

S-MAG SMART LINE Series

Electromagnetic flowmeters



Applications

- Water abstraction, purification, and distribution
- Industrial and civil wastewater treatment
- Salt water
- Sludge, cellulose pulp
- Food and drinks
- Leak detection
- Irrigation, industrial water

Features and Benefits

- Accuracy $\pm 0.5\%$ or $\pm 0.2\%$
- Size DN6-DN3000
- Flow rates up to 380.000 m³/h
- Communication via RS232, RS485 or HART
- Compact and separated version
- LC display with 4 buttons for configuration



S-MAG

EXTREMELY CONVENIENT FLOW MEASURE FOR PROCESS AND SERVICE APPLICATIONS

The series of SMERI's **Smart Line electromagnetic flowmeters** is based on the Faraday's law, on the electromagnetic induction of a body (in our case a liquid with a minimum conductivity of 5 mS/cm), which crosses the magnetic field generated by the coils of the meter. An electric voltage is induced when the electrically charged particles of the liquid meet the magnetic field generated by the two coils.

This voltage, intercepted by the measuring electrodes, is directly proportional to the flow and, therefore, to the volumetric flow rate.

This measuring principle offers several advantages.

It is independent of pressure, temperature, density, and viscosity.

It also allows you to measure liquids with suspended solids, e.g., sludge and cellulose pulp.

Moreover, it has no moving parts and, therefore, requires no maintenance.



VERSIONS



TRANSMITTERS



Local transmitter



Remote transmitter





BASIC FUNCTIONS

High frequency quadratic excitation wave; frequency excitation: 1/6, 1/20, 1/25 of the mains frequency

High frequency quadratic excitation wave; excitation frequency: 1/2 of the mains frequency

Excitation current selectable for 125 mA, 187.5 mA, 350 mA, 500 mA

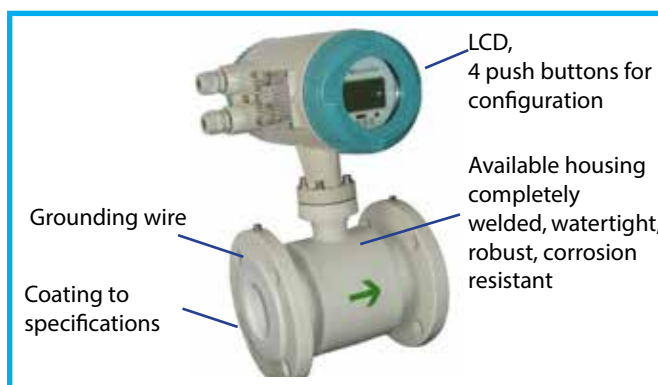
It does not require additional pipe inspection measures vacuum and continuous measurement, predefined threshold alarm

Flow range 0.5-15 m/s; resolution 9.5 mm/s

Switching current AC high frequency, voltage 85-259 VAC
Switching current 24 VDC, voltage 20-36 VDC

Network function: MODBUS communication interface, GPRS, PROFIBUS, HART

Display in English



SPECIAL FUNCTIONS

Recording in the event of a power failure, to automatically detect the idle times and to count the missed flow

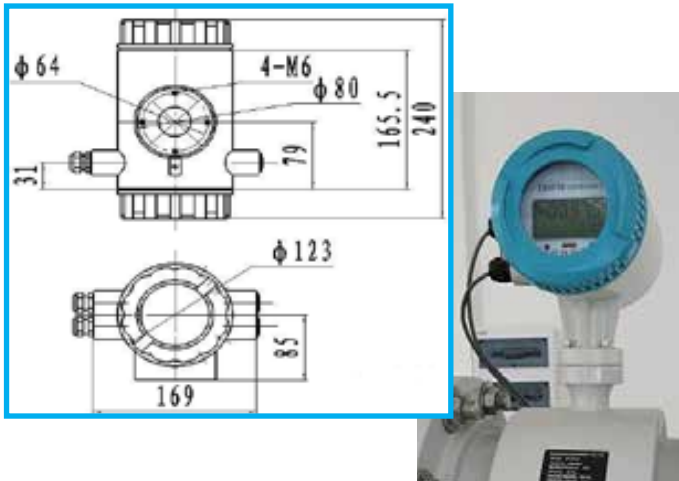
Total volume recording in the unit preset time

TECHNICAL DATA

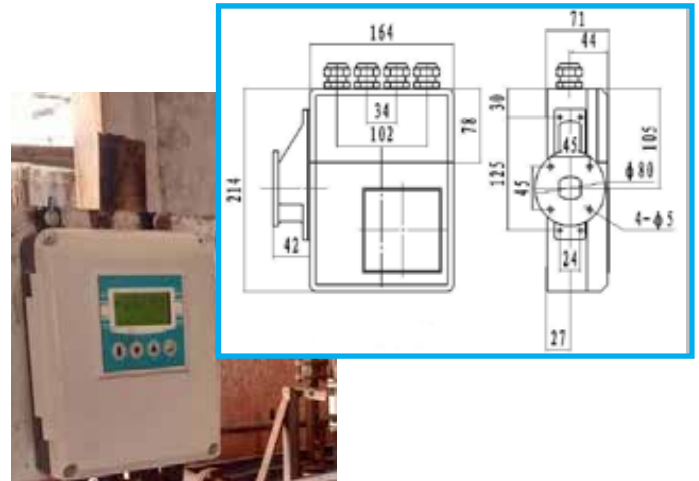
Dimension	DN6...DN3000
Accuracy	± 0.5% or ± 0.2%, selectable
Flow rate	0,1...15 m/s
Medium temperature	-20...160 °C
Housing material	Carbon steel, stainless steel in option
Flange material	Carbon steel (galvanized or coated), stainless steel in option
Electrode	With protective housing
Coating	Teflon, PFA, F46, Neoprene, polyurethane
Degree of protection	IP67, IP68 in option
Power supply	220 VAC, 24 VDC, 3.6 V (battery powered)
Communication	RS232, RS485 or HART
Flow value output	On analogue output, frequency output, pulse output
Control output	For forward/reverse flow, high/low alarm
Control input	Positive zero return, totalisator reset/stop
Pulse output	Active/passive, adjustable frequency and pulse width
Diagnostics	Self-diagnosis, error logging, current output test, input/output control test, simulation mode
In addition	Parameters protection, span and zero adjustment, access to external memory, suppression of spurious signals

TRANSMITTERS

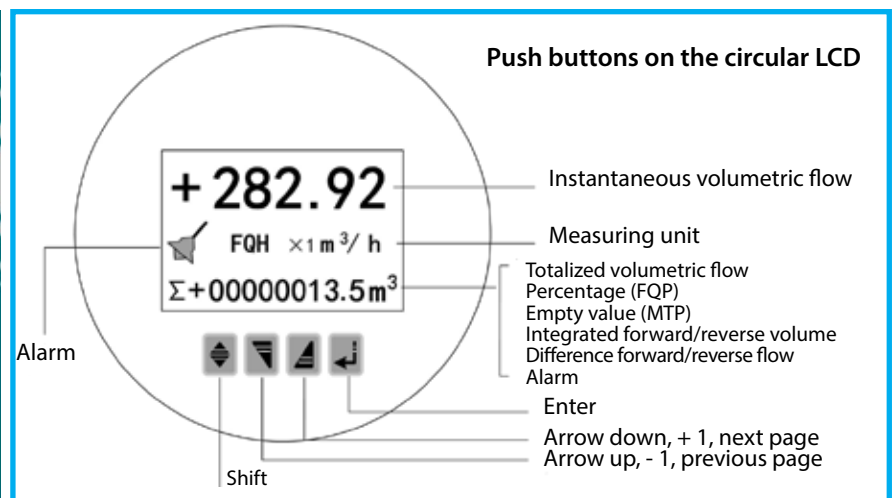
Compact transmitter



Remote transmitter



DISPLAY AND OPERATING ELEMENTS



Battery powered flowmeter



Accuracy

Diameter in mm	Range in m/s	Accuracy
3 - 20	≤ 0,3	±2,5% FS
	0,3 - 1	±1,0 R
	1 - 15	±0,5% R
25 - 600	0,1 - 0,3	±2,5% FS
	0,3 - 1	±0,5% R
	1 - 15	±0,3% R
700 - 3000	≤ 0,3	±2,5% FS
	0,3 - 1	±1,0% R
	1 - 15	±0,5% R

% FS: % of full scale value

% R: for relative value measurement

SENSORS

Sensors with flange connection

Nominal diameter	Nominal pressure	External dimension			reference weight	
		L of PTFE liner	L of Neoprene liner	D		H
3	4.0	200(PFA)		90	220	4
6		200(PFA)		90	220	5
10		200	/	90	220	6
15		200	/	95	220	8
20		200	/	105	220	10
25		200	/	115	223	12
32		200	/	140	240	13
40		200	200	150	250	14
50		200	200	165	263	15
65		250	250	185	283	18
80		250	250	200	290	20
100		250	250	235	318	25
125		250	250	270	350	28
150		300	300	300	380	30
200		1.6	350	350	340	430
250	450		450	405	495	70
300	500		500	460	547	95
350	550		550	520	602	120
400	600		600	580	665	140
450	600		600	640	720	160
500	600		600	715	783	200
600	600		600	840	897	280

Nominal pressure	Caliber	D	K	Φ	n	C
4.0	3	90	60	14	4	14
	6	90	60	14	4	14
	10	90	60	14	4	14
	15	95	65	14	4	14
	20	105	75	14	4	16
	25	115	85	14	4	16
	32	140	100	18	4	18
	40	150	110	18	4	18
	50	165	125	18	4	20
	65	185	145	18	8	22
	80	200	160	18	8	24
	100	235	190	22	8	26
1.6	125	270	220	26	8	28
	150	300	250	26	8	30
	200	340	295	22	12	26
	250	405	355	26	12	28
	300	460	410	26	12	32
	350	520	470	26	16	35
	400	580	525	30	16	38
	450	640	585	30	20	42
500	715	650	33	20	46	
600	840	770	36	20	52	

Flange dimensions





SENSORS

Sensors with sanitary Tri-Clamp connection



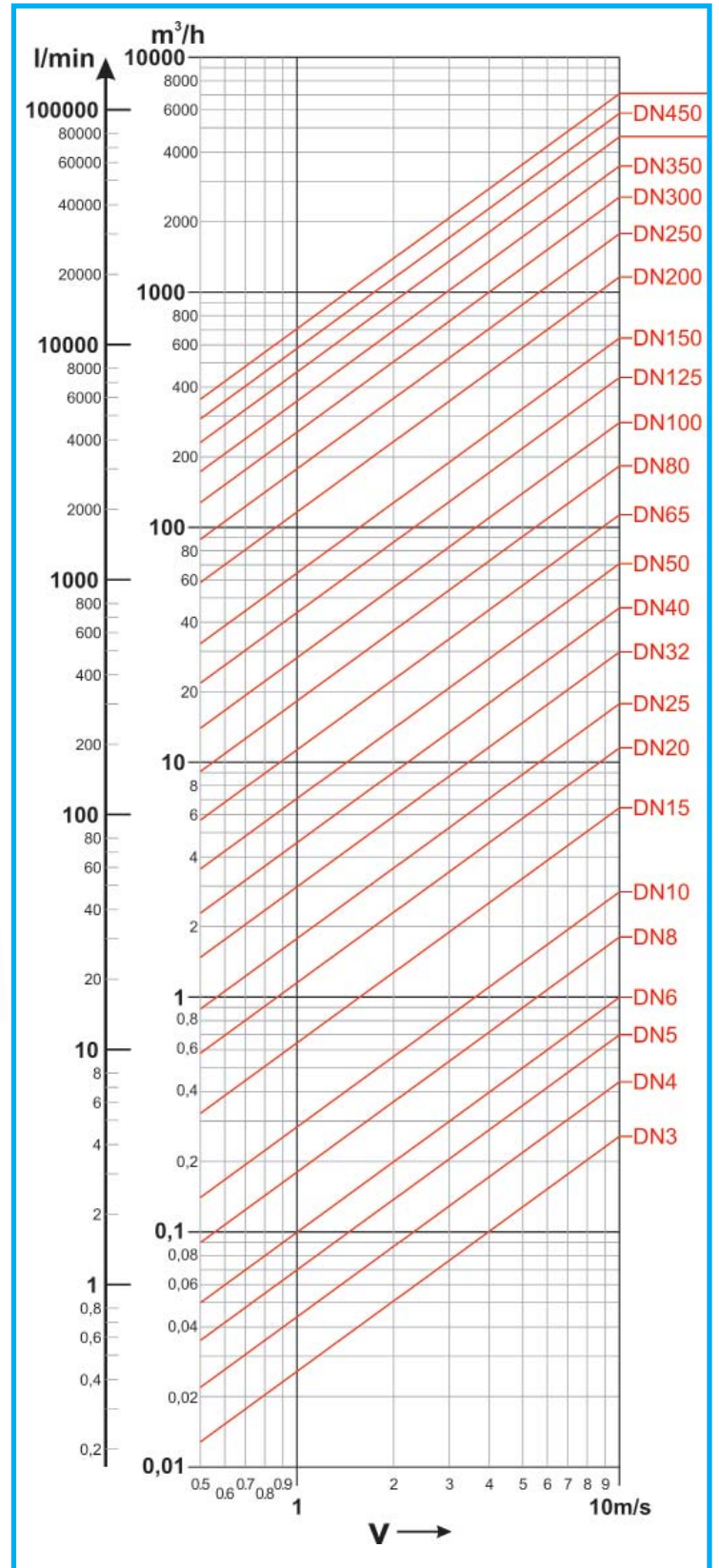
Nominal Diameter(mm)	External Dimension			Reference weight
	H	W	L	
10	179	70	172	2.5
15	179	70	172	2.5
20	179	70	172	2.6
25	189	83	172	2.6
40	196	95	172	3
50	214	105	172	3.6
65	220	115	172	4.5
80	240	135	200	5.2
100	252	146	200	7
125	276	170	200	9.6
150	310	204	256	12.8
200	336	230	256	22

Sensors with wafer connection



Nominal Diameter(mm)	External Dimension			Reference weight
	H	W	L	
10	200	98	80	2.5
15	200	98	80	2.5
20	169	98	80	2.6
25	179	106	80	2.6
40	198	125	80	3
50	213	135	120	3.6
65	229	148	120	4.5
80	244	164	120	5.2
100	265	189	120	7
125	298	214	140	9.6
150	328	240	160	12.8
200	376	290	220	22

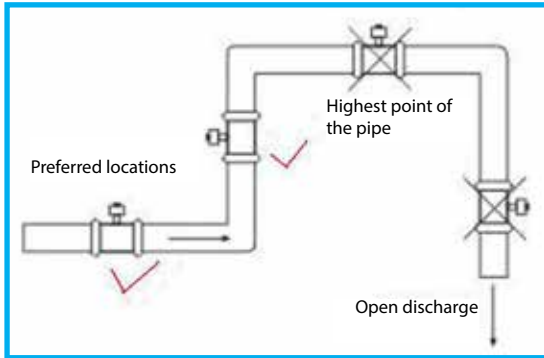
TABLE FLOW-DN-VELOCITY





INSTALLING THE FLOWMETER

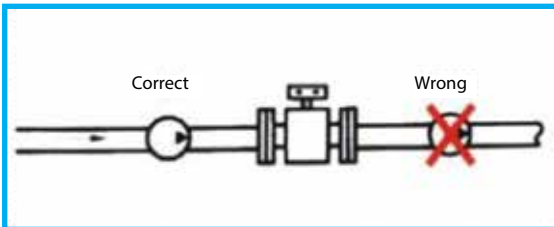
For a reliable and stable sensor operation, the following installation requirements must be met.



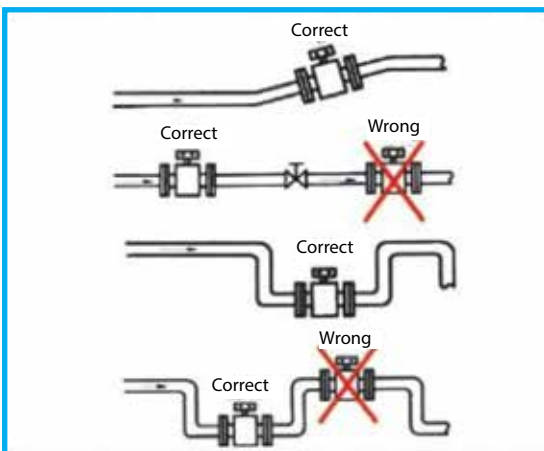
- Avoid magnetic objects and vibrations
- Choose a dry and ventilated location
- Avoid direct exposure to adverse weather conditions, ambient temperature above 60 ° C and relative humidity > 95%
- Choose an easily accessible location for any interventions
- Do not mount the meter on the suction side of pumps; valves must be located downstream

To ensure measurement accuracy, the following applies to the selection of the position on the pipe.

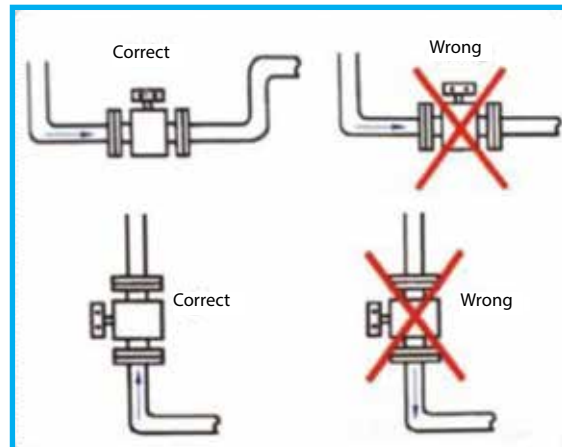
Installation on the pump side



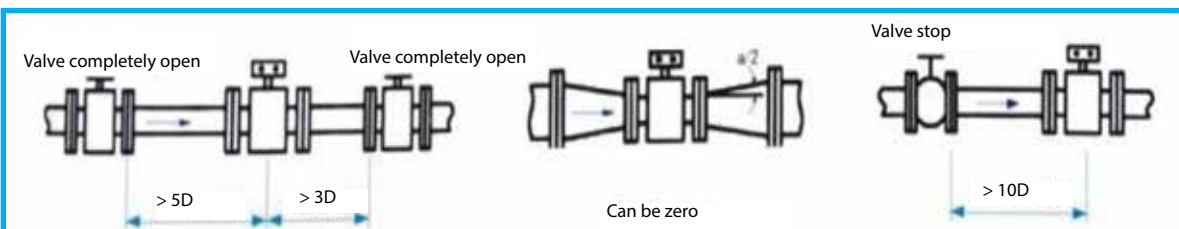
The pipe should be completely full



Avoid air pockets



Requirements for the straight run



SELECTION GUIDE

The order code consists of the root of the product (S-MAG-HTLD) and 10 positions based on the selected options.

S-MAG-HTLD	
SIZE	
DN 10 mm1 - 1/4"	100
DN 15 mm1 - 1/2"	150
DN 20 mm1 - 3/4"	200
DN 25 mm1 - 1"	250
DN32 mm1 - 1 1/4"	320
DN 40 mm1 - 1 1/2"	400
DN 50 mm 2"	500
DN 65 mm - 2 1/2"	650
DN 80 mm - 3"	800
DN 100 mm - 4"	101
DN 125 mm - 5"	125
DN 150 mm - 6"	151
DN 200 mm - 8"	201
DN 250 mm - 10"	251
DN 300 mm - 12"	301
DN 350 mm	351
DN 400 mm	401
DN 450 mm	451
DN 500 mm	501
DN 600 mm	601
Other	X
NOMINAL PRESSURE	
6 bar (Above DN 1200)	1
10 bar (DN 700 - DN 1000)	2
16 bar (DN 200 - DN 600)	3
40 bar (DN 3 - DN 150)	4
OTHER	5
PROCESS CONNECTION	
Flange	1
Clamp (DN25-DN200)	2
Sanitary (DN25-DN200)	3

INTERNAL LINER	
NEOPRENE	4
POLYURETHANE	5
PTFE	1
PFA	2
OTHER	3
ELECTRODE MATERIAL	
SS 316	1
Hastelloy B	2
Hastelloy C	3
Titanium	4
Pt-Rh	5
Tantalum	6
Other	7
SENSOR TYPE	
Integral (IP 65)	1
Remote (IP 67) with 10 mt cable	2
Remote Immerse (IP68) with 10 mt cable	3
POWER SUPPLY	
85 -250 VAC 50/60 Hz	E
24 VDC	G
OUTPUT	
4...20 mA + Pulse + Alarm + RS485	A
4...20 mA + Pulse + Alarm + RS 232	B
4...20 mA + Pulse + Alarm + HART	D
ELECTRONIC HOUSING	
Square (compact and remote version)	A
Circular (only compact version)	B
ACCURACY	
0.5% STANDARD	5
0.2% SPECIAL	2
High Frequency Meter for dirty liquids (30% suspended solids)	



We are a company with more than 50 years of experience in the field of industrial measurement and control instrumentation.

Specifically, we look at the internalization of some measuring systems that, due to shipping speed, performance, and low costs, can be offered in multiple industrial branches, from food to petrochemicals, from pharmaceuticals to energy production, from naval to water treatment.

Each process has specific requirements, which depend on the characteristics of the system, the environment, and the fluid to be treated.

SMERI International offers tailor-made instrumentation for liquids and gases, from the most common to the most critical ones.

We have the luck and the merit to benefit from a young and highly dynamic team of experts, who can recommend ad-hoc solutions for each application to optimize customers' processes in terms of economic efficiency and safety.

The motto is *Finding solutions together* and summarizes the spirit of SMERI: **a close collaboration with the customer and according to an ethical behavior of respect, fairness, and confidentiality.**

In the European market, SMERI is represented and distributed by companies well-known in the industrial world for their seriousness and experience.

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