

Flow Measurement

SITRANS F M

Transmitter TRANSMAG 2 with sensor 911/E

Overview



SITRANS F M TRANSMAG 2 with the SITRANS FM 911/E sensor is a pulsed alternating field magnetic flowmeter where the magnetic field strength is much higher than conventional DC pulsed magnetic flowmeters.

Benefits

- Wide range of sizes DN 15 to DN 1000 (½" to 40")
- Broad range of liner and electrode materials for extreme process medias
- Fully welded construction provides a ruggedness that suits the toughest applications and environments.
- Automatic reading of SmartPLUG for easy commissioning
- Simple menu operation with two-line display
- Comprehensive self-diagnostic with selfmonitoring and internal simulation

Application

The main applications of the SITRANS F M transmitter TRANSMAG 2 can be found in the following sectors:

- Pulp and Paper industry
- Mining industry

The patented pulse alternating field technology is ideal for difficult applications like:

- High concentrated paper stock > 3 %
- Heavy mining slurries
- Mining slurries with magnetic particles.
- Low conductive medias $\geq 1 \mu\text{S/cm}$ (0.1 $\mu\text{S/cm}$ depending on medium)

Design

- Available for remote mounting
- PROFIBUS PA (profile 2.0) / HART communication
- Analog output and digital outputs for pulses, device status, limits, flow direction, frequency output

Mode of operation

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

Function

The TRANSMAG 2 is a microprocessor-based transmitter with a build-in alphanumeric display in several languages. The transmitters evaluate the signals from the associated electromagnetic sensors and also fulfil the task of a power supply unit which provides the magnet coils with a constant current.

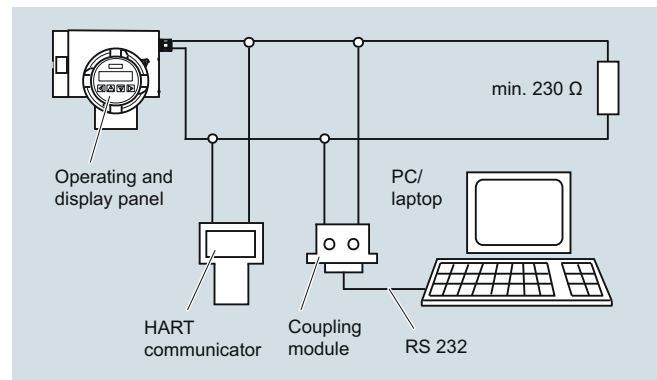
The magnetic flux density in the sensor is additionally monitored by reference coils.

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

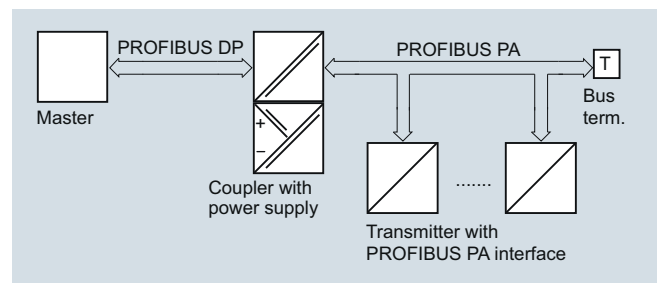
Displays and keypad

Operation of the transmitter can be carried out using:

- Keypad and display unit
- HART communicator
- PC/laptop and SIMATIC PDM software via HART communication
- PC/laptop and SIMATIC PDM software using PROFIBUS PA communication



HART communication



PROFIBUS PA communication

Technical specifications

Transmitter TRANSMAG 2

Mode of operation and design

Measuring principle	Electromagnetic with pulsed alternating field (PAC)
Magnetic field excitation	Automatic power supply synchronization
- 50 Hz AC power supply	Bipolar (16.7 Hz) Bipolar with prepulse (10 Hz) Unipolar (8.33 Hz)
- 60 Hz AC power supply	Bipolar (20 Hz) Bipolar with prepulse (12 Hz) Unipolar (10 Hz)

Accuracy under reference conditions

Measuring tolerance of pulse output	
• With $v > 0.25$ m/s (0.82 ft/s)	$\leq \pm 0.5$ % of measured value ± 1.2 mm/s (0.05 inch/s)
• With $v < 0.25$ m/s (0.82 ft/s)	± 2.5 mm/s (0.1 inch/s)
Measuring tolerance of analog output	As pulse output plus ± 0.1 % conversion error ± 20 μ A
Repeatability	0.2 % of measured value

Reference conditions

• Process temperature	25 °C \pm 5 °C (77 °F \pm 9 °F)
• Ambient temperature	25 °C \pm 5 °C (77 °F \pm 9 °F)
• Warm-up time	Min. 30 min
• Installation conditions	Inlet pipe section $\geq 10 \times$ DN Outlet pipe section $\geq 5 \times$ DN Installed centered in pipe
• Medium	Water without gaseous or solid components

Calibration

Standard production calibration, calibration report shipped with sensor	Zero-point, 2 x 25 % and 2 x 90 %
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Output

Electrical isolation	Outputs electrically isolated from one another and from the power supply, max. 60 V permissible against PE/equipotential bonding
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Current output

	0/4 ... 20 mA (7ME5034-0.... or 7ME5034-2....)
• Signal	
- Upper limit	0/4 ... 20 mA, selectable
- Failure	20 ... 22.5 mA, optional 3.6; 20 or 24 mA
• Load	
- Output	max. 600 Ω , max. load voltage 15 V DC
- For HART communication	≥ 250 Ω

Communication

	Via analog output with PC coupling module or HART communicator
• Protocol	HART, version 5.1

Digital output

Signal	
• Output	Configurable as active or passive signals
- Active signal	24 V DC, ≤ 24 mA, $R_i = 170$ Ω
- Passive signal	Open collector, max. 30 V DC, 200 mA

Output configuration

• Pulse	
- Pulse significance	≤ 5000 pulses/s
- Pulse width	≥ 0.1 ms
• Limit frequency	≤ 10000 Hz
• Limits	Limits for flow and quantity, flow direction, alarm

Digital output 2 (relay)

(only 7ME5034-0....)

Relay

• Rating	NC or NO function Max. 5 W, max. 50 V AC/DC, max. 200 mA
• Output configuration	Limits for flow and quantity, flow direction, alarm

Digital input (optional to digital output 2)

(only 7ME5034-2....)

• Input function configurable as high-active or low-active	Set measured value or counter to zero
• Signal voltage	Max. 30 V DC, $R_i = 3$ k Ω : High level: +11 ... +30 V DC Low level: -30 ... +5 V DC

For PROFIBUS devices

PROFIBUS PA (for PROFIBUS-devices 7ME5034-1....)

• Communication	Layer 1 and 2 according to PROFIBUS PA Transmission according to IEC 1158-2 Layer 7 (protocol layer) according to PROFIBUS PA and DP V1 (EN 50170) Device class B, device profile 2.0 Max. 4 simultaneous C2 connections
• Bus voltage	9 ... 32 V DC permissible
• Current consumption from bus	10 mA; limited to ≤ 15 mA in event of fault by electrical current limitation

Rated operating conditions

Installation conditions	See also sensor
Ambient temperature	
• Operation	-20 ... +60 °C (-4 ... +140 °F)
• Display module	0 ... 50 °C (32 ... 122 °F)
Storage	-25 ... +80 °C (-13 ... +176 °F)
Degree of protection	IP67/NEMA 4X
Electromagnetic compatibility (EMC)	
• Emitted interference	To IEC/EN 61326 for use in industrial areas
• Noise immunity	To IEC/EN 61326 for use in industrial areas

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Medium conditions	
• Process temperature	-20 ... +150 °C (-4 ... 302 °F) depending on the liner
Minimum conductivity of medium	
• With SITRANS F M 911/E sensors	≥ 1 µS/cm (0.1 µS/cm depending on medium)
Design	
Weight of transmitter	4.4 kg (9.7 lb)
Remote version	Transmitter must be connected to sensor using shielded cable
Maximum cable length	100 m (328 ft)
Housing	Die-cast aluminum, painted
Displays and keypad	
General display	LCD, backlid, two lines with 16 characters each
Multi-display for	Flow, totalizer, flow velocity
Keypad	4 keys for entering parameters
Power supply	
corresponding to rating plate	
• AC supply	100 ... 250 V AC ± 15 %, 47 ... 63 Hz
• Power consumption	Approx. 120 ... 630 VA, depend- ing on sensor
Line fuse	100 ... 230 V AC: T1.6A
Magnet current fuse	F5A/250 V

Sensor cables between sensor and transmitter

The signal voltage proportional to the flow and present at the electrodes of the EMF is only a few µV to mV. Superimposed on this are electrochemical interferences resulting from the contact between the electrodes and liquid, and which can be up to several Volt. Also frequently superimposed are line frequency interferences, interferences resulting from vibrations on the pipelines or signal cables, as well as strong magnetic fields in the vicinity. Sufficient shielding must therefore be provided, as well as fixed routing of the signal cables (electrode and magnet current cable) in the case of remote versions. This also applies to devices with integral preamplifier (smartPLUG). The cable length between the sensor and transmitter must not exceed 100 m (328 ft).

Attention must also be paid to the cable routing. Signal cables must be routed free of vibration, and protected against strong magnetic and stray fields. In case of doubt, the sensor cables must be routed in earthed steel conduit.

Selection and Ordering data	Article No.
SITRANS F M electromagnetic transmitter TRANSMAG 2 for alternating field, remote version, 110 ... 230 V AC	7ME5034 - AA 1 - AA0
Output/communication 4 ... 20 mA with HART protocol PROFIBUS PA connection 4 ... 20 mA with HART protocol, digital input	0 1 2
Operator display and keypad Without With	0 1
Cable glands M20/M16 x 1.5 ½" NPT	1 2

Selection and Ordering data	Order code
Additional information Please add "-Z" to Article No. and specify Order code(s) and plain text.	
Strengthened mounting bracket for wall and pipeline installation	A02
Measuring range, specify in plain text: Y01: 0 to ... m ³ /h	Y01
Pulse significance, specify in plain text: Y02: 0 to ... pulses/l	Y02
Setting of digital outputs, specify in plain text: Y03: Setting of digital outputs: ...	Y03
Measuring-point number (max. 8 characters), specify in plain text: Y15:	Y15
Measuring-point description (max. 16 characters), specify in plain text: Y16:	Y16
Stainless steel tag plate	Y17
Other post-production requirements (add plain text)	Y99

Operating instructions for SITRANS F M TRANSMAG 2

Description	Article No.
• English	A5E00102775
• German	A5E00192774
• Spanish	A5E00135276
• French	A5E00135275




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>









Transmitter TRANSMAG 2 with sensor 911/E

Accessories

Description	Article No.	
Standard wall mounting bracket. Steel AISI 316L/ EN10088-2-1.4404	7ME5933-0AC04	
Special wall-/pipe mounting bracket kit. BI 2,5 DIN59382 X6Cr17	7ME5933-0AC05	
Potting kit for terminal box of flow sensors for IP68/NEMA 6P (not for Ex sensors)	FDK:085U0220	

◆ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ◆. For details see page 9/5 in the appendix.

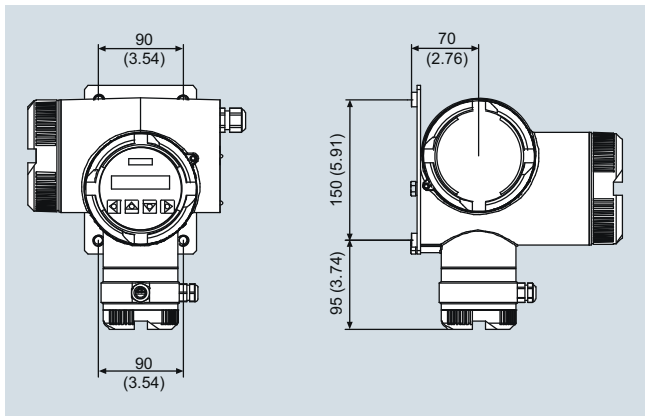
Spare parts

Description	Article No.	
Operating/Display module	7ME5933-0AC00	
Electronics cover with glass plate (non Ex). Die cast aluminum, with corrosion-resistant Basic Polyester powder coating (min. 60 µm)	7ME5933-0AC01	
Cover for sensor cable and gasket. Die cast aluminum, with corrosion-resistant Basic Polyester powder coating (min. 60 µm)	7ME5933-0AC02	
Cover for mains supply/communication. Die cast aluminum, with corrosion-resistant Basic Polyester powder coating (min. 60 µm)	7ME5933-0AC03	
Safety clamp for electronic cover with glass plate (7ME5933-0AC01)	7ME5933-0AC06	
M20 cable gland set for power and output connection, gray PA plastic, 2 pcs. • cables Ø 6 ... 12 mm (0.24" ... 0.47") • -40 ... +100 °C (-40 ... +212 °F)	A5E02246350	
1/2" NPT cable gland set for power and output connection, gray PA plastic, 2 pcs. • cables Ø 6 ... 12 mm (0.24" ... 0.47") • -40 ... +100 °C (-40 ... +212 °F)	A5E02246396	
M16 x 1.5 cable gland set for sensor connection, brass chrome, 2 pcs. and 2 pcs. blind • cables Ø 5 ... 9 mm (0.20" ... 0.35") • -20 ... +105 °C (-4 ... +221 °F)	A5E02246369	

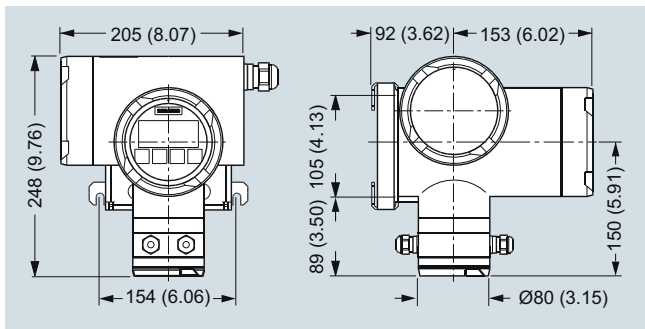
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Transmitter TRANSMAG 2 with sensor 911/E

Dimensional drawings

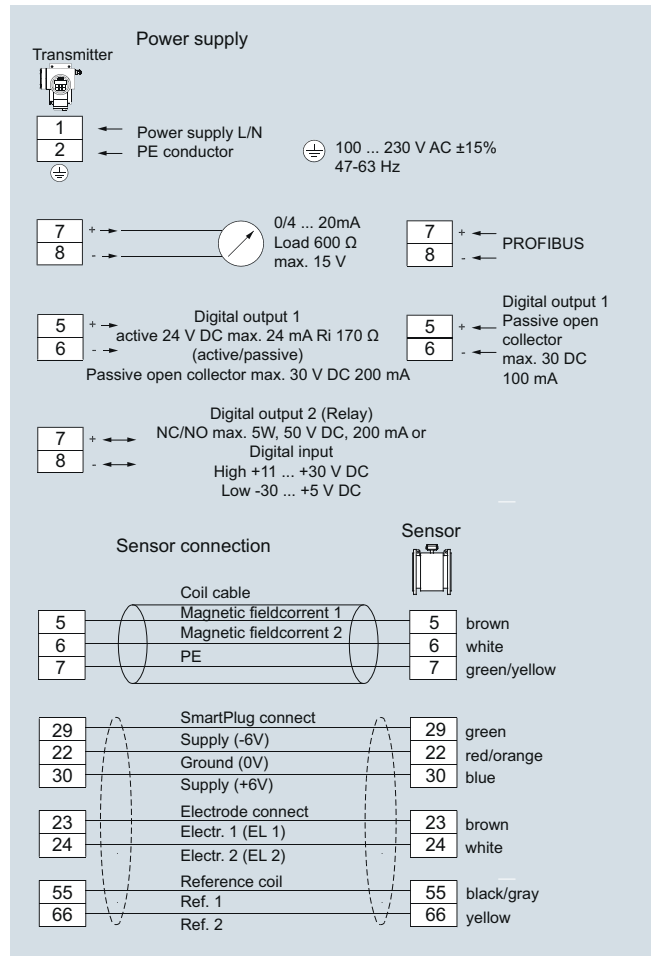


SITRANS F M transmitter TRANSMAG 2 with wall mounting bracket, dimensions in mm (inch)



SITRANS F M transmitter TRANSMAG 2 with wall and pipeline mounting bracket, dimensions in mm (inch)

Schematics



SITRANS F M transmitter TRANSMAG 2, connection diagram

Transmitter TRANSMAG 2 with sensor 911/E

911/E sensor

Process connection

Nominal diameters	DN 15 ... 1000 (½" ... 40")
Metering tube connections	EN 1092-1, ANSI B16.5, others on request

Rated operating conditions

<u>Installation conditions</u>	See system information
• Soft rubber liner	0 ... 70 °C (32 ... 158 °F)
• Hard rubber liner	0 ... 90 °C (32 ... 194 °F) Option: 100 °C (212 °F)
• PTFE liner	<ul style="list-style-type: none"> • -20 ... +150 °C (-4 ... +302 °F) at 25 bar (363 psi) • -20 ... +100 °C (-4 ... +212 °F) at 40 bar (580 psi)
• Linatex (rubber) liner	-40 ... +70 °C (-40 ... +158 °F) (for temperatures below -20 °C (-4 °F) AISI 316L/1.4404 flanges must be used)
• Novolak liner	130 °C (266 °F) at 40 bar (580 psi)
Degree of protection	IP67/NEMA 4X Optional IP68/NEMA 6

Medium conditions

Maximum flow velocity	12 m/s (39.4 ft/s)
Full scale value of flow velocity	0.15 ... 12 m/s (0.49 ... 39.4 ft/s)

Design

Weight	See dimensional drawings
Flange and housing material	Mild steel (1.0460/1.0570, with corrosion resistant two component epoxy coating (min. 150 µm) or AISI 316Ti/1.4571 flanges and carbon steel housing, with corrosion-resistant two-component epoxy coating (min. 150 µm)
Measuring pipe material	Stainless steel AISI 316Ti/1.4571
Electrode material	<ul style="list-style-type: none"> • AISI 316Ti/1.4571 • PTFE: Hastelloy C276/2.4819 • Platinum head • Titanium • Tantalum
Grounding electrode material	Defined via the Order code

Protection rings for liners



Function	To protect the edges of liners from abrasion (e.g. gravel, sand etc.). Used mainly with soft rubber liners and for PTFE liners at high temperatures from 100 to 150 °C (212 to 302 °F).
Contact with medium	Yes, please always check resistance to measured medium.
Material	Stainless steel AISI 316Ti/1.4571, optionally Hastelloy C276/2.4819
Material thickness	The overall length of the sensor is increased by <ul style="list-style-type: none"> • 6 mm for DN 15 to DN 150 (0.24" for ½" to 6") or • 10 mm for DN 200 to DN 600 (0.4" for 8" to 24")
Standard	No, optional for PTFE and soft rubber liners. They are required for PTFE liners of PN 16 (MWP 232 psi) or more instead of protection washers, and must be ordered separately.
Article No.	7ME5912-....

Earthing washers



Function	Electrical reference and earthing of the medium. Required if the pipelines are not electrically conducting or are lined (plastic pipelines, concrete pipelines etc.). All earthing rings must be connected to the earthing screw present on the sensor.
Contact with medium	Yes, please always check resistance to measured medium.
Material	Stainless steel AISI 316Ti/1.4571 or Hastelloy C4/2.4610
Material thickness	The overall length of the sensor is increased by 2 mm (0.08") per earthing ring.
Standard	No, only optional. Required between the medium and sensor for equipotential bonding between non-conducting pipelines or lined pipelines.
Article No.	7ME5902-....

Important:

The rings must be ordered together with the sensor. In case of replacement please include the sensor MLFB code on the order.

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Transmitter TRANSMAG 2 with sensor 911/E

Notes on pressure equipment directive

The devices are designed for liquids of danger group "Gases of fluid group 1". The categories differ according to the version, and are listed in the table below.

The minimum temperature is defined at -10 °C (14 °F) for the flange materials C22.8 (1.0460).

The minimum temperature is defined at -20 °C (-4 °F) for the flange material 1.4571/316Ti. For further information on the PED standard and requirements, see page 9/6.

Classification according to pressure equipment directive (PED 97/23/EC)

Nominal diameter		Nominal pressure		Permissible media	Category
DN	(inch)	PN	(MWP psi)		
15 ... 25	(½" ... 1")	40	(580)	Gases fluid group 1 and liquids fluid group 1	Article 3.3
200 ... 300	(8" ... 12")	10	(145)	Gases fluid group 1 and liquids fluid group 1	II
65 ... 250	(2½" ... 10")	16	(232)	Gases fluid group 1 and liquids fluid group 1	II
40 ... 100	(1½" ... 4")	40	(580)	Gases fluid group 1 and liquids fluid group 1	II
350 ... 1000	(14" ... 40")	10	(145)	Gases fluid group 1 and liquids fluid group 1	III
300 ... 1000	(12" ... 40")	16	(232)	Gases fluid group 1 and liquids fluid group 1	III
200 ... 600	(8" ... 24")	25	(363)	Gases fluid group 1 and liquids fluid group 1	III
125 ... 600	(5" ... 24")	40	(580)	Gases fluid group 1 and liquids fluid group 1	III

Flow Measurement

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Transmitter TRANSMAG 2 with sensor 911/E

3

Selection and Ordering data	Article No.
Flowsensor SITRANS F M 911/E	7ME5610 -
	■ ■ ■ ■ ■ - ■ ■ ■ ■ ■
Nominal diameter	
DN 15 (1/2")	1 V
DN 25 (1")	2 D
DN 40 (1 1/2")	2 R
DN 50 (2")	2 Y
DN 65 (2 1/2")	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
Flange norm and pressure rating	
EN 1092-1, PN 10 (DN 200 ... 1000 (8" ... 40"))	B
EN 1092-1, PN 16 (DN 65 ... 1000 (2 1/2" ... 40"))	C
EN 1092-1, PN 25 (DN 200 ... 600 (8" ... 24"))	E
EN 1092-1, PN 40 (DN 15 ... 600 (1/2" ... 24"))	F
ANSI B16.5, Class 150 (1/2" ... 24"), max 19.6 bar (285 psi) at 20 °C (68 °F)	J
ANSI B16.5, Class 300 (1/2" ... 24"), max 51.1 bar (741 psi) at 20 °C (68 °F)	K
AWWA C-207 Class D (28" ... 40")	L
JIS 10 K (1/2" ... 24")	R
Flange material	
Mid steel flanges 1.0460/1.0570	1
Stainless steel flanges, AISI 316L/1.4404	3
Liner material	
Soft rubber	1
PTFE (without protection washers)	3
Hardrubber	4
Linatex	5
Novolak (sealing material FFKM)	6
Electrode material	
AISI 316Ti/1.4571	1
Hastelloy C276/2.4819	2
Platinum head with shaft AISI 316Ti/1.4571	3
Titanium	4
Tantalum	5
Cable glands/terminal box	
Metric: Polyamide terminal box	1
1/2" NPT: Polyamide terminal box	2

Selection and Ordering data	Order Code
Additional information	
Please add "-Z" to Article No. and specify Order code(s) and plain text.	
Two earthing (grounding) electrodes made of stainless steel AISI 316Ti/1.4571	A02
Two earthing (grounding) electrodes made of Hastelloy C276/2.4819	A04
Two earthing (grounding) electrodes made of Platinum head	A05
Two earthing (grounding) electrodes made of Titanium	A06
Two earthing (grounding) electrodes made of Tantalum	A07
Factory certificate to EN 10204-2.2	C14
Acceptance test B to DIN 50049, section 3.1 and EN 10204	C16
Tag name plate, stainless steel, add plain text	Y17
Other postproduction requirements, add plain text	Y99

Selection and Ordering data	Article No.	Order code
SITRANS F M TRANSMAG 2 and sensor 911/E	7ME5930 -	
	■ ■ ■ ■ ■ - ■ ■ ■ ■ ■	
Cable	5 ■ A 0 0 - 0 A A 0 ■ ■ ■ ■	
Cable kit for sensor 911/E with alternating field, Magnet current cable 3 x 1.0 mm ² (3 x 0.0016 inch ²), electrode/reference cable 7 x 0.5 mm ² (7 x 0.0008 inch ²) with shield PVC		
• Length: 5 m (16.4 ft)	B	
• Length: 10 m (32.8 ft)	C	
• Length: 20 m (65.6 ft)	D	
• Length: 30 m (98.4 ft)	E	
• Specify other length: in plain text	Z	J 1 Y

Flow Measurement

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Transmitter TRANSMAG 2 with sensor 911/E

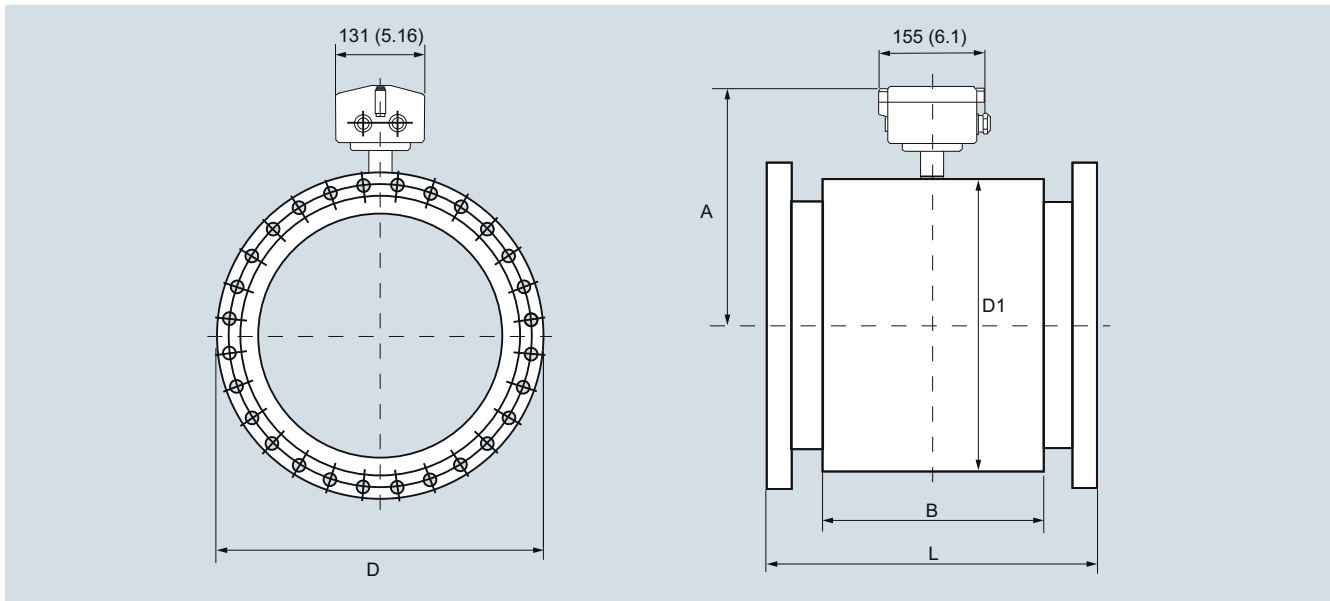
Selection and Ordering data

Selection and Ordering data	Article No.	Order code
SITRANS F M electromagnetic flowmeter		
Protection rings for flow sensor 911E (per pair)	7ME5912 -	
Liner		
Hard rubber/soft rubber		1
Novolak		7
PTFE		0
Nominal diameter		
<i>for PTFE, mat. no. 1.4571/316 Ti</i>		
DN 15 (½")		AA
DN 25 (1")		CA
DN 40 (1½")		EA
DN 50 (2")		FA
DN 65 (2½")		GA
DN 80 (3")		HA
DN 100 (4")		JA
DN 125 (5")		KA
DN 150 (6")		LA
DN 200 (8")		MA
DN 250 (10")		NA
DN 300 (12")		PA
Other nominal diameters: specify in plain text		ZA J 1 Y
<i>for Hard/Soft rubber, Novolak, mat. no. 1.471/316 Ti</i>		
DN 15 (½")		AB
DN 25 (1")		CB
DN 40 (1½")		EB
DN 50 (2")		FB
DN 65 (2½")		GB
DN 80 (3")		HB
DN 100 (4")		JB
DN 125 (5")		KB
DN 150 (6")		LB
DN 200 (8")		MB
DN 250 (10")		NB
DN 300 (12")		PB
Other nominal diameters: specify in plain text		ZB J 1 Y
Flange design		
Flange to DIN		1
Flange to ANSI		2
Flange to JIS		3

Selection and Ordering data

Selection and Ordering data	Article No.	Order code
SITRANS F M electromagnetic flowmeter		
Earthing rings for flow sensor 911E (per unit)	7ME5902 -	
Liner		
Hard rubber/soft rubber		1
Novolak		7
PTFE		0
Nominal diameter		
<i>Mat. no. 1.4571/316 Ti</i>		
DN 15 (½")		AA
DN 25 (1")		CA
DN 40 (1½")		EA
DN 50 (2")		FA
DN 65 (2½")		GA
DN 80 (3")		HA
DN 100 (4")		JA
DN 125 (5")		KA
DN 150 (6")		LA
DN 200 (8")		MA
DN 250 (10")		NA
DN 300 (12")		PA
DN 350 (14")		QA
DN 400 (16")		RA
DN 500 (20")		SA
DN 600 (24")		TA
DN 700 (28")		UA
DN 800 (32")		VA
DN 900 (36")		WA
DN 1000 (40")		XA
Other nominal diam.: specify in plain text		ZA J 1 Y
<i>Material Hastelloy C4/2.4610</i>		
DN 15 (½")		AB
DN 25 (1")		CB
DN 40 (1½")		EB
DN 50 (2")		FB
DN 65 (2½")		GB
DN 80 (3")		HB
DN 100 (4")		JB
DN 125 (5")		KB
DN 150 (6")		LB
DN 200 (8")		MB
DN 250 (10")		NB
DN 300 (12")		PB
DN 350 (14")		QB
DN 400 (16")		RB
DN 500 (20")		SB
DN 600 (24")		TB
Other nominal diam.: specify in plain text		ZB J 1 Y
Flange design		
Flange to DIN		1
Flange to ANSI		2
Flange to JIS		3

Dimensional drawings



SITRANS F M flow sensor 911/E, remote version, dimensions in mm (inch)

Build-in length 911/E [in mm and inch]

Nominal diameter	DN 15 ½"	DN 25 1"	DN 40 1 ½"	DN 50 2"	DN 65 2 ½"	DN 80 3"	DN 100 4"	DN 125 5"	DN 150 6"	DN 200 8"	DN 250 10"
Build-in length L¹⁾											
Hard rubber version			270 (10.63)		330 (12.99)	340 (13.39)		370 (14.57)	410 (16.14)	470 (18.50)	
Linatex/soft rubber version											
PTFE-liner without protection rings			270 (10.63)		330 (12.99)	340 (13.39)		370 (14.57)	410 (16.14)	470 (18.50)	
Novolak-version		-		275 (10.83)	325 (12.79)	335 (13.19)	333 (13.11)	362 (14.25)	401 (15.79)	460 (18.11)	
Dimensions of sensor housing											
Housing width B	170 (6.69)									240 (9.45)	
Height A	206 (8.11)		222 (8.74)	229 (9.02)	262 (10.32)		274 (10.79)	286 (11.26)	299 (11.78)	334 (13.15)	358 (14.10)
Housing diameter D ₁	135 (5.35)		167 (6.58)	182 (7.17)	247 (9.73)		272 (10.71)	296 (11.65)	322 (12.68)	392 (15.43)	440 (17.32)
Weight of PN16 version in kg (MWP 232 psi version in lb) approx.	8.0 (17.64)	8.5 (18.74)	11.5 (25.35)	25.0 (55.12)	26 (57.32)	27 (59.53)	28 (61.73)	34 (74.95)	38 (83.78)	68 (149.9)	81 (178.6)
Nominal diameter	DN 300 12"	DN 350 14"	DN 400 16"	DN 450 18"	DN 500 20"	DN 600 24"	DN 700 28"	DN 750 30"	DN 800 32"	DN 900 36"	DN 1000 40"
Build-in length L¹⁾											
Hard rubber version	500 (19.68)	550 (21.65)	600 (23.62)	650 (25.59)	650 (25.59)	780 (30.71)	910 (35.83)		1040 (40.95)	1170 (46.06)	1300 (51.18)
Linatex/soft rubber version											
PTFE-liner without protection rings	500 (19.68)	550 (21.65)	600 (23.62)	660 (25.98)	650 (25.59)	780 (30.71)	-				
Novolak-version	489 (19.25)	538 (21.18)	592 (23.31)	638 (25.12)	638 (25.12)	772 (30.39)	903 (35.55)		1033 (40.63)	1163 (45.79)	1293 (50.91)
Dimensions of sensor housing											
Housing width B	240 (9.45)	225 (8.86)	250 (9.84)	270 (10.63)	300 (11.81)	360 (14.17)	420 (16.54)		500 (19.69)	560 (22.05)	620 (24.41)
Height A	383 (15.08)	375 (14.76)	400 (15.75)	433 (17.05)	453 (17.84)	505 (19.88)	558 (21.97)	590 (23.23)	608 (23.94)	658 (25.91)	713 (28.07)
Housing diameter D ₁	490 (19.29)	474 (18.66)	524 (20.63)	591 (23.26)	629 (24.76)	734 (28.90)	839 (33.03)	904 (35.59)	939 (36.97)	1039 (40.91)	1150 (45.28)
Weight of PN10 Version in kg (MWP 145 psi version in lb) approx.	95 (209.4)	118 (260.2)	161 (354.9)	185 (407.9)	233 (513.7)	401 (884.1)	420 (925.9)	450 (992.1)	500 (1102.3)	560 (1234.6)	620 (1366.9)

¹⁾ Tolerance for build-in length: L + 0.0/-4.0 mm (+0.00/-0.157 inch)
With protection rings for > DN25 + 6.0 mm, > DN200 + 10.0 mm (> 1" + 0.236 inch, > 8" + 0.394 inch)