

Electromagnetic amplifier type B-MAG | M5000



Features

- Up to 20 years battery life span
- Accuracy better than $\pm 0.4\%$
- Measuring range of 0,03 to 10 m/s
- Sizes from DN 15 to DN 600
- LCD display
- IP 67 / IP 68 protection class
- RS232, IrDA, Modbus®, M-Bus interfaces, RS 485
- Verification Device
- OIML and MID approved



Description

The B-MAG I 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 I 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 I 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 I M5000 is encased in an IP67 housing (optional IP68), which makes it a reliable meter even when submerged.

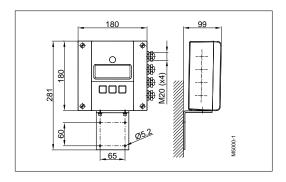
The standard meter is equipped with an internal datalogger which can read-out via an IrDA or RS232 interface with ModBus® RTU protocol. The collected data can also be retrieved via radio frequency or GSM/GPRS. The data can thus be centrally compiled and evaluated.

B-MAG I 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



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Technical data

Power supply	Internal Lithium batteries 3,6 V					
	Optional battery back-up model (100 - 240 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 – 10 m/s					
Accuracy	±0,4% of m.v. ± 2 mm/s					
Repeatability	0.1%					
Minimum fluid conductivity	\geq 20 μ s/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, RS 485					
	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					
Approvals	OIML R49-1, MID MI-001					

Detector type VI

Flange process connection



Lined measuring pipes with materials approved for drinking water: KTW/DVGW, NSF-61, WRAS, ACS.

Technical data

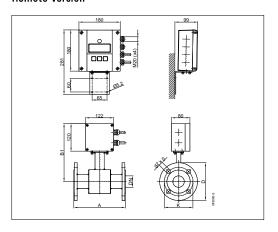
Size	DN 15 - 600 (1	/2" 24")					
Process connection	Flange: DIN, AN	NSI, JIS, AWWA,	etc.	-			
Nominal pressure	Up to PN 100						
Protection class	IP67, optional I	P68					
Min. conductivity	≥20 <i>µ</i> S/cm						
Liner	Hard rubber	from DN 25		0° C up to $+80^{\circ}$ C			
materials	PTFE	DN 15 - 20		-40°C up to +150°C			
Electrodes	Hastelloy C (Standard), Tantalum						
materials	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			



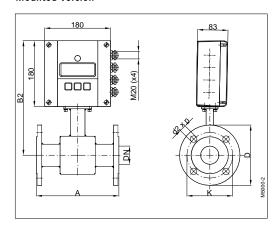
Detector type VI

Flange process connection

Remote version



Mounted version



Dimensions

DN						with ANSI-flanges			with DIN-flanges		
		A Std*	A ISO**	B1	B2	ØD	ØK	Ø d2xn	ØD	ØK	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" from DN 15 – 200			150 lbs PN 16								
with DIN flanges from DN 250 - 600				PN 10							
* Standard	**ISO 13		300								