6P of a standard sensor.

#### Integration

The complete flowmeter consists of a flow sensor and an associated transmitter SITRANS F M MAG 5000, MAG 6000 or MAG 6000 I.

The flexible communication concept USM II simplifies integration and update to a variety of fieldbus systems, e.g. HART, FOUNDATION Fieldbus H1, DeviceNet, PROFIBUS DP and PA, MODBUS RTU/RS485.

**Technical specifications**

Design	Full bore sensor	Coned bore sensor	Full bore sensor
Nominal size	DN 25 ... 40 (1" ... 1½")	DN 50 ... 300 (2" ... 12")	DN 350 ... 1200 (14" ... 48")
<b>Measuring principle</b> Electromagnetic induction			
Excitation frequency	12.5 Hz	<ul style="list-style-type: none"> <li>• DN 50 ... 65 (2" ... 2½"): 12.5 Hz</li> <li>• DN 80 ... 150 (3" ... 6"): 6.25 Hz</li> <li>• DN 200 ... 300 (8" ... 12"): 3.125 Hz</li> </ul>	1.56 Hz
<b>Process connection</b>			
Flanges		Flat face flanges	
<ul style="list-style-type: none"> <li>• EN 1092-1</li> </ul>	PN 40 (580 psi)	<ul style="list-style-type: none"> <li>• DN 50 ... 300: PN 16 (2" ... 12": 230 psi)</li> <li>• DN 200 ... 300: PN 10 (8" ... 12": 145 psi)</li> </ul>	<ul style="list-style-type: none"> <li>• PN 10 (145 psi)</li> <li>• PN 16 (230 psi)</li> </ul>
<ul style="list-style-type: none"> <li>• ANSI B16.5</li> </ul>	Class 150 lb	Class 150 lb ~20 bar (290 psi)	--
<ul style="list-style-type: none"> <li>• AWWA C-207</li> </ul>	--	--	28" ... 48": Class D
<ul style="list-style-type: none"> <li>• AS4087</li> </ul>	PN 16 (230 psi) DN 50 ... 1200 (2" ... 48"), 14 bar (232 psi)		
<b>Rated Operation conditions</b>			
Ambient temperature			
<ul style="list-style-type: none"> <li>• Sensor</li> </ul>	-40 ... +70 °C (-40 ... +158 °F)		
<ul style="list-style-type: none"> <li>• With compact transmitter MAG 5000/6000</li> </ul>	-20 ... +50 °C (-4 ... +122 °F)		
<ul style="list-style-type: none"> <li>• With compact transmitter MAG 6000 I</li> </ul>	-20 ... +60 °C (-4 ... +140 °F)		
Operating pressure (Abs)	0.01 ... 40 bar (0.15 ... 580 psi)	0.03 ... 20 bar (0.44 ... 290 psi)	0.01 ... 16 bar (0.15 ... 232 psi)
Enclosure rating			
<ul style="list-style-type: none"> <li>• Standard</li> </ul>	IP67 to EN 60529 / NEMA 4X/6 (1 mH <sub>2</sub> O for 30 minutes)		
<ul style="list-style-type: none"> <li>• Option</li> </ul>	IP68 to EN 60529 / NEMA 6P (10 mH <sub>2</sub> O continuously)		
Pressure drop at 3 m/s (10 ft/s)	As straight pipe	Max. 25 mbar (0.36 psi)	As straight pipe
<b>Medium conditions</b>			
Temperature of medium			
<ul style="list-style-type: none"> <li>• NBR</li> </ul>	-10 ... +70 °C (14 ... +158 °F)		
<ul style="list-style-type: none"> <li>• EPDM</li> </ul>	-10 ... +70 °C (14 ... +158 °F)		
EMC	89/336 EEC		
<b>Design</b>			
Weight	See dimensional drawings		
Material			
<ul style="list-style-type: none"> <li>• Housing and flanges</li> </ul>	Carbon steel, St 37.2		
<ul style="list-style-type: none"> <li>• Terminal box</li> </ul>	Standard Fibre glass reinforced polyamide		
<ul style="list-style-type: none"> <li>• Measuring pipe</li> </ul>	AISI 304 (1.4301)		
<ul style="list-style-type: none"> <li>• Liner</li> </ul>	NBR Hard Rubber (hydro carbon resistant) EPDM		
<ul style="list-style-type: none"> <li>• Electrodes</li> </ul>	Hastelloy C276		
<ul style="list-style-type: none"> <li>• Grounding electrodes standard</li> </ul>	Hastelloy C276		
<b>Certificates and approvals</b>			
Custody Transfer (only together with MAG 5000/6000 CT), order as special	OIML R 49 pattern approval cold water (Denmark and Germany): DN 50 ... 300 (2" ... 12") MI 001 cold water (EU): DN 50 ... 300 (2" ... 12")		
Approvals	CSA/FM Class 1, Div 2		
Drinking water approvals			
<ul style="list-style-type: none"> <li>• EPDM</li> </ul>	NSF61 (Cold water, US) WRAS (WRc, BS6920 cold water, GB) ACS listed (F), DVGW W270 (D) Belaqua (B)		
<ul style="list-style-type: none"> <li>• NBR</li> </ul>	NSF61 (Cold water, US)		
Approvals	PED – 97/23 EC <sup>1)</sup> , CRN		

<sup>1)</sup> For sizes larger than 600 mm (24") in PN 16 PED conformity is available as a cost added option. The basic unit will carry the LVD (Low Voltage Directive) and EMC approval.

# SITRANS F flowmeters

## SITRANS F M

### MAG 5100 W

4

Selection and Ordering data	Order No.
<b>SITRANS F M Flowsensor MAG 5100 W</b> Hastelloy electrodes, carbon steel flanges	7ME6520 - ■ ■ ■ 1 ■ - 2 ■ ■ ■
<b>Diameter</b>	
DN 25 (1")	▶ 2 D
DN 40 (1½")	▶ 2 R
DN 50 (2")	▶ 2 Y
DN 65 (2½")	▶ 3 F
DN 80 (3")	▶ 3 M
DN 100 (4")	▶ 3 T
DN 125 (5")	▶ 4 B
DN 150 (6")	▶ 4 H
DN 200 (8")	▶ 4 P
DN 250 (10")	▶ 4 V
DN 300 (12")	▶ 5 D
DN 350 (14")	▶ 5 K
DN 400 (16")	▶ 5 R
DN 450 (18")	▶ 5 Y
DN 500 (20")	▶ 6 F
DN 600 (24")	▶ 6 P
DN 700 (28")	▶ 6 Y
DN 750 (30")	▶ 7 D
DN 800 (32")	▶ 7 H
DN 900 (36")	▶ 7 M
DN 1000 (40")	▶ 7 R
42"	▶ 7 U
44"	▶ 7 V
DN 1200 (48")	▶ 8 B
<b>Flange norm and pressure rating</b>	
<u>to EN 1092-1</u>	
PN 10 (DN 200 ... 1200/8" ... 48")	▶ B
PN 16 (DN 50 ... 1200/2" ... 48")	▶ C
PN 16, non PED (DN 700 ... 1200/28" ... 48")	▶ D
PN 40 (DN 25 ... 40/1" ... 1½")	▶ F
<u>to ANSI B16.5</u>	
class 150 (1" ... 24")	▶ J
<u>to AWWA C-207</u>	
Class D (28" ... 48")	▶ L
<u>to AS 4087</u>	
PN 16	▶ N
<b>Liner material</b>	
EPDM	2
NBR Hard Rubber	3
<b>Transmitter</b>	
Sensor for remote transmitter (Order transmitter separately)	A
MAG 6000 I, Aluminum, 18 ... 90 V DC, 115 ... 230 V AC	C
MAG 6000, Polyamid, 11 ... 30 V DC/11 ... 24V AC	H
MAG 6000, Polyamid, 115/230 V AC	J
MAG 5000, Polyamid, 11 ... 30 V DC/11 ... 24V AC	K
MAG 5000, Polyamid, 115/230 V AC	L

Selection and Ordering data	Order No.
<b>SITRANS F M Flowsensor MAG 5100 W</b> Hastelloy electrodes, carbon steel flanges	7ME6520 - ■ ■ ■ 1 ■ - 2 ■ ■ ■
<b>Communication</b>	
None	▶ A
HART	▶ B
PROFIBUS PA Profile 3 (only MAG 6000/MAG 6000 I)	▶ F
PROFIBUS DP Profile 3 (only MAG 6000/MAG 6000 I)	▶ G
MODBUS RTU/RS 485 (only MAG 6000/MAG 6000 I)	▶ E
FOUNDATION Fieldbus H1 (only MAG 6000/MAG 6000 I)	▶ J
<b>Cable glands/terminal box</b>	
Metric	1
½" NPT	2
▶ Available ex stock	

Selection and Ordering data	Order code
<b>Additional information</b>	
Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Customer specific converter setup	Y20
Tag name plate, stainless steel fixed with SS wire (add plain text)	Y17
Tag name plate, plastic (self adhesive)	Y18
Factory certificate according to EN 10204-2.1	C15
Factory certificate according to EN 10204-2.2	C14
Sensor cables wired (specify cable order no.)	Y40
Sensor for remote transmitter's junction box potted to IP68 with wired cable (specify cable order no.)	Y41
Other postproduction requirements (add desired text)	Y99

Description	Order No.
Potting kit for terminal box of SITRANS F M sensors for IP68/NEMA 6P (Not ATEX)	FDK-085U0220



MAG 5000/6000 transmitters and sensors are packed in separate boxes, the final assembly takes place during installation at the customer's place. MAG 6000 I transmitters and sensors are delivered compact mounted from factory. Communication module will be pre-mounted in the transmitter.

Please use online Product selector to get latest updates.

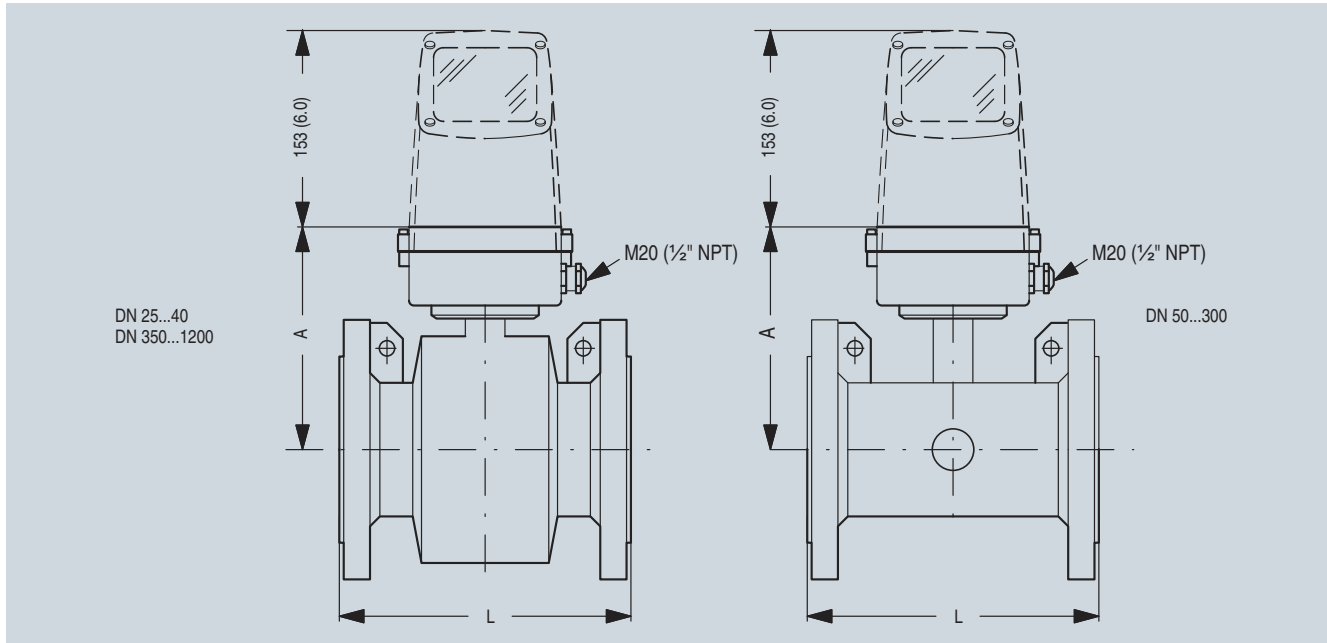
Product selector link:

[www.pia-selector.automation.siemens.com](http://www.pia-selector.automation.siemens.com)

Please also see [www.siemens.com/SITRANSOrdering](http://www.siemens.com/SITRANSOrdering) for practical examples of ordering



## Dimensional drawings



4

Nominal size		A		L									
				PN 10		PN 16		PN 40		Class 150 / AWWA		AS	
[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
25	1	187	7.4	-	-	-	-	200	7.9	200	7.9	200	7.87
40	1½	197	7.8	-	-	-	-	200	7.9	200	7.9	200	7.87
50	2	188	7.4	-	-	200	7.9	-	-	200	7.9	200	7.87
65	2½	194	7.6	-	-	200	7.9	-	-	200	7.9	200	7.87
80	3	200	7.9	-	-	200	7.9	-	-	200	7.9	200	7.87
100	4	207	8.1	-	-	250	9.8	-	-	250	9.8	250	9.84
125	5	217	8.5	-	-	250	9.8	-	-	250	9.8	250	9.84
150	6	232	9.1	-	-	300	11.8	-	-	300	11.8	300	11.81
200	8	257	10.1	350	13.8	350	13.8	-	-	350	13.8	350	13.78
250	10	284	11.2	450	17.7	450	17.7	-	-	450	17.7	450	17.72
300	12	310	12.2	500	19.7	500	19.7	-	-	500	19.7	500	19.69
350	14	382	15.0	550	21.7	550	21.7	-	-	550	21.7	550	21.65
400	16	407	16.0	600	23.6	600	23.6	-	-	600	23.6	600	23.62
450	18	438	17.2	600	23.6	600	23.6	-	-	600	23.6	600	23.62
500	20	463	18.2	600	23.6	600	23.6	-	-	600	23.6	600	23.6
600	24	514	20.2	600	23.6	600	23.6	-	-	600	23.6	600	23.6
700	28	564	22.2	700	27.6	700	27.6	-	-	700	27.6	700	27.6
750	30	591	23.3	-	-	-	-	-	-	750	29.5	750	-
800	32	616	24.3	800	31.5	800	31.5	-	-	800	31.5	800	31.5
900	36	663	26.1	900	35.4	900	35.4	-	-	900	35.4	900	35.4
1000	40	714	28.1	1000	39.4	1000	39.4	-	-	1000	39.4	1000	39.4
	42	714	28.1	-	-	-	-	-	-	1000	39.4	-	-
	44	765	30.1	-	-	-	-	-	-	1100	43.3	-	-
1200	48	820	32.3	1200	47.2	1200	47.2	-	-	1200	47.2	1200	47.2

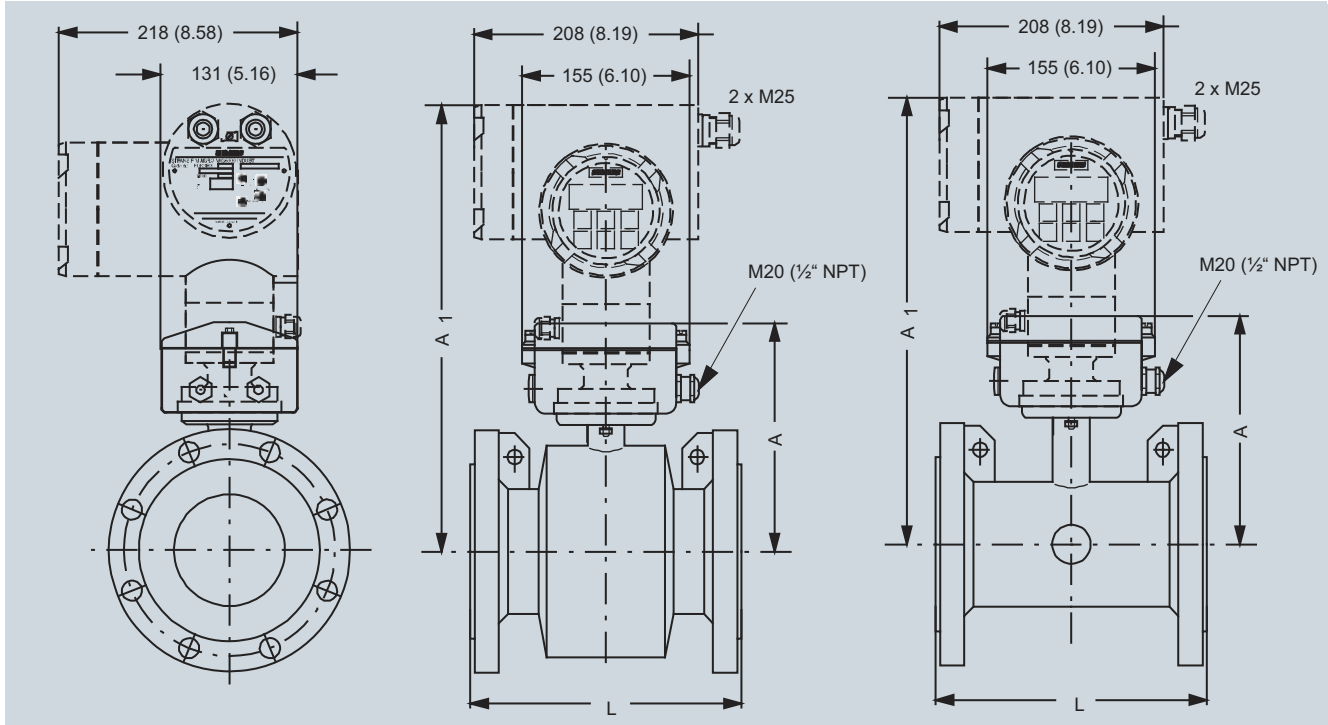
- not available

# SITRANS F flowmeters

## SITRANS F M

### MAG 5100 W

MAG 5100 W / 6000 I Compact



4

Nominal size		A		A <sub>1</sub>		L									
						PN 10		PN 16		PN 40		Class 150/AWWA		AS	
[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
25	1	187	7.4	340	13.4	-	-	-	-	200	7.9	200	7.9	200	7.87
40	1½	197	7.8	350	13.8	-	-	-	-	200	7.9	200	7.9	200	7.87
50	2	188	7.4	341	13.4	-	-	200	7.9	-	-	200	7.9	200	7.87
65	2½	194	7.6	347	13.7	-	-	200	7.9	-	-	200	7.9	200	7.87
80	3	200	7.9	353	13.9	-	-	200	7.9	-	-	200	7.9	200	7.87
100	4	207	8.1	360	14.2	-	-	250	9.8	-	-	250	9.8	250	9.84
125	5	217	8.5	370	14.6	-	-	250	9.8	-	-	250	9.8	250	9.84
150	6	232	9.1	385	15.2	-	-	300	11.8	-	-	300	11.8	300	11.81
200	8	257	10.1	410	16.1	350	13.8	350	13.8	-	-	350	13.8	350	13.78
250	10	284	11.2	437	17.2	450	17.7	450	17.7	-	-	450	17.7	450	17.72
300	12	310	12.2	463	18.2	500	19.7	500	19.7	-	-	500	19.7	500	19.69
350	14	382	15.0	535	21.1	550	21.7	550	21.7	-	-	550	21.7	550	21.65
400	16	407	16.0	560	22.1	600	23.6	600	23.6	-	-	600	23.6	600	23.62
450	18	438	17.2	591	23.3	600	23.6	600	23.6	-	-	600	23.6	600	23.62
500	20	463	18.2	616	24.3	600	23.6	600	23.6	-	-	600	23.6	600	23.6
600	24	514	20.2	667	26.3	600	23.6	600	23.6	-	-	600	23.6	600	23.6
700	28	564	22.2	717	28.2	700	27.6	700	27.6	-	-	700	27.6	700	27.6
750	30	591	23.3	744	29.3	-	-	-	-	-	-	750	29.5	750	-
800	32	616	24.3	779	30.7	800	31.5	800	31.5	-	-	800	31.5	800	31.5
900	36	663	26.1	826	32.5	900	35.4	900	35.4	-	-	900	35.4	900	35.4
1000	40	714	28.1	877	34.5	1000	39.4	1000	39.4	-	-	1000	39.4	1000	39.4
	42	714	28.1	877	34.5	-	-	-	-	-	-	1000	39.4	-	-
	44	765	30.1	928	36.5	-	-	-	-	-	-	1100	43.3	-	-
1200	48	820	32.3	983	38.7	1200	47.2	1200	47.2	-	-	1200	47.2	1200	47.2

- not available

# SITRANS F flowmeters

## SITRANS F M

MAG 5100 W

### Weight

Nominal size		PN 10		PN 16		PN 40		Class 150/AWWA		AS	
[mm]	[inch]	[kg]	[lbs]	[kg]	[lbs]	[kg]	[lbs]	[kg]	[lbs]	[kg]	[lbs]
25	1	-	-	-	-	4	9	4	9	4	9
40	1½	-	-	-	-	7	15	6	13	7	15
50	2	-	-	9	20	-	-	8	20	9	20
65	2½	-	-	10.7	24	-	-	11	24	10.7	24
80	3	-	-	11.6	26	-	-	13	28	11.6	26
100	4	-	-	15.2	33	-	-	19	41	15.2	33
125	5	-	-	20.4	45	-	-	24	52	20.4	45
150	6	-	-	26	57	-	-	29	64	26	57
200	8	48	106	48	106	-	-	56	124	48	106
250	10	64	141	69	152	-	-	79	174	69	152
300	12	76	167	86	189	-	-	110	243	86	189
350	14	104	229	125	274	-	-	139	307	115	254
400	16	119	263	143	314	-	-	159	351	125	277
450	18	136	299	173	381	-	-	182	400	141	311
500	20	163	359	223	491	-	-	225	495	189	418
600	24	236	519	338	744	-	-	320	704	301	664
700	28	270	595	314	692	-	-	273	602	320	704
750	30	-	-	-	-	-	-	329	725	-	-
800	32	346	763	396	873	-	-	365	804	428	944
900	36	432	951	474	1043	-	-	495	1089	619	1362
1000	40	513	1130	600	1321	-	-	583	1282	636	1399
	42	-	-	-	-	-	-	687	1512	-	-
	44	-	-	-	-	-	-	763	1680	-	-
1200	48	643	1415	885	1948	-	-	861	1896	813	1789

- not available

With transmitter MAG 5000 and MAG 6000 compact, weight is increased by approximately 0.8 kg (1.8 lbs), with MAG 6000 I, weight is increased by 5.5 kg (12.1 lb).

# SITRANS F flowmeters

## SITRANS F M

### MAG 3100

#### Overview



The SITRANS F M MAG 3100 is an electromagnetic flow sensor in a large variety that meets the demands of almost every flow application.

#### Benefits

- Wide range of sizes: DN 15 to DN 2000 (½" to 78")
- Wide pressure range: PN 6 to PN 100  
ANSI Class 150 / 300, AS 2129 / AS 4087. On request up to 690 bar (10000 psi)
- Wide range of electrode and liner material to fit even the most extreme process media
- Fully welded construction provides a ruggedness that suits the toughest applications and environments
- Easy commissioning, the SENSORPROM unit automatically updates settings.
- Designed to allow patented SITRANS F M in-situ verification using the SENSORPROM fingerprints.

#### Application

The main applications of the SITRANS F M electromagnetic flow sensors can be found in the following fields:

- Process industry
- Chemical industry
- Steel industry
- Mining
- Utility
- Power generation & distribution
- Oil & gas / HPI
- Water & waste water

#### Design

- Compact or remote mounting possible
- Easy "plug & play" field changeability of transmitter
- Ex ATEX and CSA/FM versions
- High temperature sensor for applications with temperatures up to 180 °C (356 °F)
- Approvals for PTB, OIML R75 and OIML R117
- Meets EEC directives: PED, 97/23/EC pressure directive for EN1092-1 flanges
- Build-in length according to ISO 13359
- Onsite or factory upgrade to IP68/NEMA 6P of a standard sensor.

#### Mode of operation

The flow measuring principle is based on Faraday's law of electromagnetic induction where the sensor converts the flow into an electrical voltage proportional to the velocity of the flow.

#### Integration

The complete flowmeter consists of a flow sensor and an associated transmitter MAG 5000, 6000 and 6000 I.

The flexible communication concept USM II simplifies integration and update to a variety of fieldbus systems such as HART, FOUNDATION Fieldbus H1, DeviceNet, PROFIBUS DP and PA, MODBUS RTU/RS485.

### Technical specifications

Version	MAG 3100	MAG 3100 HT (High Temperature)	MAG 3100 P
Nominal size	DN 15 ... DN 2000 (½" ... 78")	DN 15 ... DN 300 (½" ... 12")	DN 15 ... DN 300 (½" ... 12")
Measuring principle	electromagnetic induction		
Excitation frequency	<ul style="list-style-type: none"> <li>• DN 15 ... 65 (½" ... 2½"): 12.5 Hz</li> <li>• DN 80 ... 150 (3" ... 6"): 6.25 Hz</li> <li>• DN 200 ... 1200 (8" ... 48"): 3.125 Hz</li> <li>• DN 1400 ... 2000 (54" ... 78"): 1.5625 Hz</li> </ul>	<ul style="list-style-type: none"> <li>• DN 15 ... 65 (½" ... 2½"): 12.5 Hz</li> <li>• DN 80 ... 150 (3" ... 6"): 6.25 Hz</li> <li>• DN 200 ... 300 (8" ... 12"): 3.125 Hz</li> </ul>	<ul style="list-style-type: none"> <li>• DN 15 ... 65 (½" ... 2½"): 12.5 Hz</li> <li>• DN 80 ... 150 (3" ... 6"): 6.25 Hz</li> <li>• DN 200 ... 300 (8" ... 12"): 3.125 Hz</li> </ul>

### Process connection

Flanges	<p>EN 1092-1, raised face (EN 1092-1, DIN 2501 &amp; BS 4504 have the same mating dimensions)</p> <ul style="list-style-type: none"> <li>• DN 65 ... 2000 (2½" ... 48"): PN 6 (87 psi)</li> <li>• DN 200 ... 2000 (8" ... 48"): PN 10 (145 psi)</li> <li>• DN 65 ... 2000 (2½" ... 78"): PN 16 (232 psi)</li> <li>• DN 200 ... 600 (8" ... 24"): PN 25 (362 psi)</li> <li>• DN 15 ... 600 (½" ... 24"): PN 40 (580 psi)</li> <li>• DN 50 ... 300 (2" ... 12"): PN 63 (913 psi)</li> <li>• DN 25 ... 300 (1" ... 12"): PN 100 (1450 psi)</li> </ul> <p>ANSI B16.5 (~BS 1560), raised face</p> <ul style="list-style-type: none"> <li>• ½" ... 24": Class 150 (20 bar (290 psi))</li> <li>• ½" ... 24": Class 300 (50 bar (725 psi))</li> </ul> <p>AWWA C-207, flat face 28" ... 78": Class D (10 bar)</p> <p>AS 2129, raised face ½" ... 48": Table E</p> <p>AS 4087, raised face:</p> <ul style="list-style-type: none"> <li>• PN 16 (DN 50 ... 1200, 16 bar (232 psi))</li> <li>• PN 21 (DN 50 ... 600, 21 bar (304 psi))</li> <li>• PN 35 (DN 50 ... 600, 35 bar (508 psi))</li> </ul> <p>Other flanges and pressure ratings on request</p>	<p>EN 1092-1, raised face (EN 1092-1, DIN 2501 &amp; BS 4504 have the same mating dimensions)</p> <ul style="list-style-type: none"> <li>• DN 15 ... 300 (½" ... 12"): PN 40 (580 psi)</li> <li>• DN 65 ... 300 (2½" ... 12"): PN 16 (232 psi)</li> <li>• DN 200 ... 300 (8" ... 12"): PN 10 (145 psi)</li> <li>• DN 200 ... 300 (8" ... 12"): PN 25 (362 psi)</li> </ul> <p>ANSI B16.5 (~BS 1560), raised face:</p> <ul style="list-style-type: none"> <li>• ½" ... 12": Class 150 (20 bar (290 psi))</li> <li>• ½" ... 12": Class 300 (50 bar (725 psi))</li> </ul> <p>AS 2129, raised face ½" ... 12": Table E</p> <p>Other flanges and pressure ratings on request</p>	<p>EN 1092-1, raised face (EN 1092-1, DIN 2501 &amp; BS 4504 have the same mating dimensions)</p> <ul style="list-style-type: none"> <li>• DN 15 ... 50 (½" ... 2"): PN 40 (580 psi)</li> <li>• DN 65 ... 300 (2½" ... 12"): PN 16 (232 psi)</li> <li>• DN 200 ... 300 (8" ... 12"): PN 10 (145 psi)</li> </ul> <p>ANSI B16.5 (~BS 1560), raised face</p> <ul style="list-style-type: none"> <li>• ½" ... 12": Class 150 (20 bar (290 psi))</li> </ul>
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### Rated operation conditions

Ambient temperature (conditions also dependent on liner characteristics)			
• Sensor	-40 ... +100 °C (-40 ... +212 °F)	-40 ... +100 °C (-40 ... +212 °F)	-40 ... +100 °C (-40 ... +212 °F)
• Sensor ATEX	-20 ... +60 °C (-4 ... +140 °F)	for up to 150 °C (302 °F) temperature of medium: -20 ... +60 °C (-4 ... +140 °F) for 150 ... 180 °C (302 ... 356 °F) temperature of medium: -20 ... +50 °C (-4 ... +122 °F)	-20 ... +60 °C (-4 ... +140 °F)
• With compact transmitter MAG 5000/6000	-20 ... +50 °C (-4 ... +122 °F)	-20 ... +50 °C (-4 ... +122 °F)	-20 ... +50 °C (-4 ... +122 °F)
• With compact transmitter MAG 6000 I	-20 ... +60 °C (-4 ... +140 °F)	-20 ... +60 °C (-4 ... +140 °F)	-20 ... +60 °C (-4 ... +140 °F)
• With compact transmitter MAG 6000 I Ex d	-10 ... +60 °C (14 ... 140 °F)	-10 ... +60 °C (14 ... 140 °F)	-10 ... +60 °C (14 ... 140 °F)

# SITRANS F flowmeters

## SITRANS F M

### MAG 3100

Version	MAG 3100	MAG 3100 HT (High Temperature)	MAG 3100 P
<b>Operating pressure</b>			
<b>Operating pressure</b> [abs. bar] (maximum operating pressure decreases with increasing operating temperature and with stainless steel flanges)	<ul style="list-style-type: none"> <li>Neoprene 0.01 ... 100 bar (0.15 ... 1450 psi)</li> <li>EPDM 0.01 ... 40 bar (0.15 ... 580 psi)</li> <li>Linatex® 0.01 ... 40 bar (0.15 ... 580 psi)</li> <li>Ebonite 0.01 ... 100 bar (0.15 ... 1450 psi)</li> <li>PTFE (DN ≤ 300, 0.3 ... 50 bar/ ≤ 12", 4 ... 725 psi) (350 ≤ DN ≤ 600/14" ≤ DN ≤ 24") 0.3 ... 40 bar (4 ... 580 psi)</li> <li>PFA               <ul style="list-style-type: none"> <li>DN 25 ... 100 (1" ... 4"); 0.01 ... 50 bar (0.15 ... 725 psi)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>PTFE Teflon               <ul style="list-style-type: none"> <li>DN 15 ... 300 (½" ... 12") (130/180 °C (266 °F/356°F)): 0.3/0.6 ... 50 bar (4/8 ... 725 psi) (180 °C (356 °F) PTFE has factory mounted grounding SS rings type E &amp; SS terminal box)</li> </ul> </li> <li>PFA               <ul style="list-style-type: none"> <li>DN 25 ... 100 (1" ... 4"); 0.01 ... 50 bar (0.15 ... 725 psi)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>PTFE Teflon               <ul style="list-style-type: none"> <li>DN 15 ... 300 (½" ... 12") : 0.3 ... 40 bar (4 ... 580 psi)</li> </ul> </li> <li>PFA               <ul style="list-style-type: none"> <li>DN 15 ... 100 (1" ... 4"); 0.01 ... 50 bar (0.15 ... 725 psi)</li> </ul> </li> </ul>
Enclosure rating	IP67/NEMA 4X/6 to EN 60529, 1 mH <sub>2</sub> O for 30 min Option: IP68/NEMA 6P to EN 60529, 10 mH <sub>2</sub> O cont. (no ATEX)	IP67/NEMA 4X/6 to EN 60529, 1 mH <sub>2</sub> O for 30 min Option: IP68/NEMA 6P to EN 60529, 10 mH <sub>2</sub> O cont. (no ATEX)	IP67/NEMA 4X/6 to EN 60529, 1 mH <sub>2</sub> O for 30 min Option: IP68/NEMA 6P to EN 60529, 10 mH <sub>2</sub> O cont. (no ATEX)
Pressure drop at 3 m/s	As straight pipe		
Test pressure	1.5 x PN (where applicable)		
Mechanical load	<ul style="list-style-type: none"> <li>18 ... 1000 Hz random in x, y z, directions for 2 hours according to EN 60068-2-36</li> <li>Sensor: 3.17 grms</li> <li>Sensor with compact MAG 5000/6000 mounted transmitter: 3.17 grms</li> <li>Sensor with compact MAG 6000 I/6000 I Ex mounted transmitter: 1.14 grms</li> </ul>	<ul style="list-style-type: none"> <li>18 ... 1000 Hz random in x, y z, directions for 2 hours according to EN 60068-2-36</li> <li>Sensor: 3.17 grms</li> <li>Sensor with compact MAG 5000/6000 mounted transmitter: 3.17 grms</li> <li>Sensor with compact MAG 6000 I/6000 I Ex mounted transmitter: 1.14 grms</li> </ul>	<ul style="list-style-type: none"> <li>18 ... 1000 Hz random in x, y z, directions for 2 hours according to EN 60068-2-36</li> <li>Sensor: 3.17 grms</li> <li>Sensor with compact MAG 5000/6000 mounted transmitter: 3.17 grms</li> <li>Sensor with compact MAG 6000 I/6000 I Ex mounted transmitter: 1.14 grms</li> </ul>
Temperature of medium	<ul style="list-style-type: none"> <li>Neoprene 0 ... +70 °C (32 ... 158 °F)</li> <li>EPDM -10 ... +70 °C (14 ... 158 °F)</li> <li>Linatex® (rubber) -40 ... +70 °C (-40 ... +158 °F) (for temperatures below -20 °C (-4 °F) AISI 304 or 316 flanges must be used)</li> <li>Ebonite 0 ... 95 °C (32 ... 203 °F)</li> <li>PTFE -20 ... +100 °C (-4 ... +212 °F)</li> <li>PFA -20 ... +100 °C (-4 ... +212 °F)</li> </ul>	<ul style="list-style-type: none"> <li>PTFE -20 ... +130 °C (-4 ... +266 °F)</li> <li>PTFE -20 ... +180 °C (-4 ... +356 °F)</li> <li>Factory mounted grounding rings type E and SS terminal box. Can only be used with remote transmitter.</li> <li>PFA -20 ... +150 °C (-4 ... +300 °F)</li> </ul>	<ul style="list-style-type: none"> <li>PTFE -20 ... +130 °C (-4 ... +266 °F)</li> <li>PFA -20 ... +150 °C (-4 ... +300 °F)</li> </ul>
EMC	89/336 ECC	89/336 ECC	89/336 ECC
<b>Design</b>			
Weight	See dimensional drawings		
Flange and housing material	Carbon steel ASTM A 105, with corrosion resistant two component epoxy coating (min. 150 µm) or AISI 304 (1.4301) flanges and carbon steel housing, with corrosion resistant two component epoxy coating (min. 150 µm) or AISI 316 L (1.4404) flanges and housing, polished	Carbon steel ASTM A 105, with corrosion resistant two component epoxy coating (min. 150 µm) or AISI 304 (1.4301) flanges and carbon steel housing, with corrosion resistant two component epoxy coating (min. 150 µm) or AISI 316 L (1.4404) flanges and housing, polished	Carbon steel ASTM A 105, with corrosion resistant two component epoxy coating (min. 150 µm)
Measuring pipe material	AISI 304 (1.4301) (AISI 316L (1.4404) flanges and housing, polished has measuring pipe of AISI 316L (1.4435))	AISI 304 (1.4301) (AISI 316L (1.4404) flanges and housing, polished has measuring pipe of AISI 316L (1.4435))	AISI 304 (1.4301)
Electrode material	<ul style="list-style-type: none"> <li>AISI 316 Ti (1.4571)</li> <li>Hastelloy C276 (PFA: Hastelloy C22)</li> <li>Platinum/Iridium,</li> <li>Titanium</li> <li>Tantalum</li> </ul>	<ul style="list-style-type: none"> <li>AISI 316 Ti (1.4571)</li> <li>Hastelloy C276 (PFA: Hastelloy C22)</li> <li>Platinum/Iridium,</li> <li>Titanium</li> <li>Tantalum</li> </ul>	Hastelloy C276 (PFA: Hastelloy C22)
Grounding Electrode material	Material as measuring electrodes: Exceptions - see ordering data	No grounding electrodes	No grounding electrodes

Version	MAG 3100	MAG 3100 HT (High Temperature)	MAG 3100 P
<b>Design (continued)</b>			
Terminal box (remote version only)	<ul style="list-style-type: none"> <li>Standard Fibre glass-reinforced polyamide</li> <li>Option Stainless steel AISI 316 (1.4436)</li> <li>Ex ATEX (remote version only) Stainless steel AISI 316 (1.4436)</li> </ul>	<ul style="list-style-type: none"> <li>Stainless steel AISI 316 (1.4436)</li> <li>Ex ATEX (remote version only) Stainless steel AISI 316 (1.4436)</li> </ul>	<ul style="list-style-type: none"> <li>Standard Fibre glass-reinforced polyamide</li> <li>Option Stainless steel AISI 316 (1.4436)</li> <li>Ex ATEX (remote version only) Stainless steel AISI 316 (1.4436)</li> </ul>
Cable entries	<ul style="list-style-type: none"> <li>Remote installation 2 x M20 or 2 x ½ NPT</li> <li>Compact installation               <ul style="list-style-type: none"> <li>MAG 5000/MAG 6000: 4 x M20 or 4 x ½"NPT</li> <li>MAG 6000 I: 2 x M25 (for supply/output)</li> <li>MAG 6000 I Ex. d: 2 x M20 (for supply/output)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Remote installation 2 x M20 or 2 x ½ NPT</li> </ul>	<ul style="list-style-type: none"> <li>Remote installation 2 x M20 or 2 x ½ NPT</li> <li>Compact installation               <ul style="list-style-type: none"> <li>MAG 5000/MAG 6000: 4 x M20 or 4 x ½"NPT</li> <li>MAG 6000 I: 2 x M25 (for supply/output)</li> <li>MAG 6000 I Ex. d: 2 x M20 (for supply/output)</li> </ul> </li> </ul>
<b>Certificates and approvals</b>			
Conforms to	PED – 97/23 EC, CRN	PED – 97/23 EC, CRN	PED – 97/23 EC, CRN
Material certificate EN 10204 3.1	On request	On request	Pipe and flange certificate available as option
Ex approvals	ATEX 2G D sensor <ul style="list-style-type: none"> <li>DN 15 ... 300: EEx d e ia IIC T4 - T6</li> <li>DN 350 ... 2000 EEx e ia IIC T4 - T6</li> </ul> Non ATEX sensors <ul style="list-style-type: none"> <li>FM Class 1 Div 2</li> <li>CSA Class 1, Div 2</li> </ul>	ATEX 2G D sensor <ul style="list-style-type: none"> <li>DN 15 ... 300: EEx d e ia IIC T3 - T6</li> </ul> Non ATEX sensors <ul style="list-style-type: none"> <li>FM Class 1 Div 2</li> <li>CSA Class 1, Div 2</li> </ul>	ATEX 2G D sensor <ul style="list-style-type: none"> <li>DN 15 ... 300: EEx d e ia IIC T3 - T6</li> </ul> Non ATEX sensors <ul style="list-style-type: none"> <li>FM Class 1 Div 2</li> <li>CSA Class 1, Div 2</li> </ul>
Drinking water approvals	EPDM lining: <ul style="list-style-type: none"> <li>WRAS (WRc, BS6920 cold water, GB)</li> <li>ACS listed (F)</li> <li>DVGW W270 (D)</li> <li>Belaqua (B)</li> </ul>		
Custody transfer (CT) (≤ DN2000) (only together with MAG 5000/6000 CT), order as special	Cold water pattern approval - DANAK TS 22.36.001, PTB (Denmark and Germany) Heat meter pattern approval - OIML R 75 (Denmark) Hot water pattern approval - PTB (Germany) Other media than water - OIML R 117 (Denmark)	Cold water pattern approval - DANAK TS 22.36.001, PTB (Denmark and Germany) Heat meter pattern approval - OIML R 75 (Denmark) Hot water pattern approval - PTB (Germany) Other media than water - OIML R 117 (Denmark)	Cold water pattern approval - DANAK TS 22.36.001, PTB (Denmark and Germany) Heat meter pattern approval - OIML R 75 (Denmark) Hot water pattern approval - PTB (Germany) Other media than water - OIML R 117 (Denmark)

Technical specification for transmitter - please see transmitter pages.

# SITRANS F flowmeters

## SITRANS F M

### MAG 3100

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Selection and Ordering data	Order No.
<b>Sensor SITRANS F M MAG 3100</b>	<b>7ME6310 -</b>
<b>Diameter</b>	
DN 15 (½") (PTFE liner only)	1 V
DN 25 (1")	2 D
DN 40 (1½")	2 R
DN 50 (2")	2 Y
DN 65 (2½")	3 F
DN 80 (3")	3 M
DN 100 (4")	3 T
DN 125 (5")	4 B
DN 150 (6")	4 H
DN 200 (8")	4 P
DN 250 (10")	4 V
DN 300 (12")	5 D
DN 350 (14")	5 K
DN 400 (16")	5 R
DN 450 (18")	5 Y
DN 500 (20")	6 F
DN 600 (24")	6 P
DN 700 (28")	6 Y
DN 750 (30")	7 D
DN 800 (32")	7 H
DN 900 (36")	7 M
DN 1000 (40")	7 R
DN 1050 (42")	7 U
DN 1100 (44")	7 V
DN 1200 (48")	8 B
DN 1400 (54")	8 F
DN 1500 (60")	8 K
DN 1600 (66")	8 P
DN 1800 (72")	8 T
DN 2000 (78")	8 Y
<b>Flange norm and pressure rating</b>	
<u>to EN 1092-1</u>	
PN 6 (DN 65 ... 2000 (2½" ... 78"))	A
PN 10 (DN 200 ... 2000 (8" ... 78"))	B
PN 16 (DN 65 ... 1200 (2½" ... 48"))	C
PN 16, non PED (DN 700 ... 2000 (28" ... 78"))	D
PN 25 (DN 200 ... 600 (8" ... 24"))	E
PN 40 (DN 15 ... 600 (½" ... 24"))	F
PN 63 (DN 50 ... 300 (2" ... 12")), not PTFE or PFA	G
PN 100 (DN 25 ... 300 (1" ... 12")), not PTFE or PFA	H
<u>to ANSI B16.5</u>	
Class 150 (½" ... 24")	J
Class 300 (½" ... 24")	K
<u>to AWWA C207</u>	
Class D (28" ... 78")	L
<u>to AS</u>	
2129, table E	M
4087, PN 16 (DN 50 ... 1200 (2" ... 48"))	N
4087, PN 21 (DN 50 ... 600 (2" ... 24"))	P
4087, PN 35 (DN 50 ... 600 (2" ... 24"))	Q
<b>Flange material</b>	
Carbon steel flanges ASTM A 105	1
Stainless steel flanges, AISI 304	2
Stainless steel flanges and sensor body, AISI 316L, polished	3

Please also see [www.siemens.com/SITRANSOrdering](http://www.siemens.com/SITRANSOrdering) for practical examples of ordering

Selection and Ordering data	Order No.
<b>Sensor SITRANS F M MAG 3100</b>	<b>7ME6310 -</b>
<b>Liner material</b>	
Neoprene	1
EPDM	2
PTFE (DN ≤ 300, PN ≤ 50 bar / ≤ 12", PN ≤ 725 psi), PTFE (350 ≤ DN ≤ 600, PN ≤ 40 bar / 14" ≤ DN ≤ 24", PN ≤ 580 psi)	3
Ebonite	4
Linatex (PN ≤ 40 bar (580 psi) DN ≤ 600 (24"))	5
PFA (DN 25, 50, 80, 100 (1", 2", 3", 4")) (PN ≤ 40 bar (580 psi))	7
<b>Electrode material</b>	
(Grounding electrodes not for PTFE/PFA liner or Pressure PN 100)	
AISI 316 Ti	1
Hastelloy C276 (PFA liner: Hastelloy C22)	2
Platinum (DN ≤ 300/12") (no grounding electrodes)	3
Titanium (not PFA liner)	4
Tantalum (DN ≤ 600 (24")) (no grounding electrodes)	5
<b>Transmitter with display</b>	
Sensor for remote transmitter (Order transmitter sep.)	A
Sensor ATEX 2G D for remote transmitter (Order transmitter separately)	B
MAG 6000 I, Alu.18 ... 90 V DC, 115 ... 230 V AC	C
MAG 6000 I Alu. 18 ... 30 V DC, ATEX 2G D	D
MAG 6000 I Alu. 115 ... 230 V, ATEX 2G D	E
MAG 6000 Polyamid, 11... 30 V DC / 11...24 V AC	H
MAG 6000, Polyamid, 115/230 V AC	J
MAG 5000, Polyamid, 11... 30 V DC / 11...24 V AC	K
MAG 5000, Polyamid, 115/230 V AC	L
<b>Communication</b>	
No communication, add-on possible	A
HART	B
PROFIBUS PA Profile 3 (only MAG 6000/MAG 6000 I)	F
PROFIBUS DP Profile 3 (no ATEX) (only MAG 6000/MAG 6000 I)	G
MODBUS RTU/RS 485 (no ATEX) (only MAG 6000/MAG 6000 I)	E
FOUNDATION Fieldbus H1 (only MAG 6000/MAG 6000 I)	J
<b>Cable glands/terminal box</b>	
Metric: Polyamid terminal box or 6000I compact	1
½" NPT: Polyamid terminal box or 6000I compact	2
Metric: SS terminal box (mandatory for Stainless steel MAG 6000 Transmitter)	3
½" NPT: SS terminal box (mandatory for Stainless steel MAG 6000 Transmitter)	4



Selection and Ordering data	Order code
<b>Additional information</b>	
Please add <b>"-Z"</b> to Order No. and specify Order code(s) and plain text.	
Customer specific converter setup	<b>Y20</b>
Tag name plate, stainless steel fixed with SS wire (add plain text)	<b>Y17</b>
Tag name plate, plastic (self adhesive)	<b>Y18</b>
Factory certificate according to EN 10204-2.1	<b>C15</b>
Factory certificate according to EN 10204-2.2	<b>C14</b>
Sensor cables wired (specify cable order no.)	<b>Y40</b>
Sensor for remote transmitter's junction box potted to IP68 with wired cable (specify cable order no.) (no ATEX)	<b>Y41</b>
Other postproduction requirements (add desired text)	<b>Y99</b>

Description	Order No.
Potting kit for terminal box of SITRANS F M sensors for IP68/NEMA 6P (Not ATEX)	<b>FDK-085U0220</b>



Please use online Product selector to get latest updates.

Product selector link:

[www.pia-selector.automation.siemens.com](http://www.pia-selector.automation.siemens.com)

MAG 5000/6000 transmitters and sensors are packed in separate boxes, the final assembly takes place during installation at the customer's place. MAG 6000 I/MAG 6000 I ATEX 2G D transmitters and sensors are delivered compact mounted from factory.

Communication module will be pre-mounted in the transmitter.

# SITRANS F flowmeters

## SITRANS F M

### MAG 3100

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Selection and Ordering data	Order No.
<b>Sensor SITRANS F M</b>	
<b>MAG 3100 HT (High Temperature)</b>	7 ME 6 3 2 0 -
<b>Diameter</b>	
DN 15 (½")	1 V
DN 25 (1")	2 D
DN 40 (1½")	2 R
DN 50 (2")	2 Y
DN 65 (2½")	3 F
DN 80 (3")	3 M
DN 100 (4")	3 T
DN 125 (5")	4 B
DN 150 (6")	4 H
DN 200 (8")	4 P
DN 250 (10")	4 V
DN 300 (12")	5 D
<b>Flange norm and pressure rating</b>	
<u>to EN 1092-1</u>	
PN 10 (DN 200 ... 300 (8" ... 12"))	B
PN 16 (DN 65 ... 300 (2½" ... 12"))	C
PN 25 (DN 200 ... 300 (8" ... 12"))	E
PN 40 (DN 15 ... 300 (½" ... 12"))	F
<u>to ANSI B16.5</u>	
Class 150 (½" ... 12")	J
Class 300 (½" ... 12")	K
<u>to AS</u>	
2129, table E	M
<b>Flange material</b>	
Carbon steel flanges ASTM A 105	1
Stainless steel flanges, AISI 304	2
Stainless steel flanges and sensor body, AISI 316L, polished	3
<b>Liner material</b>	
PTFE (130 °C (266 °F))	2
PTFE including type E protection rings AISI 316 (180 °C (356 °F))	3
PFA (150 °C (302 °F)) (DN 25, 50, 80, 100 (1", 2", 3", 4"))	7
<b>Electrode material (no grounding electrodes)</b>	
AISI 316 TI	1
Hastelloy C276 (PFA liner: Hastelloy C22)	2
Platinum	3
Titanium (not for PFA)	4
Tantalum	5
<b>Transmitter with display</b>	
Sensor for remote transmitter (Order transmitter separately)	A
Sensor ATEX 2G D for remote transmitter (Order transmitter separately)	B
MAG 6000 I, Alu. 18 ... 90 V DC, 115 ... 230 V AC	C
MAG 6000 I, Alu. 18 ... 30 V DC, ATEX 2G D	D
MAG 6000 I, Alu. 115 ... 230 V, ATEX 2G D	E
MAG 6000, Polyamid, 11 ... 30 V DC/11 ... 24 V AC	H
MAG 6000, Polyamid, 115/230 V AC	J
MAG 5000, Polyamid, 11 ... 30 V DC/11 ... 24 V AC	K
MAG 5000, Polyamid, 115/230 V AC	L

Selection and Ordering data	Order No.
<b>Sensor SITRANS F M</b>	
<b>MAG 3100 HT (High Temperature)</b>	7 ME 6 3 2 0 -
<b>Communication</b>	
No communication, add-on possible	A
HART	B
PROFIBUS PA Profile 3 (only MAG 6000/MAG 6000 I)	F
PROFIBUS DP Profile 3 (only MAG 6000/MAG 6000 I)	G
MODBUS RTU/RS 485 (only MAG 6000/MAG 6000 I)	E
FOUNDATION Fieldbus H1 (only MAG 6000/MAG 6000 I)	J
<b>Cable glands/terminal box</b>	
Metric: Polyamid terminal box or 6000I compact	1
½" NPT: Polyamid terminal box or 6000I compact	2
Metric: SS terminal box (mandatory for Stainless steel MAG 6000 Transmitter)	3
½" NPT: SS terminal box (mandatory for Stainless steel MAG 6000 Transmitter)	4

Selection and Ordering data	Order code
<b>Additional information</b>	
Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Customer specific converter setup	Y20
Tag name made, stainless steel fixed with SS wire (add plain text)	Y17
Tag name plate, plastic (self adhesive)	Y18
Factory certificate according to EN 10204-2.1	C15
Factory certificate according to EN 10204-2.2	C14
Sensor cables wired (specify cable order no.)	Y40
Other postproduction requirements (add desired text)	Y99

Please use online Product selector to get latest updates.

Product selector link:

[www.pia-selector.automation.siemens.com](http://www.pia-selector.automation.siemens.com)

MAG 5000/6000 transmitters and sensors are packed in separate boxes, the final assembly takes place during installation at the customer's place. MAG 6000 I/MAG 6000 I ATEX 2G D transmitters and sensors are delivered compact mounted from factory.

Communication module will be pre-mounted in the transmitter.

# SITRANS F flowmeters

## SITRANS F M

MAG 3100

Selection and Ordering data	Order No.
<b>Sensor SITRANS F M MAG 3100 P</b>	<b>7ME6340 -</b>
<b>Diameter</b>	
DN 15 (½")	1 V
DN 25 (1")	2 D
DN 40 (1½")	2 R
DN 50 (2")	2 Y
DN 65 (2½")	3 F
DN 80 (3")	3 M
DN 100 (4")	3 T
DN 125 (5")	4 B
DN 150 (6")	4 H
DN 200 (8")	4 P
DN 250 (10")	4 V
DN 300 (12")	5 D
<b>Flange norm and pressure rating</b>	
to EN 1092-1	
PN 10 (DN 200 ... 300 (8" ... 12"))	B
PN 16 (DN 65 ... 300 (2½" ... 12"))	C
PN 40 (DN 15 ... 50 (½" ... 2"))	F
to ANSI B16.5	
Class 150 (½" ... 12")	J
<b>Flange material</b>	
Carbon steel flanges ASTM A 105	1
<b>Liner material</b>	
PTFE (130 °C (266 °F))	3
PFA (150 °C (302 °F)) (DN 25, 50, 80, 100 (1", 2", 3", 4"))	7
<b>Electrode material</b>	
Hastelloy C276 (PFA: Hastelloy C22)	2
<b>Transmitter</b>	
Sensor for remote transmitter (Order transmitter separately)	A
Sensor ATEX 2G D for remote transmitter (Order transmitter separately)	B
MAG 6000 I, Aluminium, 18 ... 90 V DC, 115 ... 230 V AC	C
MAG 6000 I, Aluminium, 18 ... 30 V DC, ATEX 2G D	D
MAG 6000 I, Aluminium, 115 ... 230 V AC, ATEX 2G D	E
MAG 6000, Polyamid, 11 ... 30 V DC/11 ... 24V AC	H
MAG 6000, Polyamid, 115/230 V AC	J
MAG 5000, Polyamid, 11 ... 30 V DC/11 ... 24 V AC	K
MAG 5000, Polyamid, 115/230 V AC	L
<b>Communication</b>	
No communication, add-on possible	A
HART	B
PROFIBUS PA Profile 3 (only MAG 6000/MAG 6000 I)	F
PROFIBUS DP Profile 3 (no ATEX) (only MAG 6000/MAG 6000 I)	G
MODBUS RTU/RS 485 (no ATEX) (only MAG 6000/MAG 6000 I)	E
FOUNDATION Fieldbus H1 (only MAG 6000/MAG 6000 I)	J
<b>Cable glands/terminal box</b>	
Metric: Polyamid terminal box or 6000I compact	1
½" NPT: Polyamid terminal box or 6000I compact	2
Metric SS terminal box (mandatory for stainless steel MAG 6000 transmitter)	3
½" NPT SS terminal box (mandatory for stainless steel MAG 6000 transmitter)	4

Selection and Ordering data	Order code
<b>Additional information</b>	
Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Tag name plate, stainless steel fixed with SS wire (add plain text)	<b>Y17</b>
Tag name plate, plastic (self adhesive)	<b>Y18</b>
Material certificate according to EN 10204 3.1 (Pending)	<b>C12</b>
Factory certificate according to EN 10204-2.1	<b>C15</b>
Factory certificate according to EN 10204-2.2	<b>C14</b>
Power cable wired (specify cable order no.)	<b>Y40</b>
Sensor for remote transmitter's junction box IP68 with wired cable (specify cable order no.) (no ATEX)	<b>Y41</b>
Customer specific test	<b>Y90</b>
Other postproduction requirements (add desired text)	<b>Y99</b>

Please also see [www.siemens.com/SITRANSOrdering](http://www.siemens.com/SITRANSOrdering) for practical examples of ordering

MAG 5000/6000 transmitters and sensors are packed in separate boxes, the final assembly takes place during installation at the customer's place. MAG 6000 I/MAG 6000 I ATEX 2G D transmitters and sensors are delivered compact mounted from factory. Communication module will be pre-mounted in the transmitter.

# SITRANS F flowmeters

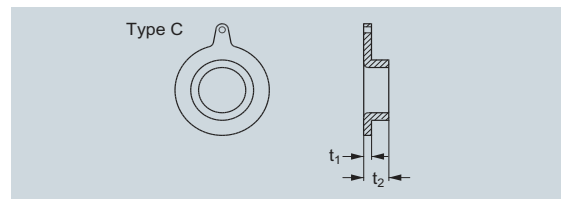
## SITRANS F M

### MAG 3100

#### Selection and Ordering data

##### MAG 3100 Type C Grounding and protection rings

AISI 304 grounding and protection rings **type C** for all liners except PTFE and PFA



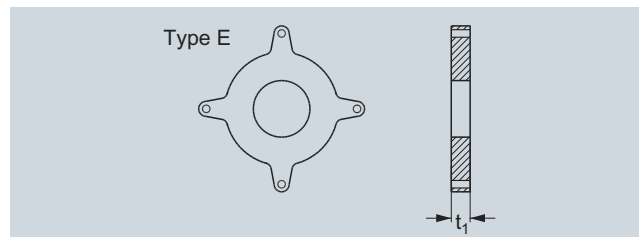
DN	PN 6	PN 10	PN 16	PN 25	PN 40	AS2129, Table E
	Order No.	Order No.	Order No.	Order No.	Order No.	Order No.
DN 25					FDK-083N8361	FDK-083N8361
DN 40					FDK-083N8362	FDK-083N8362
DN 50					FDK-083N8344	FDK-083N8344
DN 65	FDK-083N8345		FDK-083N8345		FDK-083N8345	FDK-083N8346
DN 80	FDK-083N8347		FDK-083N8347		FDK-083N8347	FDK-083N8347
DN 100	FDK-083N8070		FDK-083N8025		FDK-083N8025	FDK-083N8025
DN 125	FDK-083N8071		FDK-083N8071		FDK-083N8071	FDK-083N8071
DN 150	FDK-083N8072		FDK-083N8008		FDK-083N8008	FDK-083N8008
DN 200	FDK-083N8074	FDK-083N8011	FDK-083N8011	FDK-083N8011	FDK-083N8075	FDK-083N8011
DN 250	FDK-083N8078	FDK-083N8013	FDK-083N8013	FDK-083N8013	FDK-083N8079	FDK-083N8013
DN 300	FDK-083N8080	FDK-083N8012	FDK-083N8012	FDK-083N8081	FDK-083N8082	FDK-083N8012
DN 350	FDK-083N8083	FDK-083N8039	FDK-083N8039	FDK-083N8084	FDK-083N8085	FDK-083N8039
DN 400	FDK-083N8099	FDK-083N8100	FDK-083N8100	FDK-083N8101	FDK-083N8102	FDK-083N8100
DN 450	FDK-083N8103	FDK-083N8103	FDK-083N8104	FDK-083N8104	FDK-083N8105	FDK-083N8104
DN 500	FDK-083N8107	FDK-083N8107	FDK-083N8108	FDK-083N8108	FDK-083N8109	FDK-083N8108
DN 600	FDK-083N8111	FDK-083N8111	FDK-083N8112	FDK-083N8112		FDK-083N8113
DN 700	FDK-083N8300	FDK-083N8294	FDK-083N8294			FDK-083N8372
DN 750						FDK-083N8366
DN 800	FDK-083N8303	FDK-083N8304	FDK-083N8304			FDK-083N8373
DN 900	FDK-083N8306	FDK-083N8307	FDK-083N8307			FDK-083N8396
DN 1000	FDK-083N8309	FDK-083N8310	FDK-083N8310			FDK-083N8397
DN 1100		FDK-083N8367	FDK-083N8367			FDK-083N8367
DN 1200	FDK-083N8312	FDK-083N8313	FDK-083N8313			FDK-083N8398
DN 1400	FDK-083N8467	FDK-083N8468	FDK-083N8469			
DN 1500	FDK-083N8471	FDK-083N8472	FDK-083N8473			
DN 1600	FDK-083N8475	FDK-083N8476	FDK-083N8477			
DN 1800	FDK-083N8479	FDK-083N8480	FDK-083N8481			
DN 2000	FDK-083N8483	FDK-083N8484	FDK-083N8485			

Size	ANSI	
	Class 150 Order No.	Class 300 Order No.
1"	FDK-083N8361	FDK-083N8361
1½"	FDK-083N8362	FDK-083N8362
2"	FDK-083N8344	FDK-083N8344
2½"	FDK-083N8345	FDK-083N8345
3"	FDK-083N8347	FDK-083N8347
4"	FDK-083N8025	FDK-083N8025
5"	FDK-083N8071	FDK-083N8071
6"	FDK-083N8008	FDK-083N8073
8"	FDK-083N8011	FDK-083N8076
10"	FDK-083N8013	FDK-083N8079
12"	FDK-083N8012	FDK-083N8082
14"	FDK-083N8039	FDK-083N8085
16"	FDK-083N8100	FDK-083N8102
18"	FDK-083N8104	FDK-083N8106
20"	FDK-083N8107	FDK-083N8110
24"	FDK-083N8113	FDK-083N8114

Size	AWWA C207
	Order No.
28"	FDK-083N8302
30"	FDK-083N8366
32"	FDK-083N8305
36"	FDK-083N8308
40"	FDK-083N8311
42"	FDK-083N8394
44"	FDK-083N8395
48"	FDK-083N8314
54"	FDK-083N8470
60"	FDK-083N8474
66"	FDK-083N8478
72"	FDK-083N8482
78"	FDK-083N8486

**Selection and Ordering data****MAG 3100, 3100 HT, MAG 3100 P Type E grounding and protection ring**1 pc. AISI 316 grounding and protection rings **type E** for PTFE liners**Note:**

For MAG 3100 HT High temperature version 7ME6320... for PTFE 180 °C versions. - grounding ring type E is included and factory mounted.



DN	PN 6 Order No.	PN 10 Order No.	PN 16 Order No.	PN 25 Order No.	PN 40 Order No.
DN 15					FDK-083N8365
DN 25					FDK-083N8271
DN 40					FDK-083N8278
DN 50					FDK-083N8282
DN 65	FDK-083N8284		FDK-083N8285		FDK-083N8286
DN 80	FDK-083N8288		FDK-083N8289		FDK-083N8290
DN 100	FDK-083N8116		FDK-083N8117		FDK-083N8118
DN 125	FDK-083N8120		FDK-083N8121		FDK-083N8122
DN 150	FDK-083N8124		FDK-083N8125		FDK-083N8126
DN 200	FDK-083N8129	FDK-083N8130	FDK-083N8130	FDK-083N8131	FDK-083N8132
DN 250	FDK-083N8135	FDK-083N8136	FDK-083N8137	FDK-083N8138	FDK-083N8139
DN 300	FDK-083N8144	FDK-083N8144	FDK-083N8145	FDK-083N8146	FDK-083N8147
DN 350	FDK-083N8152	FDK-083N8153	FDK-083N8154	FDK-083N8155	FDK-083N8156
DN 400	FDK-083N8160	FDK-083N8161	FDK-083N8162	FDK-083N8163	FDK-083N8164
DN 450	FDK-083N8168	FDK-083N8169	FDK-083N8170	FDK-083N8171	FDK-083N8172
DN 500	FDK-083N8177	FDK-083N8178	FDK-083N8179	FDK-083N8180	FDK-083N8181
DN 600	FDK-083N8186	FDK-083N8187	FDK-083N8188	FDK-083N8189	

Protection of PTFE liner use 2 pcs.

Earthing of PTFE lined flowmeter use 1 pc.

Size	ANSI	
	Class 150 Order No.	Class 300 Order No.
½"	FDK-083N8365	FDK-083N8365
1"	FDK-083N8272	FDK-083N8272
1½"	FDK-083N8279	FDK-083N8279
2"	FDK-083N8283	FDK-083N8283
2½"	FDK-083N8287	FDK-083N8287
3"	FDK-083N8291	FDK-083N8292
4"	FDK-083N8118	FDK-083N8119
5"	FDK-083N8122	FDK-083N8123
6"	FDK-083N8126	FDK-083N8127
8"	FDK-083N8370	FDK-083N8133
10"	FDK-083N8140	FDK-083N8141
12"	FDK-083N8148	FDK-083N8149
14"	FDK-083N8157	FDK-083N8158
16"	FDK-083N8165	FDK-083N8166
18"	FDK-083N8173	FDK-083N8174
20"	FDK-083N8182	FDK-083N8183
24"	FDK-083N8190	FDK-083N8191

Protection of PTFE liner use 2 pcs.

Grounding of PTFE lined flowmeter use 1 pc.

**AS2129, Table E**

DN	Order No.
DN 15	FDK-083N8365
DN 25	FDK-083N8272
DN 40	FDK-083N8280
DN 50	FDK-083N8281
DN 65	FDK-083N8284
DN 80	FDK-083N8293
DN 100	FDK-083N8117
DN 125	FDK-083N8121
DN 150	FDK-083N8128
DN 200	FDK-083N8134
DN 250	FDK-083N8143
DN 300	FDK-083N8151
DN 350	FDK-083N8153
DN 400	FDK-083N8161
DN 450	FDK-083N8176
DN 500	FDK-083N8185
DN 600	FDK-083N8193

Protection of PTFE liner use 2 pcs.

Grounding of PTFE lined flowmeter use 1 pcs.

# SITRANS F flowmeters

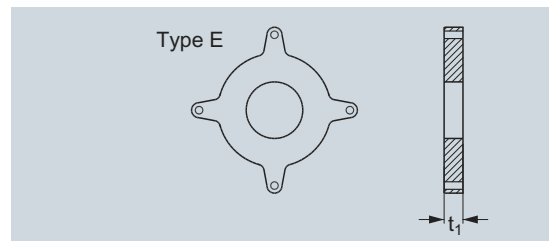
## SITRANS F M

### MAG 3100

#### Selection and Ordering data

##### MAG 3100, MAG 3100 HT, MAG 3100 P type E grounding and protecting ring

1 pc. Hastelloy C-276 grounding and protection ring **type E** for PTFE liners

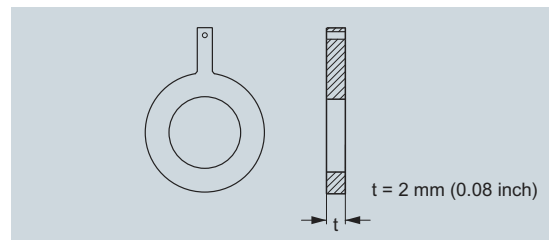


DN	PN 6	PN 16	PN 40	Size	ANSI Class 150	Class 300
	Order No.	Order No.	Order No.		Order No.	Order No.
DN 15			FDK-083N8487	½"	FDK-083N8487	FDK-083N8487
DN 25			FDK-083N8488	1"	FDK-083N8489	FDK-083N8489
DN 40			FDK-083N8490	1½"	FDK-083N8491	FDK-083N8491
DN 50			FDK-083N8492	2"	FDK-083N8493	FDK-083N8493
DN 65	FDK-083N8494	FDK-083N8495	FDK-083N8496	2½"	FDK-083N8497	FDK-083N8497
DN 80	FDK-083N8498	FDK-083N8499	FDK-083N8500	3"	FDK-083N8501	FDK-083N8502
DN 100	FDK-083N8503	FDK-083N8504	FDK-083N8505	4"	FDK-083N8506	FDK-083N8507

#### Selection and Ordering data

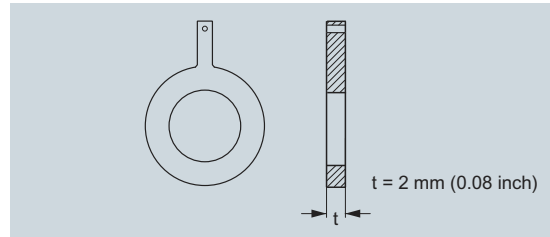
##### MAG 3100, MAG 3100 HT, MAG 3100 P Grounding rings: Flat rings

1 pc. AISI 316 grounding **flat ring** for all liners (not PTFE 180 °C)

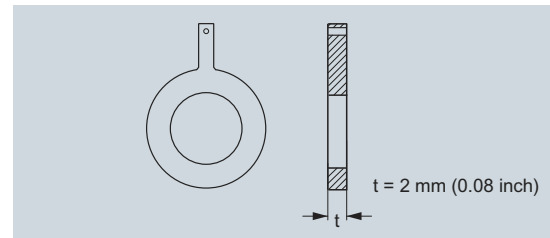


DN	PN 10	PN 16	PN 40	Size	ANSI Class 150	Class 300
	Order No.	Order No.	Order No.		Order No.	Order No.
DN 15			A5E01191969 <sup>F)</sup>	½"	A5E01191968 <sup>F)</sup>	
DN 25			A5E01150880 <sup>F)</sup>	1"	A5E01150022 <sup>F)</sup>	A5E01150378 <sup>F)</sup>
DN 40			A5E01191952 <sup>F)</sup>	1½"	A5E01191961 <sup>F)</sup>	
DN 50			A5E01150918 <sup>F)</sup>	2"	A5E01151121 <sup>F)</sup>	A5E01151194 <sup>F)</sup>
DN 65		A5E01191940 <sup>F)</sup>	A5E01191954 <sup>F)</sup>	2½"	A5E01191962 <sup>F)</sup>	
DN 80		A5E01152876 <sup>F)</sup>	A5E01152876 <sup>F)</sup>	3"	A5E01152910 <sup>F)</sup>	A5E01153422 <sup>F)</sup>
DN 100		A5E01158875 <sup>F)</sup>	A5E01159072 <sup>F)</sup>	4"	A5E01159146 <sup>F)</sup>	A5E01159628 <sup>F)</sup>
DN 125		A5E01191941 <sup>F)</sup>	A5E01191956 <sup>F)</sup>	5"	A5E01191963 <sup>F)</sup>	
DN 150		A5E01191943 <sup>F)</sup>	A5E01191957 <sup>F)</sup>	6"	A5E01191964 <sup>F)</sup>	
DN 200	A5E01191951 <sup>F)</sup>	A5E01191944 <sup>F)</sup>	A5E01191958 <sup>F)</sup>	8"	A5E01191965 <sup>F)</sup>	
DN 250	A5E01191950 <sup>F)</sup>	A5E01191946 <sup>F)</sup>	A5E01191959 <sup>F)</sup>	10"	A5E01191966 <sup>F)</sup>	
DN 300	A5E01191949 <sup>F)</sup>	A5E01191947 <sup>F)</sup>	A5E01191960 <sup>F)</sup>	12"	A5E01191967 <sup>F)</sup>	

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

**Selection and Ordering data****MAG 3100, MAG 3100 HT, MAG 3100 P Grounding rings : Flat rings**1 pc. Hastelloy C-276 grounding **flat ring** for all liners (not PTFE 180 °C)

DN	PN 10	PN 16	PN 40	Size	ANSI	Class 300
	Order No. <sup>F)</sup>	Order No. <sup>F)</sup>	Order No. <sup>F)</sup>		Class 150	Order No. <sup>F)</sup>
DN 15			<b>A5E01191981</b>	½"	<b>A5E01191989</b>	
DN 25			<b>A5E01150882</b>	1"	<b>A5E01150028</b>	<b>A5E01150379</b>
DN 40			<b>A5E01191982</b>	1½"	<b>A5E01191990</b>	
DN 50			<b>A5E01150922</b>	2"	<b>A5E01151124</b>	<b>A5E01151197</b>
DN 65		<b>A5E01191971</b>	<b>A5E01191983</b>	2½"	<b>A5E01191991</b>	
DN 80		<b>A5E01152889</b>	<b>A5E01152889</b>	3"	<b>A5E01152913</b>	<b>A5E01153424</b>
DN 100		<b>A5E01158886</b>	<b>A5E01159074</b>	4"	<b>A5E01159150</b>	<b>A5E01159629</b>
DN 125		<b>A5E01191973</b>	<b>A5E01191984</b>	5"	<b>A5E01191992</b>	
DN 150		<b>A5E01191974</b>	<b>A5E01191985</b>	6"	<b>A5E01191993</b>	
DN 200	<b>A5E01191978</b>	<b>A5E01191975</b>	<b>A5E01191986</b>	8"	<b>A5E01191994</b>	
DN 250	<b>A5E01191979</b>	<b>A5E01191976</b>	<b>A5E01191987</b>	10"	<b>A5E01191995</b>	
DN 300	<b>A5E01191980</b>	<b>A5E01191977</b>	<b>A5E01191988</b>	12"	<b>A5E01191996</b>	

**Selection and Ordering data****MAG 3100, MAG 3100 HT, MAG 3100 P Grounding rings : Flat rings**1 pc. Tantalum grounding **flat ring** for all liners (not PTFE 180 °C)

DN	PN 16	PN 40	Size	ANSI	Class 300
	Order No. <sup>F)</sup>	Order No. <sup>F)</sup>		Class 150	Order No. <sup>F)</sup>
DN 15		<b>A5E01192007</b>	½"	<b>A5E01192010</b>	
DN 25		<b>A5E01150883</b>	1"	<b>A5E01150030</b>	<b>A5E01150381</b>
DN 40		<b>A5E01192008</b>	1½"	<b>A5E01192011</b>	
DN 50		<b>A5E01150926</b>	2"	<b>A5E01151129</b>	<b>A5E01151199</b>
DN 65	<b>A5E01192005</b>	<b>A5E01192009</b>	2½"	<b>A5E01192012</b>	
DN 80	<b>A5E01152890</b>	<b>A5E01152890</b>	3"	<b>A5E01152916</b>	<b>A5E01153427</b>
DN 100	<b>A5E01158891</b>	<b>A5E01159076</b>	4"	<b>A5E01159156</b>	<b>A5E01159631</b>

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

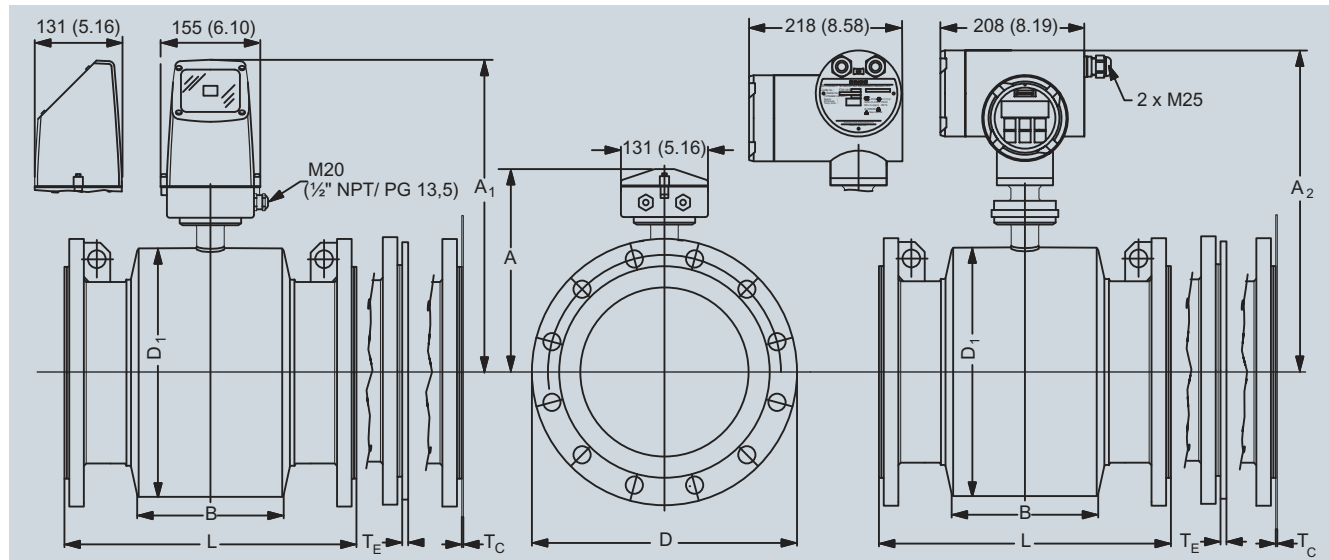
# SITRANS F flowmeters

## SITRANS F M

### MAG 3100

#### Dimensional drawings

MAG 3100, MAG 3100 HT, MAG 3100 P sensor with compact or remote transmitter



#### Metric

DN	A <sup>1)</sup>	A <sub>1</sub> /A <sub>2</sub> <sup>8)</sup>	B	D <sub>1</sub>	L <sup>2)</sup>											T <sub>C</sub> <sup>3)</sup>	T <sub>E</sub> <sup>3)</sup>	Weight <sup>4)</sup>
					EN 1092-1-201						ANSI 16.5		AS 2129 E AS 4087 PN 16, 21, 35	AWWA C-207 Class D				
					PN 6, 10	PN 16/ PN 16 non PED	PN 25	PN 40	PN 63	PN 100	Class 150	Class 300						
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	
15	187	338	59	104	-	-	-	200	-	-	200	200	200	-	-	6	4	
25	187	338	59	104	-	-	-	200	-	260	200	200	200	-	1.2	6	5	
40	197	348	82	124	-	-	-	200	-	280	200	200	200	-	1.2	6	8	
50	205	356	72	139	-	-	-	200	276	300	200	200	200	-	1.2	6	9	
65	212	363	72	154	200	200/-	-	200	320	350	200	272	200	-	1.2	6	11	
80	222	373	72	174	200	200/-	-	272	323	340	272	272	200 <sup>5)</sup>	-	1.2	6	12	
100	242	393	85	214	250	250/-	-	250	380	400	250	310	250	-	1.2	6	16	
125	255	406	85	239	250	250/-	-	250	420	450	250	335	250	-	1.2	6	19	
150	276	427	85	282	300	300/-	-	300	415	450	300	300	300	-	1.2	6	27	
200	304	455	137	338	350	350/-	350	350	480	530	350	350	350	-	1.2	8	40	
250	332	483	157	393	450	450/-	450	450	550	620	450	450	450	-	1.2	8	60	
300	357	508	157	444	500	500/-	500	500	600	680	500	500	500	-	1.6	8	80	
350	362	513	270	451	550	550/-	550	550	-	-	550	550	550	-	1.6	8	110	
400	387	538	270	502	600	600/-	600	600	-	-	600	600	600	-	1.6	10	125	
450	418	569	310	563	600	600/-	600	600	-	-	600	600	600	-	1.6	10	175	
500	443	594	350	614	600	600/-	625	680	-	-	600	730	600 <sup>6)</sup>	-	1.6	10	200	
600	494	645	430	715	600	600/-	750	800	-	-	600	860	600 <sup>7)</sup>	-	1.6	10	287	
700	544	695	500	816	700	875/700	-	-	-	-	-	-	700	700	2.0	-	330	
750	571	722	556	869	-	-/-	-	-	-	-	-	-	750	750	2.0	-	360	
800	606	757	560	927	800	1000/800	-	-	-	-	-	-	800	800	2.0	-	450	
900	653	804	630	1032	900	1125/900	-	-	-	-	-	-	900	900	2.0	-	530	
1000	704	906	670	1136	1000	1250/1000	-	-	-	-	-	-	1000	1000	2.0	-	660	
1100	755	906	770	1238	-	-/-	-	-	-	-	-	-	1100	1100	2.0	-	1140	
1200	810	961	792	1348	1200	1500/1200	-	-	-	-	-	-	1200	1200	2.0	-	1180	
1400	925	1076	1000	1675	1400	-/1400	-	-	-	-	-	-	1400	1400	2.0	-	1600	
1500	972	1123	1020	1672	1500	-/1500	-	-	-	-	-	-	1500	1500	3.0	-	2460	
1600	1025	1176	1130	1915	1600	-/1600	-	-	-	-	-	-	1600	1600	3.0	-	2140	
1800	1123	1274	1250	1974	1800	-/1800	-	-	-	-	-	-	1800	1800	3.0	-	2930	
2000	1223	1374	1375	2174	2000	-/2000	-	-	-	-	-	-	2000	2000	3.0	-	3665	

1) 14.5 mm shorter with AISI terminal box (Ex and high temperature version)

2) When earthing flanges are used, the thickness of the earthing flange must be added to the build-in length

3) T<sub>C</sub> = Type C grounding ring, T<sub>E</sub> = Type E grounding ring (Included and factory mounted on high temperature 180 °C (356 °F) PTFE sensor)

4) Weights are approx. (for PN 16) without transmitter

5) PN 35 DN 80 = 272 mm

6) PN 35 DN 500 = 680 mm

7) PN 35 DN 600 = 750 mm

8) A<sub>2</sub> is 3 mm/0.12" shorter than A<sub>1</sub>

- not available

D = Outside diameter of flange, see flange tables



## MAG 3100, MAG 3100 HT, MAG 3100 P sensor with compact or remote transmitter

## Imperial

Size	A <sup>1)</sup>	A <sub>1</sub> /A <sub>2</sub> <sup>8)</sup>	B	D <sub>1</sub>	L <sup>2)</sup>										AS 2129 E AS 4087 PN 16, 21, 35	T <sub>C</sub> <sup>3)</sup>	T <sub>E</sub> <sup>3)</sup>	Weight <sup>4)</sup>
					EN 1092-1-201						ANSI 16.5		AWWA C-207 Class D					
					PN 6, 10	PN 16/ PN 16 non PED	PN 25	PN 40	PN 63	PN 100	Class 150	Class 300						
[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[in.]	[in.]	[lb]		
½	7.36	13.31	2.32	4.09	-	-	-	7.87	-	-	7.87	7.87	-	7.87	-	0.24	11	
1	7.36	13.31	2.32	4.09	-	-	-	7.87	-	10.24	7.87	7.87	-	7.87	0.05	0.24	13	
1½	7.76	13.70	3.23	4.88	-	-	-	7.87	-	11.02	7.87	7.87	-	7.87	0.05	0.24	17	
2	8.07	14.01	2.83	5.47	-	-	-	7.87	10.87	11.81	7.87	7.87	-	7.87	0.05	0.24	28	
2½	8.35	14.29	2.83	6.06	7.87	7.87/-	-	7.87	12.60	13.78	7.87	10.71	-	7.87	0.05	0.24	30	
3	8.74	14.69	2.83	6.85	7.87	7.87/-	-	10.71	12.72	13.39	10.71	10.71	-	7.87 <sup>5)</sup>	0.05	0.24	33	
4	9.53	15.47	3.35	8.43	9.84	9.84/-	-	9.84	14.96	-	9.84	12.20	-	9.84	0.05	0.24	44	
5	10.04	15.98	3.35	9.41	9.84	9.84/-	-	9.84	16.54	-	9.84	13.10	-	9.84	0.05	0.24	55	
6	10.87	16.81	5.39	11.10	11.81	11.81/-	-	11.81	16.34	-	11.81	11.81	-	11.81	0.05	0.24	66	
8	11.97	17.91	5.39	13.31	13.78	13.78/-	13.78	13.78	18.90	-	13.78	13.78	-	13.78	0.05	0.31	110	
10	13.07	19.02	6.18	15.47	17.72	17.72/-	17.72	17.72	-	-	17.72	17.72	-	17.72	0.05	0.31	155	
12	14.05	20.00	6.18	17.48	19.69	19.69/-	19.69	19.69	-	-	19.69	19.69	-	19.69	0.06	0.31	176	
14	14.25	20.20	10.63	17.76	21.65	21.65/-	21.65	21.65	-	-	21.65	21.65	-	21.65	0.06	0.31	242	
16	15.24	21.18	10.63	19.76	23.62	23.62/-	23.62	23.62	-	-	23.62	23.62	-	23.62	0.06	0.39	275	
18	16.45	22.40	12.20	22.16	23.62	23.62/-	23.62	23.62	-	-	23.62	23.62	-	23.62	0.06	0.39	385	
20	17.44	23.39	13.78	24.17	23.62	23.62/-	24.61	26.77	-	-	23.62	28.70	-	23.62 <sup>6)</sup>	0.06	0.39	335	
24	19.45	25.39	16.93	28.15	23.62	23.62/-	29.53	31.50	-	-	23.62	33.80	-	23.62 <sup>7)</sup>	0.06	0.39	630	
28	21.42	27.36	19.69	32.13	27.56	34.45/27.56	-	-	-	-	-	-	27.56	27.56	0.08	-	725	
30	22.48	28.43	21.89	34.21	-	-/-	-	-	-	-	-	-	29.52	-	0.08	-	830	
32	23.86	29.80	22.05	36.50	31.50	39.37/31.50	-	-	-	-	-	-	31.50	31.50	0.08	-	990	
36	25.71	31.65	24.80	40.63	35.43	44.29/35.43	-	-	-	-	-	-	35.43	35.43	0.08	-	1160	
40	27.72	35.67	26.38	44.72	39.37	49.21/39.37	-	-	-	-	-	-	39.37	39.37	0.08	-	1453	
42	27.72	35.67	26.38	44.72	-	-/-	-	-	-	-	-	-	39.37	-	0.08	-	1453	
44	29.72	35.67	30.31	48.74	-	-/-	-	-	-	-	-	-	43.31	43.31	0.08	-	-	
48	31.89	37.83	31.18	53.07	47.24	59.06/47.24	-	-	-	-	-	-	47.24	47.24	0.08	-	2592	
54	36.42	42.36	39.37	65.94	55.12	-/55.12	-	-	-	-	-	-	55.12	-	0.12	-	2940	
60	38.27	44.21	40.15	65.83	59.06	59.06/59.06	-	-	-	-	-	-	59.06	-	0.12	-	3422	
66	40.35	46.30	44.49	75.39	62.99	-/62.99	-	-	-	-	-	-	63.00	-	0.12	-	3904	
72	44.21	50.16	49.21	77.72	70.87	-/70.87	-	-	-	-	-	-	70.87	-	0.12	-	4846	
78	48.15	54.09	54.13	85.59	78.74	-/78.74	-	-	-	-	-	-	78.74	-	0.12	-	6806	

<sup>1)</sup> 0.512 inch shorter with AISI terminal box (Ex and high temperature version)

<sup>2)</sup> When earthing flanges are used, the thickness of the earthing flange must be added to the build-in length

<sup>3)</sup> T<sub>C</sub> = Type C grounding ring, T<sub>E</sub> = Type E grounding ring (Included and factory mounted on high temperature 180 °C (356 °F) PTFE sensor)

<sup>4)</sup> Weights are for ANSI 150 without transmitter

<sup>5)</sup> PN 35 DN 80 = 10.70 inch

<sup>6)</sup> PN 35 DN 500 = 26.77 inch

<sup>7)</sup> PN 35 DN 600 = 29.53 inch

<sup>8)</sup> A<sub>2</sub> is 0.06" shorter than A<sub>1</sub>

- not available

D = Outside diameter of flange, see flange tables

# SITRANS F flowmeters

## SITRANS F M

### Sensor calibration

#### Selection and Ordering data

Product designation	Order No.
<b>SITRANS F M - Electromagnetic flowmeters</b>	
<b>Calibrations/recalibration for MAG 1100, 1100 F, 5100 W and 3100</b>	
<i>Accessories for SITRANS F M</i>	
<b>Calibration</b>	<b>FDK - O.R.<sup>2)</sup></b>
Standard Production calibration • Zero-point 2 x 25 %, 2 x 90 %	-
MAG 8000 calibration • Zero-point 1 x 25 %, 1 x 100 %	-
<b>Standard production calibration - Matched pair</b>	
Size < DN 350 (14")	<b>O.R.</b>
Size DN 300 ... 1200 (12" ... 48")	<b>O.R.</b>
Larger sizes	<b>O.R.</b>
<b>Customer specified calibration up to 10 point<sup>1)</sup></b>	
Size ≤ DN 150 (6")	<b>O.R.</b>
Size DN 200 ... 300 (8" ... 12")	<b>O.R.</b>
Size DN 350 ... 600 (14" ... 24")	<b>O.R.</b>
Size DN 700 ... 1100 (28" ... 48")	<b>O.R.</b>
Add-on: Matched pair of any above	<b>O.R.</b>
Larger sizes	<b>O.R.</b>
<b>Accredited calibration ISO/IEC 17025 - Matched pair<sup>1)</sup></b>	
Accredited calibration report with up to 21 points <sup>1)</sup>	
Size ≤ DN 150 (6")	<b>O.R.</b>
Size DN 200 ... 300 (8" ... 12")	<b>O.R.</b>
Size DN 350 ... 600 (14" ... 24")	<b>O.R.</b>
Size DN 700 ... 1100 (28" ... 48")	<b>O.R.</b>
Larger sizes	<b>O.R.</b>
<b>CT-calibration and authority seal</b>	
Up to DN 300 (12") for PTB and DANAK	
Size ≤ DN 150 (6")	<b>O.R.</b>
Size DN 200 ... 300 (8" ... 12")	<b>O.R.</b>
Larger sizes	<b>O.R.</b>
<b>Customer witnessed calibration</b>	
Any of above calibration	
Add-on price per sensor	<b>O.R.</b>
Size DN 200 ... 300 (8" ... 12")	
Daily rates available on request for larger project.	

<sup>1)</sup> Size dependent restriction on maximum 42,682 flow rates may apply.

<sup>2)</sup> **Ordering O.R.** As we need dedicated information from the customer on the individual sensor, we must have the calibration forms filed and sent together with the order.