



Badger Meter Europa

Badger Meter Europa GmbH
Nürtinger Str. 76
72639 Neuffen (Germany)
Tel. +49-7025-9208-0
Fax +49-7025-9208-15
www.badgermeter.de
badger@badgermeter.de



Electromagnetic amplifier type ModMAG® M10 00

for all detectors



Features

- Accuracy $\pm 0,3\%$
- Flow range 0,03 – 12 m/s
- DN 6 – DN 200
- LCD display
- RS232, RS485 and ModBus® RTU
- Power supply 92-275 VAC, 9-36 VDC

Description

ModMAG® M1000 is best suited for bidirectional flow measurements of fluids $> 5 \mu\text{S/cm}$ ($> 20 \mu\text{S/cm}$ for demineralized water). Thanks to its excellent price-performance ratio, ModMAG® M1000 can be chosen for a broad spectrum of applications.

All information like flow, total or error messages can be read-out from the backlit LCD display. The standard model is provided with a great number of inputs, outputs and interfaces for lots of applications. ModMAG® M1000 is encased in an aluminium housing with protection class IP67 and therefore also ideal for use in harsh environments.

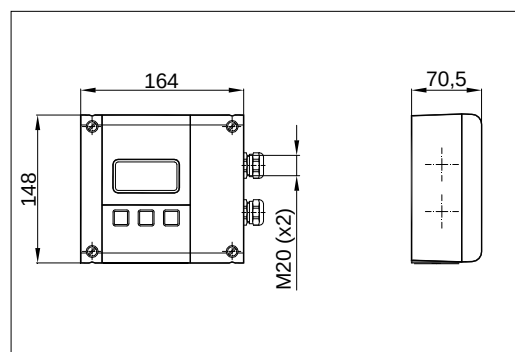
Measuring principle

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.

Applications

The ModMAG® M1000 has been designed especially for applications in machinery plants, vehicles and batching processes. The applications range from DN 6 to DN 200 with the most various process connections like DIN flanges, dairy pipe connections, TriClamp®, etc.

Dimensions



Technical data

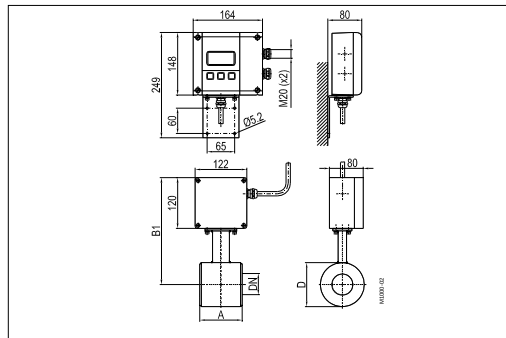
Power supply	92-275 VAC (50 / 60 Hz), < 14 VA optional 9-36 VDC, < 4 W
Accuracy	±0,3 % of m.v., ±2 mm/s
Repeatability	0,1 %
Flow range	0,03 – 12 m/s
Conductivity	min. 5 μ S/cm (20 μ S/cm for demineralized water)
Flow direction	bi-directional
Programming	3 buttons optional RS232
Interface	RS232, RS485, Modbus RTU
Analog output	0/4 - 20 mA / 0-10 mA, flow direction is displayed upon a separate status output
Pulse output	2 open collectors, passive 32 VDC, 0-100 Hz 100 mA, 100-10.000 Hz 20 mA, optional active
Frequency output	max. 10 kHz (open collector)
Status output	min/max. alarm, preselection, flow direction, error message, free configurable
Empty pipe detection	separate electrode
Low flow cut off	0-10 %
Housing	Powder coated aluminium die cast
Protection class	IP67
Cable insertion	2 x M 20
Ambient temperature	-20 °C up to +60 °C

Detector type III

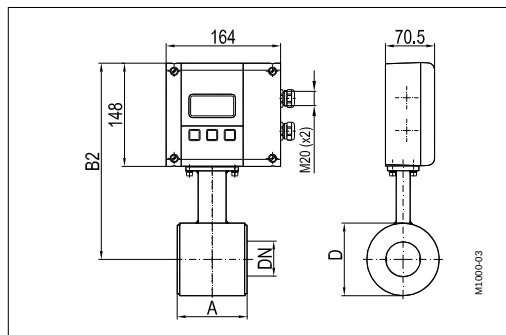
Wafer connection

Thanks to its very short lay length, the detector type III is often the right alternative to a lot of applications. Delivered with a PTFE liner, the detector type III has a standard nominal pressure of PN 40.

Remote version



Mounted version



Technical data

Size	DN 25 – DN 100 (1" to 4")	
Process connection	Wafer connection (in-between flange mounting)	
Nominal pressure	PN 40	
Protection class	IP67, optional IP68	
Min. conductivity	5 μ S/cm (20 μ S/cm (for demineralized water)	
Liner materials	PTFE	-40 °C to +150 °C
Elektrodes material	Hastelloy C (Standard) Tantal Platinum / Gold plated Platinum / Rhodium	
Housing	Carbon steel / optional stainless steel	
Lay length	DN 25 – DN 50	DN 25 – DN 50
	DN 65 – DN 100	DN 65 – DN 100

Dimensions (mm)

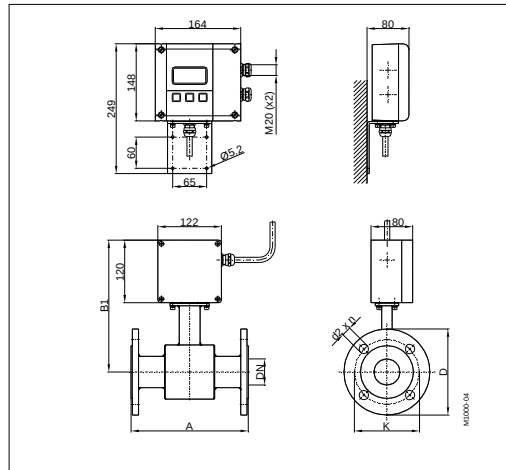
DN		A	B1	B2	D
25	1"	100	238	266	74
32	1 ¼"	100	243	271	84
40	1 ½"	100	248	276	94
50	2"	100	253	281	104
65	2 ½"	150	266	294	129
80	3"	150	271	299	140
100	4"	150	279	307	156

Pressure PN 40

Detector type II

Flange process connection

Remote version



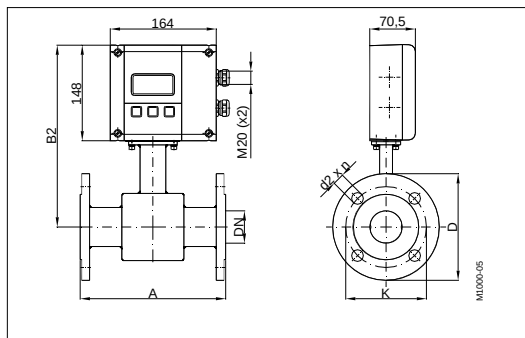
The electromagnetic detector type II is not only available in a number of different flange process connections (DIN, ANSI, JIS, AWWA, etc.) but also in a number of liners like hard rubber, soft rubber, PTFE, PFA or Halar. Available in sizes from DN 6 to DN 200 and nominal pressures up to PN 100, the detector type II is best suited for a variety of applications in the industry and the water/waste water industry.

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

Technical data

Size	DN 6 – 2000 (1/4" ... 80")		
Process connections	Flange: DIN, ANSI, JIS, AWWA, etc		
Nominal pressure	up to PN 100		
Protection class	IP67, optional IP68		
Min. conductivity	5 μ S/cm (20 μ S/cm for demineralized water)		
Liner materials	Hard/soft rubber	from DN 25	0°C up to +80°C
	PTFE	DN 6 – 600	-40°C up to +150°C
Electrodes materials	Hastelloy C (standard), Tantal Platinum / Gold plated, Platinum / Rhodium		
Housing	Steel / Optional stainless steel		
Lay length	DN 6 – 20	170 mm	
	DN 25 – 50	225 mm	
	DN 65 – 100	280 mm	
	DN 125 – 200	400 mm	

Mounted version



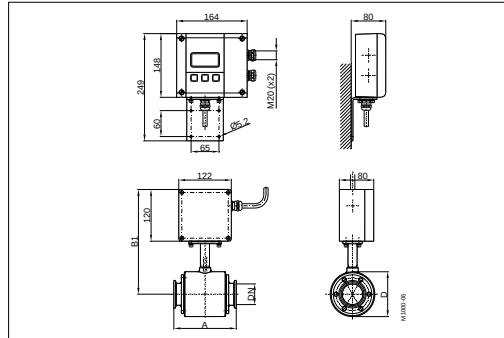
Dimensions (mm)

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
6	1/4"	170	---	228	256	88,9	60,3	15,9 x 4	90	60	14 x 4
8	3/10"	170	---	228	256	88,9	60,3	15,9 x 4	90	60	14 x 4
10	3/8"	170	---	228	256	88,9	60,3	15,9 x 4	90	60	14 x 4
15	1/2"	170	200	238	266	88,9	60,3	15,9 x 4	95	65	14 x 4
20	3/4"	170	200	238	266	98,4	69,8	15,9 x 4	105	75	14 x 4
25	1"	225	200	238	266	107,9	79,4	15,9 x 4	115	85	14 x 4
32	1 1/4"	225	200	253	281	117,5	88,9	15,9 x 4	140	100	18 x 4
40	1 1/2"	225	200	253	281	127	98,4	15,9 x 4	150	110	18 x 4
50	2"	225	200	253	281	152,4	120,6	19 x 4	165	125	18 x 4
65	2 1/2"	280	200	271	299	177,8	139,7	19 x 4	185	145	18 x 4
80	3"	280	200	271	299	190,5	152,4	19 x 4	200	160	18 x 8
100	4"	280	250	278	306	228,6	190,5	19 x 8	220	180	18 x 8
125	5"	400	250	298	326	254	215,9	22,2 x 8	250	210	18 x 8
150	6"	400	300	310	338	279,4	241,3	22,2 x 8	285	240	22 x 8
200	8"	400	350	338	366	342,9	298,4	22,2 x 8	340	295	22 x 12
Standard											
with ANSI-flanges						from DN 6 - 200			Pressure LBS 150		
with DIN flanges						from DN 6 - 200			Pressure PN 16		
* Standard ** ISO 13359											

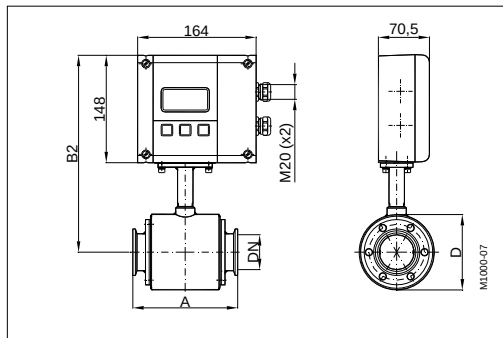
Sanitary detector for food

Process connections Tri-Clamp®, DIN 11851, ISO 2852, etc.

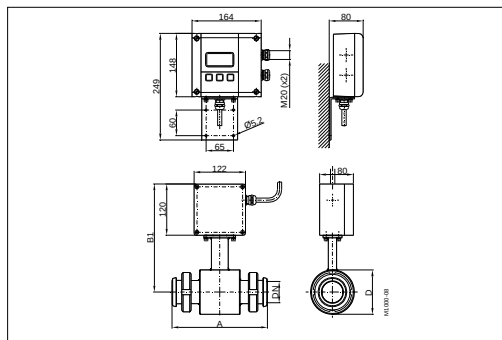
TriClamp®, remote version



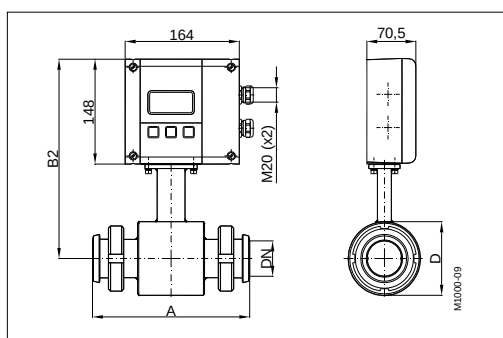
TriClamp®, mounted version



DIN11851, remote version



DIN 11851, mounted version



MID_M1000_DB_02_1505

The sanitary detector was developed for the flow measurement of liquid food. This model is available with Tri-Clamp®, DIN 11851, ISO 2852 process connections and also with any special connections (customer specifications). The sanitary detector is delivered in a stainless steel housing and with PTFE lining.

Technical data

Size	DN 10 - DN 100 (3/8" to 4")		
Process connections	Tri-Clamp®, DIN 11851, ISO 2852, etc.		
Nominal pressure	PN 10/16		
Protection class	IP67, optional IP68		
Min. conductivity	5 $\mu\text{S}/\text{cm}$ (20 $\mu\text{S}/\text{cm}$ for demineralized water)		
Liner materials	PTFE / PFA	PTFE / PFA	
Electrodes materials	Hastelloy C (Standard) Tantal Platinum / Gold plated Platinum / Rhodium		
Housing	Stainless steel		
Lay length	Tri-Clamp® connection	DN 10 – 50	145 mm
		DN 65 – 100	200 mm
	DIN 11851 connection	DN 10 – 20	170 mm
		DN 25 – 50	225 mm
		DN 65 – 100	280 mm

Dimensions (mm) type Food Tri-Clamp®

DN		A	B1	B2	D
10	-	145	228	256	74
15	1/2"	145	228	256	74
20	3/4"	145	228	256	74
25	1"	145	228	256	74
40	1 1/2"	145	238	266	94
50	2"	145	243	271	104
65	2 1/2"	200	256	284	129
80	3"	200	261	289	140
100	4"	200	269	297	156

Pressure PN 10

Dimensions (mm) type Food milk pipe DIN 11851

DN		A	B1	B2	D
10	3/8"	170	238	266	74
15	1/2"	170	238	266	74
20	3/4"	170	238	266	74
25	1"	225	238	266	74
32	1 1/4"	225	243	271	84
40	1 1/2"	225	248	276	94
50	2"	225	253	281	104
65	2 1/2"	280	266	294	129
80	3"	280	271	299	140
100	4"	280	279	307	156

Pressure PN 16

Type Food Tri-Clamp® BS4825/ISO2852

BS4825			ISO2852		
Size	AD	ID	DN	AD	ID
-	-	-	10	50.5	14.0
1/2"	25.0	9.4	15	50.5	18.1
3/4"	25.0	15.75	20	50.5	22.9
1"	50.5	22.1	25	50.5	28.7
1 1/2"	50.5	34.8	32	64.0	38.4
2"	64.0	47.5	40	64.0	44.3
2 1/2"	77.5	60.2	50	77.5	56.3
3"	91.0	72.9	65	91.0	72.1
3 1/2"	106.0	84.3	80	106.0	84.3
4"	119.0	97.4	100	130.0	109.7
PN 10			dimensions (mm)		

