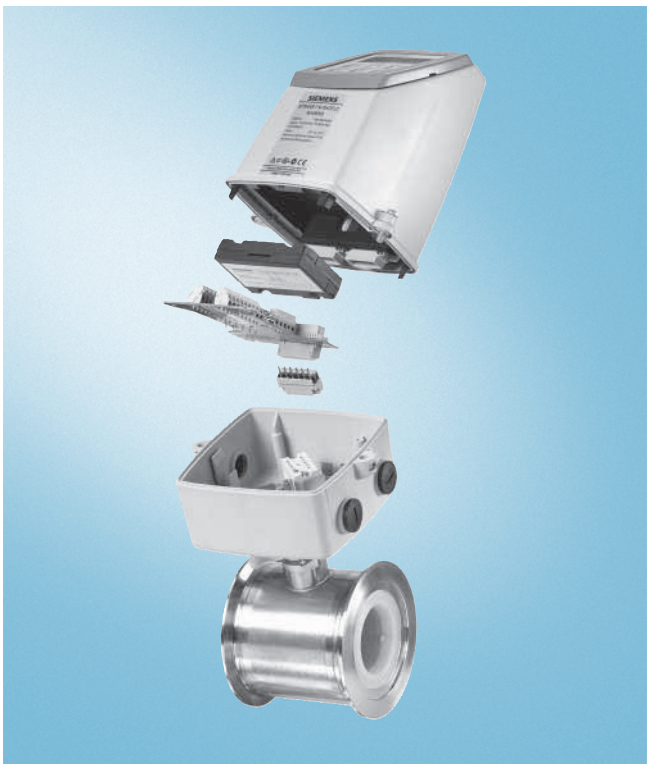
Overview

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 to commission for MAG 5000, 6000, 6000 I

All MAGFLO 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 MAGFLO Verificator is stored during the initial sensor calibration.

Easier to 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 µS/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.

System information MAGFLO electromagnetic flowmeters

Please see Product selector on the Internet, since some constrains might be related to some of the features:
www.pia-selector.automation.siemens.com





	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W	MAG 1100	MAG 1100 HT	MAG 1100 F	911/E	MAG 8000/ MAG 8000 CT
Industry									
Water / waste water	**XX**		**X**	**XXX**	**XX**				**XXX**
Chemical	**XXX**	**XXX**	**XXX**	**X**	**XXX**	**XXX**	**XX**		**XX**
Pharma	**XX**	**XX**	**XX**	**X**	**XX**	**XX**	**XXX**		**XX**
Food & beverage	**X**	**X**	**X**	**X**	**XX**		**XXX**		**XX**
Mining, aggregates & cement	**XXX**			**X**	**XX**			**XXX**	**XX**
HPI	**XX**	**X**	**XX**	**X**	**XX**	**X**			**XX**
Other	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XX**	**XXX**	**XX**
Design									
Compact	●	●	●	●	●		●	●	●
Remote	●	●	●	●	●	●	●	●	●
Constant field (DC)	●	●	●	●	●	●	●	●	●
Alternating field (AC)								●	
Battery operated constant filed									●
Size									
DN 2 (1/12“)					●				
DN 3 (1/8“)					●				
DN 6 (1/4“)					●				
DN 10 (3/8“)					●		●		
DN 15 (½“)	●	●	●		●	●	●	●	
DN 20 (3/4“)								●	
DN 25 (1“)	●	●	●	●	●	●	●	●	●
DN 32 (1¼“)							●	●	
DN 40 (1½“)	●	●	●	●	●	●	●	●	●
DN 50 (2“)	●	●	●	●	●	●	●	●	●
DN 65 (2½“)	●	●	●	●	●	●	●	●	●
DN 80 (3“)	●	●	●	●	●	●	●	●	●
DN 100 (4“)	●	●	●	●	●	●	●	●	●
DN 125 (5“)	●	●	●	●				●	●
DN 150 (6“)	●	●	●	●				●	●
DN 200 (8“)	●	●	●	●				●	●
DN 250 (10“)	●	●	●	●				●	●
DN 300 (12“)	●	●	●	●				●	●
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“)	●			●					
DN 1050 (42“)	●			●					
DN 1100 (44“)	●			●					
DN 1200 (48“)	●			●					
DN 1400 (54“)	●								
DN 1500 (60“)	●								
DN 1600 (66“)	●								
DN 1800 (72“)	●								
DN 2000 (78“)	●								

● = available, **X** = can be used, **XX** = often used, **XXX** = most often used

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	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W	MAG 1100	MAG 1100 HT	MAG 1100 F	911/E	MAG 8000/ MAG 8000 CT
Process connection									
Wafer design					●	●			
Sanitary process connections							●		
Flanges	●	●	●	●				●	●
Flange norms									
EN 1092-1	●	●	●	●				●	●
ANSI B 16.5 class 150	●	●	●	●				●	●
ANSI B 16.5 class 300	●	●						●	
AWWA class D	●			●					
AS 2129	●	●							
AS 4087, PN 16	●	●		●					●
AS 4087, PN 21	●	●							
AS 4087, PN 35	●	●							
JIS 10K	3)	3)						●	
Pressure rating [1]									
PN 6	●								
PN 10	●	●	●	●				●	●
PN 16	●	●	●	●	●		●	●	●
PN 25	●	●						●	
PN 40	●	●	●	●	●	●	●	●	●
PN 63	●								
PN 100	●								
Accuracy									
0.2%									●
0.25%	●	●	●	●	●	●	●		
0.4%									●
0.5%	●	●	●	●	●	●	●	●	
Grounding electrodes, incl. [2]	●			●				(●)	●
Cable glands									
PG 13.5								●	
M20	●	●	●	●	●	●	●	●	●
½" NPT	●	●	●	●	●	●	●	●	
Materials / temperature:									
Liner material / max . temperatures									
NBR Hard Rubber: 70 °C (158 °F)				●					●
EPDM: 70 °C (158 °F)	●			●				● [5]	●
Neoprene: 70 °C (158 °F)	●			●				●	
PTFE: 100 °C (212 °F)	●								
PTFE: 130 °C (266 °F)		●	●					●	
PTFE: 180 °C (356 °F)		●						(●) [4]	
Ebonite: 95 °C (203 °F)	●								
Linatex: 70 °C (158 °F)	●								
Ceramic: 150 °C (302 °F) [6]					●		●		
Ceramic: 200 °C (392 °F)						●			
PFA: 100 °C (212 °F)	●								
PFA: 150 °C (302 °F)		●	●		●		●		
Novolak: 130 °C (266 °F)								●	

● = available
[1] Pressure may be limited by the liner material chosen
[2] Not for PTFE and PFA liner and tantalum/platinum electrodes. For 911/E grounding electrodes are optional
[3] On request
[4] 150 °C (302 °F)
[5] 95 °C (203 °F)
[6] ATEX: 180 °C (356 °F)

System information MAGFLO electromagnetic flowmeters

Please see Product selector on the Internet, since some constrains might be related to some of the features:
www.pia-selector.automation.siemens.com






	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W	MAG 1100	MAG 1100 HT	MAG 1100 F	911/E	MAG 8000/ MAG 8000 CT
Materials (continued):									
Electrodes									
S/S AISI 316 Ti	●	●						●	
Hastelloy C	●	●	●	●	●		●	●	●
Platinum	●	●			●	●	●	●	
Titanium	●	●						●	
Tantalum	●	●						●	
Monel								●	
Flange/housing material									
Carbon steel	●	●	●	●				●	●
Stainless steel / carbon steel	●	●						●	
Polished stainless steel	●	●			●	●	●		
Approvals (Order as specials except for MAG 8000 CT version):									
Custody transfer									
Cold water - MI 001 (EU)				●					●
Cold water - DANAK TS 22.36.001	●								
Cold water pattern approval - OIML R 49 (Denmark and Germany)			●	●					
Cold water pattern approval Germany (PTB)	●	●		●	●	●	●		●
Heat meter pattern approval - OIML R 75 (Denmark)	●		●		●				
Hot water pattern approval - PTB (Germany)	●				●		●		
Other media than water pattern approval - OIML R 117	●				●		●		
Hazardous areas									
ATEX - 2G D zone 1	●	●	●		●	●	●		
FM - class 1, div 2	●	●	●	●	●	●	●		
Hygienic									
3A							●		
Drinking water									
WRAS (WRc) - (UK) EPDM liner	●			●					●
NSF - (US) NBR & EPDM liner				●					●
ACS (FR) EPDM liner	●			●					●
Belgaque (B) EPDM liner	●			●					●
DVGW-W270 (D) EPDM liner	●			●					●
Other									
GOSS / GOST (Russia)	●	●	●	●	●	●	●		●
CRN (Canada)	●	●	●	●	●	●	●		●
Other national approvals, see internet	●	●	●	●	●	●	●	●	●
MAGFLO Verificator compatible[1)]	●	●	●	●	●	●	●		

● = available
[1)] Only for MAG 5000 and MAG 6000 transmitters.

Please see Product selector on the Internet, since some constrains might be related to some of the features:
www.pia-selector.automation.siemens.com

	 MAG 5000	MAG 6000	 MAG 6000 I	 MAG 6000 I Ex d	 MAG 6000 + Ex barriere	MAG 6000 + Cleaning unit	 Transmag 2	 MAG 8000
Industry								
Water / waste water	**XXX**	**XXX**	**XX**	**X**		**XX**		**XXX**
Chemical	**X**	**XX**	**XX**	**XXX**	**X**			**XX**
Pharma	**X**	**XXX**	**XX**	**XXX**	**X**			**XX**
Food & beverage	**XX**	**XXX**	**XX**					**XX**
Mining, aggregates & cement	**XX**	**X**	**XX**	**X**			**XXX**	**XX**
HPI	**X**	**X**	**X**	**XX**				**XX**
Other	**XX**	**XX**	**XX**	**XX**			**X**	**X**
Design								
Compact	●	●	●	●			●	●
Remote	●	●	●	●	●	●	●	●
Constant field (DC)	●	●	●	●	●	●		●
Alternating field (AC)							●	
Battery operated constant field								●
Enclosure transmitter								
Polyamide, IP67	●	●						
Die-cast aluminium			●	●			●	
Stainless steel		●						● [1]
19" rack	●	●			●	●		
Back of panel	●	●			●	●		
Panel mounting	●	●			●	●		
IP67 wall mounting	●	●	●	●	●	●		
Accuracy								
0.2%								●
0.25%		●	●	●	●	●		
0.4%								●
0.5%	●						●	
Communication								
HART	●	●	●	●	●	●	●	
PROFIBUS PA		●	●	●	●	●	●	
PROFIBUS DP		●	●		●	●		
MODBUS RTU/RS 485		●	●		●	●		● [2]
Batching		●	●	●	●	●		
Electrode cleaning						●		
Cable glands								
PG 13,5					●	●	●	
M20	●	●	● [4]	●			●	●
½" NPT	●	●	●	●			●	
Power supply								
24 V	● [3]	● [3]	●	●		● [3]		● [3][5]
115 V - 230 V	●	●	●	●	●	●	●	● [5]
Battery								●

● = available, **X** = can be used, **XX** = often used, **XXX** = most often used

[1] IP68 enclosure
[2] Modbus RTU also as serial RS232
[3] 12/24 V AC/DC
[4] M25
[5] Main power with battery backup

System information MAGFLO electromagnetic flowmeters

Please see Product selector on the Internet, since some constrains might be related to some of the features:
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	MAG 5000	MAG 6000	MAG 6000 I	MAG 6000 I Ex d	MAG 6000 + Ex barriere	MAG 6000 + Cleaning unit	Transmag 2	MAG 8000
Approvals:								
Custody transfer								
Cold water - MI-001 (EU)	●	●						●
Cold water - DANAK TS 22.36.001		●						
Cold water pattern approval - OIML R 49 (Denmark and Germany)	●	●						●
Cold water pattern approval Germany (PTB)	●	●						●
Heat meter pattern approval - OIML R 75 (Denmark)		●						
Hot water pattern approval Germany (PTB)		●						
Other media than water pattern approval - OIML R 117		●						
Hazardous areas								
ATEX - 2G D zone 1				●	(●)			
FM - class 1 div 2	●	●	●					
UL / cUL - general safety	●	●			●	●		
Other								
C - tick (Australia)	●	●	●	●	●	●		
GOSS / GOST (Russia)	●	●	●	●	●	●		●
Other national approvals, see internet	●	●	●	●	●	●	●	●
MAGFLO Verificator compatible	●	●						

● = available

For more national approvals please check our internet page
http://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo&lang=en&objid=10806954&subtype=134400&caller=view

Practical examples of ordering

SITRANS F M compact installation

MAG 6000 transmitter | MAG 3100 sensor | MAG 6000 compact mounted on a MAG 3100 sensor

Example

Sensor	**7ME6310-3TC11-1JA1**
Pipe size	DN 100
Liner	Neoprene
Electrodes	SS 316
Flanges	EN 1092-1, PN 16
Transmitter	**MAG 6000, Polyamide, 115/230 V AC**
Accuracy	0.25%
Supply	230 V AC

Note:
MAG 5000/6000 transmitters and sensors are packed in separate boxes, the final assembly takes place during installation at the customer's place.

Please also see www.siemens.com/SITRANSFordering for practical examples of ordering

SITRANS F M remote installation

Wall bracket | MAG 6000

MAG 3100 | 2 x cable | MAG 3100 remote installation

Example

Sensor	**7ME6310-3TC11-1AA1**
Pipe size	DN 100
Liner	Neoprene
Electrodes	SS 316
Flanges	EN 1092-1, PN 16
Transmitter	**7ME6920-1AA10-0AA0**
Accuracy	0.25%
Supply	230 V AC
Wall mounting kit	**FDK-085U1018**
Cable kit with sensor cabel and electrode cable	**A5E01181647**

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