

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 5100 W

Overview



The SITRANS F M MAGFLO 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 - Please note new build-in length from DN 500 to DN 1200
- 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 MAGFLO 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
 - OIML R49 and PTB approved
 - conforms to ISO 4064 and EN 14154
 - MI 001 Custody Transfer approval for billing from 1st November 2006
- 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 MAGFLO 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, PROFIBUS DP & PA, MODBUS RTU/RS485.

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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")
Measuring principle	Electromagnetic induction		
Excitation frequency	12.5 Hz	<ul style="list-style-type: none"> • 50 ... 65 mm (2" ... 2½"): 12.5 Hz • 80 ... 150 mm (3" ... 6"): 6.25 Hz • 200 ... 300 mm (8" ... 12"): 3.125 Hz 	DN 350 ... 450 (14" ... 18"): 3.125 Hz DN 500 ... 1200 (20" ... 48"): 1.5625 Hz
Process connection			
Flanges			
<ul style="list-style-type: none"> • EN 1092-1 - Standard 	PN 40 (580 psi)	<ul style="list-style-type: none"> • 50 ... 150 mm: PN 16 (2" ... 6": 230 psi) • 200 ... 300 mm: PN 10 (8" ... 12": 145 psi) 	PN 10 (145 psi)
<ul style="list-style-type: none"> - Option 	--	<ul style="list-style-type: none"> • 200 ... 300 mm: PN 16 (8" ... 12": 230 psi) 	PN 16 (230 psi)
<ul style="list-style-type: none"> • ANSI B16.5 	Class 150 lb	Class 150 lb ~20 bar (290 psi)	--
<ul style="list-style-type: none"> • AWWA C-207 	--	--	28" ... 48": Class D
<ul style="list-style-type: none"> • AS4087 	PN 16 (230 psi) DN 50 ... 1200 (2" ... 48"), 14 bar (232 psi)		
Rated Operation conditions			
Ambient temperature			
<ul style="list-style-type: none"> • Sensor 	-40 ... +70 °C (-40 ... +158 °F)		
<ul style="list-style-type: none"> • With compact transmitter MAG 5000/6000 	-20 ... +50 °C (-4 ... +122 °F)		
<ul style="list-style-type: none"> • With compact transmitter MAG 6000 I 	-20 ... +60 °C (-4 ... +140 °F)		
Operating pressure	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"> • Standard 	IP67 to EN 60529 / NEMA 4X/6 (1 mH ₂ O for 30 minutes)		
<ul style="list-style-type: none"> • Option 	IP68 to EN 60529 / NEMA 6P (10 mH ₂ O continuously)		
Pressure drop at 3 m/s (10 ft/s)	As straight pipe	Max. 25 mbar (0.36 psi)	As straight pipe
Medium conditions			
Temperature of medium			
<ul style="list-style-type: none"> • NBR 	-5 ... +70 °C (23 ... +158 °F)		
<ul style="list-style-type: none"> • EDPM 	-5 ... +70 °C (23 ... +158 °F)		
EMC	89/336 EEC		
Design			
Weight	See dimensional drawings		
Material			
<ul style="list-style-type: none"> • Housing and flanges 	Carbon steel ASTM A105		
<ul style="list-style-type: none"> • Measuring pipe 	AISI 304 (1.4301)		
<ul style="list-style-type: none"> • Liner 	NBR Hard Rubber/EPDM		
<ul style="list-style-type: none"> • Electrodes 	Hastelloy C276		
<ul style="list-style-type: none"> • Grounding electrodes standard 	Hastelloy C276		
Certificates and approvals			
Drinking water approvals			
<ul style="list-style-type: none"> • EPDM 	NSF61 (Cold water, US) WRAS (WRc, BS6920 cold water, GB) ACS listed (F) KTW D1 & D2, DVGW W270 (D)		
Approvals	PED – 97/23 EC ¹⁾ FM Class 1 div 2		

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