

Electromagnetic amplifier type B-MAG™ | M5000



Features

- Up to 20 years battery life span
- Accuracy better than $\pm 0,5\%$
- Measuring range of 0,03 to 12 m/s
- Sizes from DN 15 to DN 600
- LCD display
- IP 67 / IP 68 protection class
- RS232, IrDA, Modbus®, M-Bus interfaces
- Verification Device

Description

The **B-MAG™** | M5000 is a battery-powered electromagnetic flow meter with a very high accuracy even at very low flows. The excellent repeatability as well as the above-average battery life makes this innovative water meter indispensable for the water market. Typical applications are leak detection in water networks, water consumption measurements and irrigation plants.

The meter is best suited for applications without a power supply where exact consumption or flow rates are required. Of course, the **B-MAG™** | M5000 can also be used with an available power supply. The meter can be powered with main voltage and in case of a main failure, it is powered by an internal battery. Important data are consequently saved.

The **B-MAG™** | M5000 has been designed for very harsh environmental measurement conditions. The meter has no moving parts and can be used to measure water containing particles like sand or gravel. The **B-MAG™** | M5000 is encased in an IP67 housing (optional IP68), which makes it a reliable meter even when submerged.

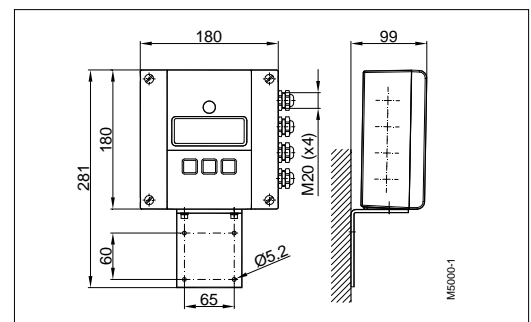
The standard meter is equipped with an internal datalogger which can read-out via an IrDA or RS232 interface with ModBus® RTU protocol. The collected data can also be retrieved via radio frequency or GSM/GPRS. The data can thus be centrally compiled and evaluated.

B-MAG™ | M5000 can be checked without process interruption with the Verification Device.

Measuring principle

The operating principle of the electromagnetic flow meter is based on Faraday's law of magnetic induction: The voltage induced across any conductor, as it moves at right angles through a magnetic field, is proportional to the velocity of that conductor. The voltage induced within the fluid is measured by two diametrically opposed internally mounted electrodes. The induced signal voltage is proportional to the product of the magnetic flux density, the distance between the electrodes and the average flow velocity of the fluid.

Dimensions



Technical data

Power supply	Internal Lithium batteries 3,6 V Optional battery back-up model (90 - 264 VAC or 9 - 36 VDC)
Sizes	DN 15 to DN 600 (PTFE / hard rubber)
Battery life span	10 years (with one battery pack), optional up to 20 years (with two battery packs)
Display	LCD, 2 lines
Programming	3 keys
Measuring range	0,03 – 12 m/s
Accuracy	≥0,5 m/s better than ±0.5 accuracy of rate <0,5 m/s ±2,5 mm/s of rate
Repeatability	0.1%
Minimum fluid conductivity	≥ 20 µs/cm
Flow direction	Bidirectional
Low-flow detection	Separate electrode
Digital outputs	4 x open collector, passive 30 VDC/20 mA, max. 100 Hz
Status outputs	Min./max. alarm, flow direction, failure report
Serial communication	RS232, ModBus® RTU, IRDA, M-Bus External AMR or GSM/GPRS module (optional)
Datalogger	Integrated
Low-flow cut off	0-10%
Pulse width	Programmable up to 500 ms.
Housing	Powder coated cast aluminium
Protection class	IP67 (IP68 optional)
Cable entry	Signal cable (outputs) M20
Signal cable	From detector M20
Remote version	Max. 30 m
Ambient temperature	-20°C to 60°C

Detector type VI

Flange process connection



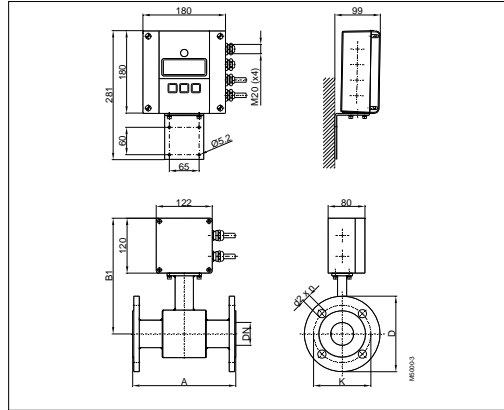
Technical data

Size	DN 15 – 600 (1/2" ... 24")		
Process connection	Flange: DIN, ANSI, JIS, AWWA, etc.		
Nominal pressure	Up to PN 100		
Protection class	IP67, optional IP68		
Min. conductivity	≥20 µS/cm		
Liner materials	Hard rubber	from DN 25	0°C up to +80°C
	PTFE	DN 15 – 20	-40°C up to +150°C
Electrodes materials	Hastelloy C (Standard), Tantalum Platinum / Gold plated, Platinum / Rhodium		
Housing	Steel / Optional stainless steel		
Lay length	DN 15 – 20	170 mm	
	DN 25 – 50	225 mm	
	DN 65 – 100	280 mm	
	DN 125 – 200	400 mm	
	DN 250 – 350	500 mm	
	DN 400 – 600	600 mm	

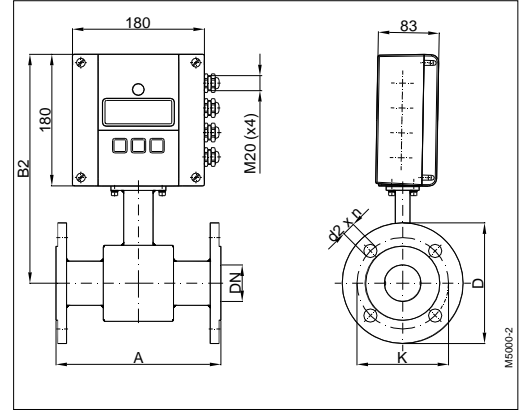
Detector type VI

Flange process connection

Remote version



Mounted version



Dimensions

DN		A Std*	A ISO**	B1	B2	with ANSI-flanges			with DIN-flanges		
						Ø D	Ø K	Ø d2xn	Ø D	Ø K	Ø d2xn
15	1/2"	170	200	238	298	88,9	60,3	15,9 x 4	95	65	14 x 4
20	3/4"	170	200	238	298	98,4	69,8	15,9 x 4	105	75	14 x 4
25	1"	225	200	238	298	107,9	79,4	15,9 x 4	115	85	14 x 4
32	1 1/4"	225	200	253	313	117,5	88,9	15,9 x 4	140	100	18 x 4
40	1 1/2"	225	200	253	313	127	98,4	15,9 x 4	150	110	18 x 4
50	2"	225	200	253	313	152,4	120,6	19 x 4	165	125	18 x 4
65	2 1/2"	280	200	271	331	177,8	139,7	19 x 4	185	145	18 x 4
80	3"	280	200	271	331	190,5	152,4	19 x 4	200	160	18 x 8
100	4"	280	250	278	338	228,6	190,5	19 x 8	220	180	18 x 8
125	5"	400	250	298	358	254	215,9	22,2 x 8	250	210	18 x 8
150	6"	400	300	310	370	279,4	241,3	22,2 x 8	285	240	22 x 8
200	8"	400	350	338	398	342,9	298,4	22,2 x 8	340	295	22 x 12
250	10"	500	450	362	422	406,4	361,9	25,4 x 12	395	350	22 x 12
300	12"	500	500	425	485	482,6	431,8	25,4 x 12	445	400	22 x 12
350	14"	500	550	450	510	533,4	476,2	28,6 x 12	505	460	22 x 16
400	16"	600	600	475	535	596,9	539,7	28,6 x 16	565	515	26 x 16
450	18"	600	---	500	560	635,0	577,8	31,7 x 16	615	565	26 x 20
500	20"	600	---	525	585	698,5	635,0	31,7 x 20	670	620	26 x 20
550	22"	600	---	550	610	749,3	692,1	34,9 x 20	---	---	---
600	24"	600	---	588	648	812,8	749,3	34,9 x 20	780	725	30 x 20
Standard											
with ANSI-flanges		from ½" – 24"			150 lbs						
		from DN 15 – 200			PN 16						
with DIN flanges		from DN 250 – 600			PN 10						
* Standard		**ISO 13359									