

Electromagnetic amplifier type M2000 for all detectors



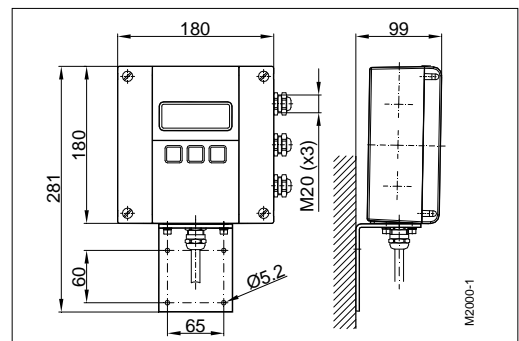
Features

- Accuracy $\pm 0,25\%$
- Flow range 0,03 – 12 m/s
- DN6 – DN2000
- LCD display
- Power supply 85 – 265 VAC / 9 – 36 VDC
- IP67 housing
- USB interface

Description

The amplifier type M2000 is best suited for bidirectional flow measurement of fluids with a conductivity $> 5 \mu\text{S}/\text{cm}$ ($> 20 \mu\text{S}/\text{cm}$ for demineralized water). M2000 shows a high accuracy, is easy to use and can be chosen for a large and flexible applications spectrum. The backlit, four-line display shows all actual flow measuring data, daily and complete information, including alarm messages. The standard amplifier has 4 programmable digital outputs, one digital input, power output and USB interface. Integrated test tools make the putting into operation and the service easier.

Dimensions



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.

Technical data

| | |
|-------------------------|---|
| Power supply | 85 – 265 VAC, 45 – 65 Hz, <20 VA or optional 9-36 VDC |
| Analog output | 0/4 - 20 mA, ≤800 ohms, flow direction is displayed upon a separate status output |
| Pulse /Frequency output | 24 V active, 20 mA, 30 V passive, 100 mA (open collector) max. 10 kHz |
| Status output | min./max. alarm, preselection meter, flow direction, error message |
| Medium control | separate electrode |
| Programming | 3 keys |
| Interface | RS232 ModBus® RTU / USB (optional) |
| Flow range | 0,03 – 12 m/s |
| Accuracy | ≥0,5 m/s better ±0,25% of actual flow <0,5 m/s ±1,25 mm/s of actual flow |
| Repeatability | 0,1% |
| Flow direction | bi-directional |
| Pulse length | Programmable up to 10 s |
| Outputs | Short circuit safe and galvanically isolated |
| Low flow cut off | 0-10% |
| Display | LCD, 4 lines / 20 characters, backlit, actual flow, 2 totalizers, status display |
| Housing | Powder coated aluminium die cast |
| Protection class | IP67 |
| Cable insertion | Power and signal cable (outputs) 3 x M20 |
| Signal cable | From detector M20 |
| Ambient temperature | -20°C up to +60°C |

Detector type II

Flange process connection



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 2000 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.

Technical data

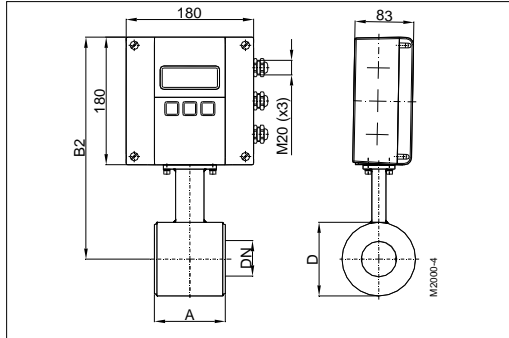
| | | | |
|----------------------|--|-------------|--------------------|
| Size | DN 6 – 2000 (1/4" ... 80") | | |
| Process connections | Flange: DIN, ANSI, JIS, AWWA, etc | | |
| Nominal pressure | up to PN 100 | | |
| Protection class | IP65, optional IP68 | | |
| Min. conductivity | 5 μ S/cm (20 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 |
| | Halar (ECTFE) | from DN 300 | -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 6 – 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 – 700 | 600 mm | |
| | DN 750 – 1000 | 800 mm | |
| | DN 1200 – 1400 | 1000 mm | |

*Up to DN2000 upon request

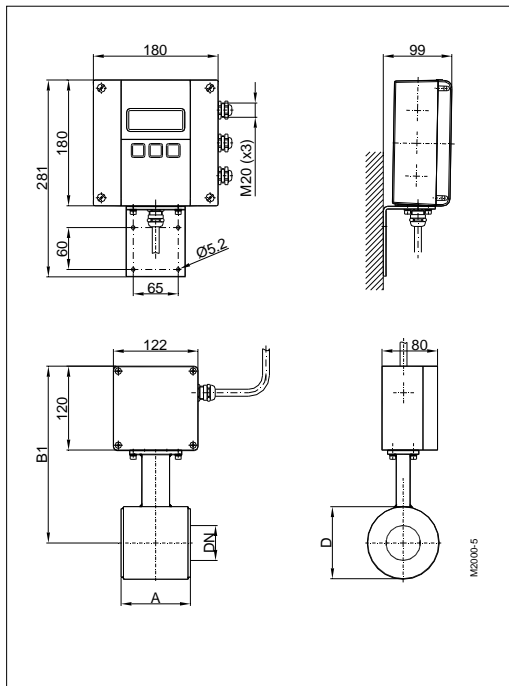
Detector type III

Wafer connection

Mounted version



Remote version



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.

Technical data

| | | |
|----------------------|--|-----------------|
| Size | DN 25 - 100 (1" ... 4") | |
| Process connection | Wafer connection (in-between flange mounting) | |
| Nominal pressure | PN 40 | |
| Protection class | IP65, optional IP68 | |
| Min. conductivity | 5 μ S/cm (20 μ S/cm for demineralized water) | |
| Liner materials | PTFE | Liner materials |
| Electrodes materials | Hastelloy C (Standard) Tantal Platinum / Gold plated Platinum / Rhodium | |
| Housing | Carbon steel / optional stainless steel | |
| Lay length | DN 25 - 50 | 100 mm |
| | DN 65 - 100 | 150 mm |

Dimensions (mm)

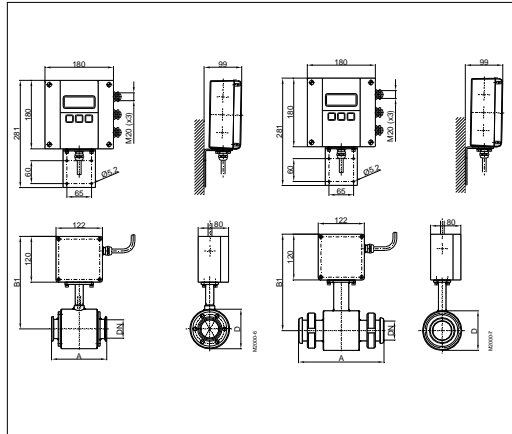
| DN | | A | B1 | B2 | D |
|-------|--------|-----|-----|-----|-----|
| 25 | 1" | 100 | 238 | 184 | 74 |
| 32 | 1 1/4" | 100 | 243 | 189 | 84 |
| 40 | 1 1/2" | 100 | 248 | 194 | 94 |
| 50 | 2" | 100 | 253 | 199 | 104 |
| 65 | 2 1/2" | 150 | 266 | 212 | 129 |
| 80 | 3" | 150 | 271 | 217 | 140 |
| 100 | 4" | 150 | 279 | 225 | 156 |
| PN 40 | | | | | |



Sanitary detector for Food

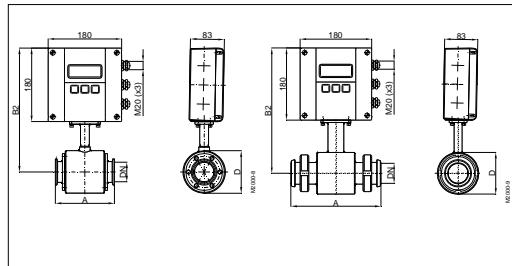
Process connections Tri-Clamp®, DIN 11851, ISO 2852, etc.

TriClamp® remote version DIN 11851 remote version Technical data



| | | |
|----------------------|--|-----------------------|
| Size | DN 10 - 100 (3/8" ... 4") | |
| Process connections | Tri-Clamp®, DIN 11851, ISO 2852, etc. | |
| Nominal pressure | PN 10/16 | |
| Protection class | IP65, optional IP68 | |
| Min. conductivity | 5 µS/cm (20 µS/cm for demineralized water) | |
| Liner materials | PTFE/PFA -40°C to +150°C | |
| Electrodes materials | Hastelloy C (Standard) Tantal Platinum / Gold plated Platinum / Rhodium | |
| Housing | Carbon steel / optional 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 |

TriClamp® mounted version DIN 11851 mounted version



Type Food Tri-Clamp®

| DN | | A | B1 | B2 | D |
|-------|-----------------|-----|-----|-----|-----|
| 10 | 3/8" | 145 | 228 | 174 | 74 |
| 15 | 1/2" | 145 | 228 | 174 | 74 |
| 20 | 3/4" | 145 | 228 | 174 | 74 |
| 25 | 1" | 145 | 228 | 174 | 74 |
| 40 | 1 1/2" | 145 | 238 | 184 | 94 |
| 50 | 2" | 145 | 243 | 189 | 104 |
| 65 | 2 1/2" | 200 | 256 | 202 | 129 |
| 80 | 3" | 200 | 261 | 207 | 140 |
| 100 | 4" | 200 | 269 | 215 | 156 |
| PN 10 | dimensions (mm) | | | | |

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/PFA lining.

Type Food DIN 11851

| DN | | A | B1 | B2 | D |
|-------|-----------------|-----|-----|-----|-----|
| 10 | 3/8" | 170 | 238 | 184 | 74 |
| 15 | 1/2" | 170 | 238 | 184 | 74 |
| 20 | 3/4" | 170 | 238 | 184 | 74 |
| 25 | 1" | 225 | 238 | 184 | 74 |
| 32 | 1 1/4" | 225 | 243 | 189 | 84 |
| 40 | 1 1/2" | 225 | 248 | 194 | 94 |
| 50 | 2" | 225 | 253 | 199 | 104 |
| 65 | 2 1/2" | 280 | 266 | 212 | 129 |
| 80 | 3" | 280 | 271 | 217 | 140 |
| 100 | 4" | 280 | 279 | 225 | 156 |
| PN 16 | dimensions (mm) | | | | |