Overview

The SITRANS F M MAGFLO MAG 3100 W is an electromagnetic flow sensor designed to meet ground water, drinking water, waste water, sewage or sludge applications.

Benefits

- In sizes from DN 25 to DN 1200 (1" - 48")
- Stainless steel integrated grounding and measuring electrodes
- Drinking water approvals
- Custody transfer approved
- Meets EEC directives: PED, 97/23/EC pressure directive for EN 1092-1 flanges
- Suitable for direct burial and constant flooding
- Build-in length according to ISO 13359
- Simple onsite upgrade to IP68 / NEMA 6P of a standard sensor.
- Easy commissioning, SENSORPROM 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, ultra filtration)
- Industrial water applications

Design

The sensor is built up of a steel pipe, 2 coils, 2 electrodes, an isolated liner, a housing and one of different flange connections.

Mode of operation

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

Function

Individually calibrated on UKAS ISO 17025 accredited calibration facility with a ± 0.1% uncertainty.

Integration

The complete flowmeter consists of a flow sensor and an associated transmitter SITRANS F M MAGFLO MAG 5000, 6000 and 6000 I (remote version only).

The flexible communication concept USM II simplifies integration and update to a variety of fieldbus systems such as PROFIBUS DP & PA, MODBUS RTU/RS 485, deviceNet, HART, CANopen.

Technical specifications

Measuring principle	Electromagnetic induction
Excitation frequency	3.125 Hz
Process connection	
Nominal size	DN 25 … DN 1200 (1" … 48")
Flanges	
• EN 1092-1 (EN 1092-1, DIN 2501 and BS 4504 have the same mating dimensions)	DN 25 ... 50 (1" … 2"): PN 40 (580 psi) DN 65 ... 150 (2½" … 6"): PN 16 (232 psi) DN 200 ... 1200 (8" … 48"): PN 10/PN 16 (145/232 psi)
• ANSI B16.5	¾" ... 24": Class 150 (20 bar (200 psi))
• AWWA C-207	28" ... 48": Class D (10 bar (145 psi))
Rated operating conditions	
Ambient conditions	
Ambient temperature	
• Remote transmitter	-40 … +95 °C (-40 … +203 °F)
• Compact transmitter (MAG 5000/6000 only)	-20 … +50 °C (-4 … +122 °F)
Operating pressure	
• Liner	
- Neoprene, EPDM	0.01 ... 40 bar (0.15 ... 580 psi)
Enclosure rating	
• Standard	IP67/NEMA 4X to EN 60529, 1 mH_2O for 30 min
• Option	IP68/NEMA 6P to EN 60529, 10 mH_2O cont.
Medium conditions	
Temperature of medium	
• Liner	
- Neoprene (standard)	0 … 70 °C (32 … 158 °F)
- EPDM (WRAS, tested by WRC (Water Research Council, UK) approved)	-10 … +95 °C (14 … 203 °F)
EMC	89/336 EEx
Design	
Weight	See Dimensional drawings
Material	
• Flange and housing	Carbon steel ASTM A105
• Measuring pipe	AISI 304 (1.4301)
• Electrodes	AISI 316 Ti (1.4571)
Certificates and approvals	
Approvals	PED – 97/23 EC, FM Class 1 div 2, CSA Class 1 div 2

MAGFLO MAG 3100 W

Selection and Ordering data	Order No.
Flowsensor SITRANS F M	
MAGFLO MAG 3100W	7ME6350 - ■■■■■ - ■■A■ ■■■
Diameter	
DN 25 (1“)	2D
DN 40 (1½“)	2R
DN 50 (2“)	2Y
DN 65 (2½“)	3F
DN 80 (3“)	3M
DN 100 (4“)	3T
DN 125 (5“)	4B
DN 150 (6“)	4H
DN 200 (8“)	4P
DN 250 (10“)	4V
DN 300 (12“)	5D
DN 350 (14“)	5K
DN 400 (16“)	5R
DN 450 (18“)	5Y
DN 500 (20“)	6F
DN 600 (24“)	6P
DN 700 (28“)	6Y
DN 750 (30“)	7D
DN 800 (32“)	7H
DN 900 (36“)	7M
DN 1000 (40“)	7R
DN 1050 (42“)	7U
DN 1100 (44“)	7V
DN 1200 (48“)	8B
Flange norm and pressure rating	
to EN 1092-1	
PN 10 (DN 200 ... 1200 (8“ ... 48“))	B
PN 16 (DN 65 ... 1200(2½“ ... 48“))	C
PN 16, non PED (DN 700 ... 1200 (28“ ... 48“))	D
PN 40 (DN 25 ... 50 (1“ ... 2“))	F
to ANSI B16.5	
class 150 (1“ ... 24“)	J
to AWWA C207	
class D (28“ ... 48“)	L
Flange material	
Carbon steel flanges	1
Liner material	
Neoprene	1
EPDM	2
Electrode material (incl. grounding electrodes)	
AISI 316 TI	1
Transmitter	
No transmitter	A
Cable gland entires	
PG 13.5	0
M20 (standard from January 2006), not for ANSI flanges	1
½" NPT (available from January 2006), only available for ANSI flanges	2

Additional information	Order code
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**
Junction box potted to IP68 with wired cable	**Y41**
Other postproduction requirements (add desired text)	**Y99**

Description	Order No.	Symbol
Potting kit for terminal box of MAGFLO sensors for IP68/NEMA 6P	**FDK:085U0220**	

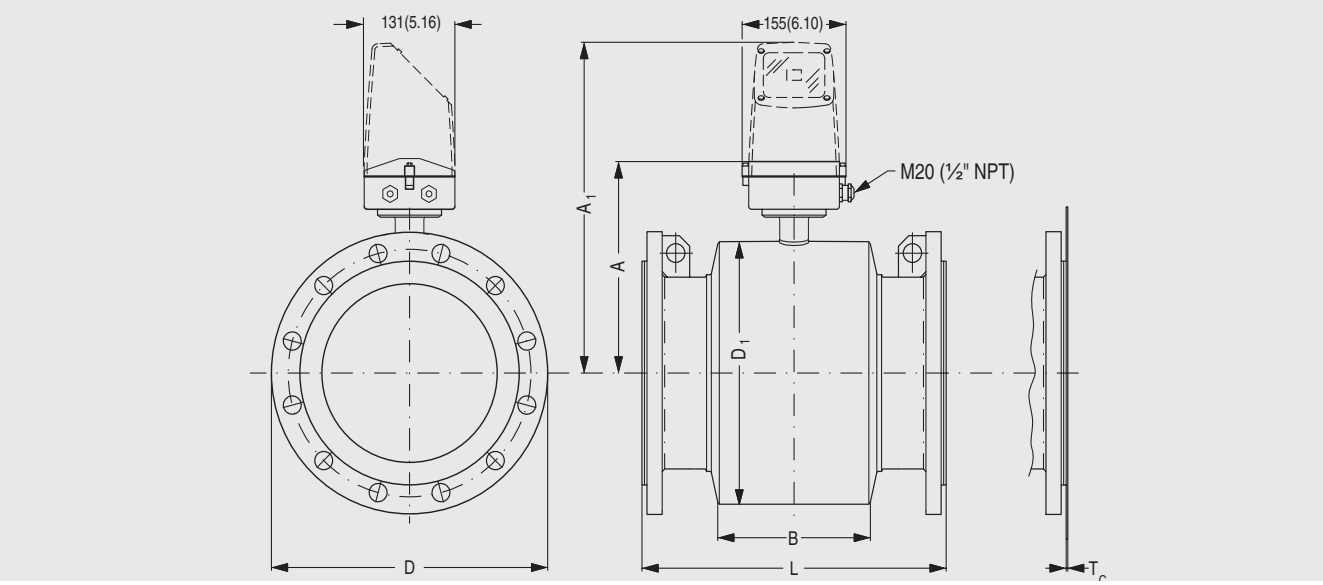
Please use online Product selector to get latest updates.

Product selector link:
www.pia-selector.com/scripts/wgate/zstore/!?~LANGUAGE=en&~OkCode=EV_INIT_PROC-DF

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

Dimensional drawings

Sensor MAG 3100 W compact/remote



DN	A	A_1	B	D_1	L[1]			T_C[2]	Weight[3]
					EN 1092-1-201	BS 1560/ ANSI 16.5 Class 150	AWWA C-207 Class D		
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
25	187	338	59	104	200	200	-	1.2	5
40	197	348	82	124	200	200	-	1.2	8
50	205	356	72	139	200	200	-	1.2	9
65	212	363	72	154	200	200	-	1.2	11
80	222	373	72	174	200	272	-	1.2	12
100	242	393	85	214	250	250	-	1.2	16
125	255	406	85	239	250	250	-	1.2	19
150	276	427	85	282	300	300	-	1.2	27
200	304	455	137	338	350	350	-	1.2	40
250	332	483	137	393	450	450	-	1.2	60
300	357	508	137	444	500	500	-	1.6	80
350	362	513	270	451	550	550	-	1.6	110
400	387	538	270	502	600	600	-	1.6	125
450	418	569	310	563	600	600	-	1.6	175
500	443	594	350	614	625	680	-	1.6	200
600	494	645	430	715	750	820	-	1.6	300
700	544	695	500	816	875	-	875	2.0	350
750	571	722	556	869	-	-	937	2.0	380
800	606	757	560	927	1000	-	1000	2.0	475
900	653	804	630	1032	1125	-	1125	2.0	560
1000	704	906	670	1136	1250	-	1250	2.0	700
1100	755	906	770	1238	1375	-	-	2.0	1200
1200	810	961	792	1348	1500	-	1500	2.0	1250

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

2) T_C = Type C grounding ring

3) Weights are approx. for PN 16 without transmitter

D = Outside diameter of flange, see flange tables

- not available

MAGFLO MAG 3100 W

Sensor MAG 3100 W integrated or remote and separate

DN	A	A_1	B	D_1	$L^{1)}$			$T_C{}^{2)}$	Weight[3)]
					EN 1092-1-201	BS 1560/ ANSI 16.5 Class 150	AWWA C-207 Class D		
[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[lb]
1	7.36	13.31	2.32	4.09	7.87	7.87	-	0.05	13
1½	7.76	13.70	3.23	4.88	7.87	7.87	-	0.05	17
2	8.07	14.01	2.83	5.47	7.87	7.87	-	0.05	28
2½	8.35	14.29	2.83	6.06	7.87	7.87	-	0.05	30
3	8.74	14.69	2.83	6.85	7.87	10.71	-	0.05	33
4	9.53	15.47	3.35	8.43	9.84	9.84	-	0.05	44
5	10.04	15.98	3.35	9.41	9.84	9.84	-	0.05	55
6	10.87	16.81	5.39	11.10	11.81	11.81	-	0.05	66
8	11.97	17.91	5.39	13.31	13.78	13.78	-	0.05	110
10	13.07	19.02	5.39	15.47	17.72	17.72	-	0.05	155
12	14.05	20.00	5.39	17.48	19.69	19.69	-	0.06	176
14	14.25	20.20	10.63	17.76	21.65	21.65	-	0.06	242
16	15.24	21.18	10.63	19.76	23.62	23.62	-	0.06	275
18	16.45	22.40	12.20	22.16	23.62	23.62	-	0.06	385
20	17.44	23.39	13.78	24.17	24.61	26.77	-	0.06	440
24	19.45	25.39	16.93	28.15	29.53	32.28	-	0.06	660
28	21.42	27.36	19.69	32.13	34.45	-	34.5	0.08	770
30	22.48	28.43	21.89	34.21	-	-	36.9	0.08	880
32	23.86	29.80	22.05	36.50	39.37	-	39.4	0.08	1045
36	25.71	31.65	24.80	40.63	44.29	-	44.3	0.08	1233
40	27.72	35.67	26.38	44.72	49.21	-	49.2	0.08	1541
42	27.72	35.67	26.38	44.72	49.21	-	49.2	0.08	1541
44	29.72	35.67	30.31	48.74	-	-	59.1	0.08	-
48	31.89	37.83	31.18	53.07	59.06	-	59.1	0.08	2751

1) When grounding rings are used, the thickness of the earthing flange must be added to the build-in length

2) T_C = Type C grounding ring

3) Weights are for ANSI 150 without transmitter

D = Outside diameter of flange, see flange tables

- not available