System information SITRANS F M electromagnetic flowmeters

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 conductive 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 industries
- 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.

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








	MAG 1100	MAG 1100 HT	MAG 1100 F	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W		911/E	MAG 8000/ MAG 8000 CT	MAG 8000 Irrigation
	7ME6110	7ME6120	7ME6140	7ME6310	7ME6320	7ME6340	7ME6520	7ME6580	7ME5610	7ME6810 7ME6820	7ME6880
Industry											
Water / waste water	XX			XX		X	XXX	XXX	X	XXX	XXX
Chemical	XXX	XXX	XX	XXX	XXX	XXX	X	X		X	
Pharmaceutical	XX	XX	XXX	XX	XX	XX	X	X		X	
Food and beverage	XX		XXX	X	X	X	X	X		X	
Mining, aggregates and cement	XX			XXX			X	X	XXX	X	
HPI	XX	X		XX	X	XX	X	X		X	
Other	XX	XX	XX	XX	XX	XX	XX	XX	XXX	X	
Design											
Compact	●		●	●	●	●	●	●		●	●
Remote	●	●	●	●	●	●	●	●	●	●	●
Constant field (DC)	●	●	●	●	●	●	●	●		●	●
Alternating field (AC)									●		
Battery-operated constant field (DC)										●	●
Size											
DN 2 (1/12")	●										
DN 3 (1/8")	●										
DN 6 (1/4")	●										
DN 10 (3/8")	●		●								
DN 15 (½")	●	●	●	●	●	●	●		●		
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

3

System information SITRANS F M electromagnetic flowmeters

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








	MAG 1100	MAG 1100 HT	MAG 1100 F	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W		911/E	MAG 8000/ MAG 8000 CT	MAG 8000 Irrigation
	7ME6110	7ME6120	7ME6140	7ME6310	7ME6320	7ME6340	7ME6520	7ME6580	7ME5610	7ME6810 7ME6820	7ME6880
Process connection											
Wafer design	●	●									
Sanitary process connections			●								
Flanges				●	●	●	●	●	●	●	●[3]
Flange norms											
EN 1092-1				●	●	●	●	●	●	●	●[3]
ANSI B 16.5 class 150				●	●	●	●	●	●	●	●[3]
ANSI B 16.5 class 300				●	●				●		
ASME B 16.47 class 150				●							
AWWA class D				●			●	●	●	●	
AS 2129				●	●						●[3]
AS 4087, PN 16				●	●		●	●		●	
AS 4087, PN 21				●	●						
AS 4087, PN 35				●	●						
JIS 10K				●				●	●		
JIS 20K				●							
Pressure rating [1]											
PN 6				●				●			
PN 10				●	●	●	●	●	●	●	
PN 16	●		●	●	●	●	●	●	●	●	
PN 25				●	●				●		
PN 40	●	●	●	●	●	●	●	●	●	●	
PN 63				●							
PN 100				●							
Accuracy											
0.2 %	●	●	●	●	●	●	●	●		●	
0.4 %	●	●	●	●	●	●	●	●		●	
0.5 %									●		
0.8 %											●
Grounding electrodes, incl. [2]				●		●[4]	●	●	(●)	●	
Grounding rings premounted from factory											●

● = available
[1] Pressure may be limited by the liner material chosen
[2] Not for PTFE liner.
[3] Drilled pattern flange max. 7 bar (107 psi).
[4] Optional on PFA

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








	MAG 1100	MAG 1100 HT	MAG 1100 F	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W		911/E	MAG 8000/ MAG 8000 CT	MAG 8000 Irrigation
	7ME6110	7ME6120	7ME6140	7ME6310	7ME6320	7ME6340	7ME6520	7ME6580	7ME5610	7ME6810 7ME6820	7ME6880
Materials/temperature:											
Liner material/max . temperatures											
NBR Hard Rubber: 70 °C (158 °F)							●				
EPDM: 70 °C (158 °F)				●			●			●	
Soft rubber: 70 °C (158 °F)				●					●		
PTFE: 100 °C (212 °F)				●							
PTFE: 130 °C (266 °F)					●	●			●		
PTFE: 180 °C (356 °F)					●				(●)[1]		
Ebonite Hard Rubber: 95 °C (203 °F)				●				●[3]	●		●[3]
Linatex: 70 °C (158 °F)				●					●		
Ceramic: 150 °C (302 °F)	●		●								
Ceramic: 200 °C (392 °F)		●[2]									
PFA: 100 °C (212 °F)				●							
PFA: 150 °C (302 °F)	●		●		●	●					
Novolak: 130 °C (266 °F)									●		
Electrodes											
Stainless steel				●	●				●		●
Hastelloy C	●		●	●	●	●	●	●	●	●	
Platinum	●	●	●	●	●				●		
Titanium				●	●				●		
Tantalum				●	●				●		
Flange/housing material											
Carbon steel				●	●	●	●	●	●	●	●
Stainless steel / carbon steel				●	●				●		
Polished stainless steel	●	●	●	●	●						
Approvals											
Custody transfer											
Cold water - MI-001 (EU)							●			●	
Cold water approval - OIML R 49/OIML R 49 MAA										●[7]	
Cold water pattern approval - OIML R 49 (Denmark)							●[7]				
Cold water pattern approval PTB (Germany)	●[7]		●[7]	●[7]							
Hot water pattern approval - PTB (Germany)	●[7]		●[7]	●[7]							
Other media than water pattern approval - OIML R 117 (Denmark)	●[7]		●[7]	●[7]							
Chilled water pattern approval PTB K 7.2							●[7]			●[7]	
OE12/C 040 (Austria) Chilled water pattern approval							●				

● = available
[1] 150 °C (302 °F)
[2] Ex sensor: 180 °C (356 °F)
[3] 70 °C (158 °F)

System information SITRANS F M electromagnetic flowmeters

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








	MAG 1100	MAG 1100 HT	MAG 1100 F	MAG 3100	MAG 3100 HT	MAG 3100 P	MAG 5100 W		911/E	MAG 8000/ MAG 8000 CT	MAG 8000 Irrigation
	7ME6110	7ME6120	7ME6140	7ME6310	7ME6320	7ME6340	7ME6520	7ME6580	7ME5610	7ME6810 7ME6820	7ME6880
Approvals (continued)											
Hazardous areas											
ATEX - 2 GD (Zone 1/21)	●	●	●	●	●	●					
IECEx Gb Zone 1/21				●	●	●					
FM Class I, Div 1				●[10]	●[10]	●[10]					
FM Class I, Zone 1				●	●	●					
FM Class I, Div 2	●	●	●	●	●	●	●	●			
CSA Class I, Zone 1/21				●	●	●					
CSA Class I, Div 2				●	●	●	●	●			
Hygienic											
EHEDG			●								
3A			●								
EC 1925:2003 European food contact material			●								
Drinking water											
WRAS (WRc) - (UK)				●			●[4]	●		●	●
ANSI/NSF 61 (US)[9]				●[5]			●	●		●	●
ACS (FR) EPDM liner				●			●			●	
Belgaqua (B) EPDM liner				●			●			●	
DVGW-W270 (D) EPDM liner				●			●			●	
MCERTS (UK environmental)				●[6]			●[4]			●	
Other											
FM Fire Service (class number 1044)							●[8]			●[8]	
GOSS/GOST (Russia)	●	●	●	●	●	●	●			●	
CRN (Canada)	●[1]		●[1]	●	●		●				
PED 97/23 EC	●	●	●	●	●	●	●	●	●	●	
VdS							●[3]				
Other national approvals, see internet	●[9]	●[9]	●[9]	●[9]	●[9]	●[9]	●[9]	●[9]	●[9]	●[9]	
Verificator compatible	●[2]	●[2]	●[2]	●[2]	●[2]	●[2]	●[2]	●[2]			

● = available
[1] Only PFA liner.
[2] Only in combination with MAG 5000 and MAG 6000 transmitters.
[3] Only valid for DN 50 to DN 300 (2" to 12")
[4] EPDM liner
[5] Only EPDM with Hastelloy electrodes
[6] EPDM or PTFE liner with AISI 316 or Hastelloy electrodes.
[7] For verification submit Product Variation Request
[8] Sizes: DN 50, DN 80, DN 100, DN 150, DN 200, DN 250, and DN 300 (2", 3", 4", 6", 8", 10", and 12") with ANSI B16.5 Class 150 flanges
[9] Including Annex G
[10] Only DN 15 to DN 300 (½" to 12") with MAG 6000 I Ex, compact mounted

Please see Product selector on the Internet, because 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	MAG 6000 + Ex Safety barrier	TRANSMAG 2	MAG 8000/ MAG 8000 CT	MAG8000 Irrigation
	7ME6910	7ME6920	7ME6930	7ME6930	7ME6920	7ME5034	7ME6810 7ME6820	7ME6880
Industry								
Water / waste water	XXX	XXX	XX	X		X	XXX	XXX
Chemical	X	XX	XX	XXX	X		X	
Pharmaceutical	X	XXX	XX	XXX	X		X	
Food and beverage	XX	XXX	XX				X	
Mining, aggregates and cement	XX	X	XX	X		XXX	X	
HPI	X	X	X	XX			X	
Other	XX	XX	XX	XX		XX	X	
Design								
Compact	●	●	●	●			●	●
Remote	●	●	●	●	●	●	●	●
Constant field (DC)	●	●	●	●	●		●	●
Alternating field (AC)						●		
Battery-operated constant field (DC)							●	●
Enclosure transmitter								
Polyamide, IP67	●	●						
Die-cast aluminum			●	●		●		
Stainless steel		●					●[1]	●[1]
19“ rack	●	●			●			
Back of panel	●	●			●			
Panel mounting	●	●			●			
IP67 wall mounting	●	●	●	●	●			
Accuracy								
0.2 %		●	●	●	●		●	
0.4 %	●						●	
0.5 %						●		
0.8 %								●
Communication								
HART	●	●	●	●	●	●		
PROFIBUS PA		●	●	●	●	●		
PROFIBUS DP		●	●		●			
FOUNDATION Fieldbus H1		●	●	●	●			
DeviceNet		●	●		●			
Modbus RTU/RS 485		●	●		●		●[2]	●[2]
Encoder interface module (Sensus protocol) for Itron 200WP radio							●	●
GSM/GPRS module							●	
Batching		●	●	●	●			

● = available, **X** = can be used, **XX** = often used, **XXX** = most often used
[1] IP68 enclosure
[2] Modbus RTU also as serial RS 232

System information SITRANS F M electromagnetic flowmeters

Please see Product selector on the Internet, because 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	MAG 6000 + Ex Safety barrier	TRANSMAG 2	MAG 8000/ MAG 8000 CT	MAG8000 Irrigation
	7ME6910	7ME6920	7ME6930	7ME6930	7ME6920	7ME5034	7ME6810 7ME6820	7ME6880
Power supply								
24 V	●[1]	●[1]	●	●			●[1) 2)]	●[1) 2)]
115 V - 230 V	●	●	●	●	●	●	●[2)]	●[2)]
Battery							●	
Approvals								
Custody transfer								
Cold water - MI-001 (EU)	●	●					●	
Cold water pattern approval - OIML R 49 (Denmark)	●	●					●	
Cold water approval - OIML R 49/OIML R 49 MAA							●	
Cold water pattern approval PTB (Germany)	●	●						
Chilled water pattern approval PTB K 7.2	●	●					●	
Hot water pattern approval PTB (Germany)		●						
Other media than water pattern approval - OIML R 117 Denmark		●						
OE12/C 040 (Austria) Chilled water pattern approval	●	●						
Hazardous areas								
ATEX - 2 GD (Zone 1/21)				●	(●)[3)]			
IECEx Gb Zone 1/21				●				
FM Class I, Div 1				●[4)]				
FM Class I, Zone 1				●				
FM Class I, Div 2/Zone 2	●	●	●					
CSA Class I, Zone 1/21				●				
CSA Class I, Div 2	●	●	●					
UL / C-UL- general safety	●	●			●			
Other								
FM Fire Service (1044)	●	●					●	
C - tick (Australia)	●	●	●	●	●			
GOSS / GOST (Russia)	●						●	
VdS	●	●						
Other national approvals, see internet	●	●	●	●	●	●	●	●
Verificator compatible	●	●						

● = available
1) 12/24 V AC/DC
2) Main power with battery backup
3) Only sensor in hazardous area
4) Only with sensors sizes DN 15 to DN 300 (½" to 12") compact

For more national approvals please check our internet page
http://support.automation.siemens.com/WW/view/en/10806954/134200