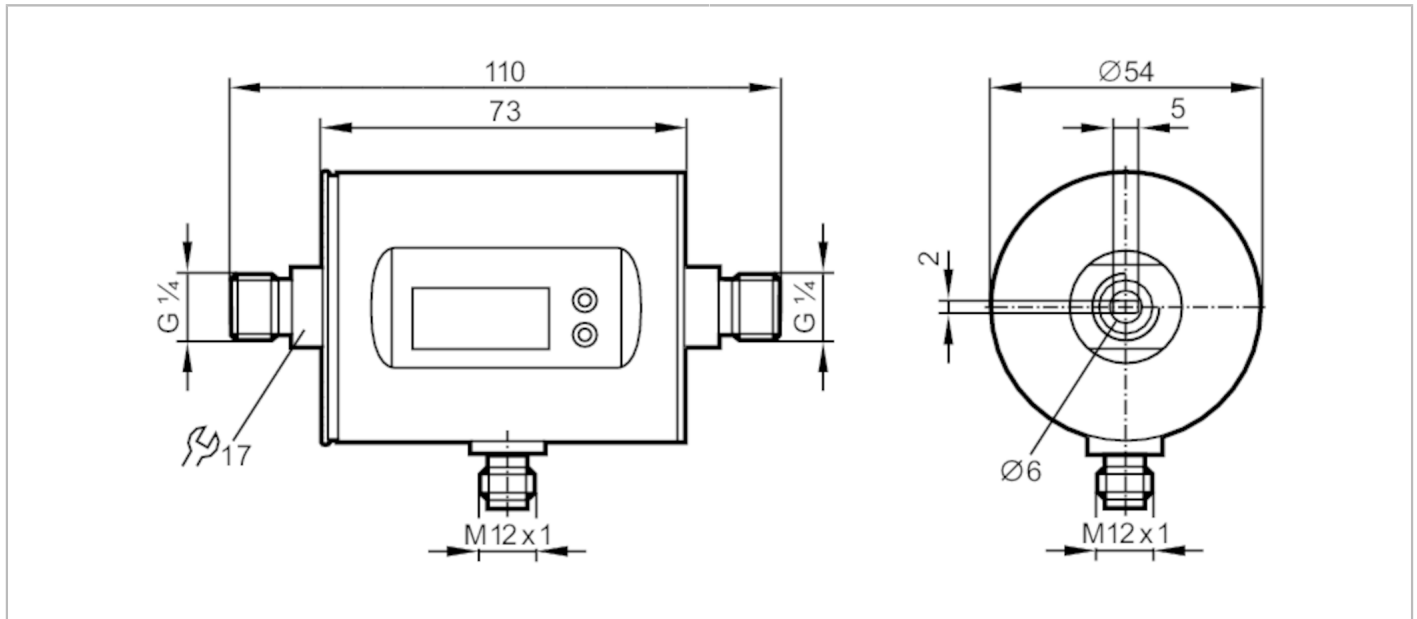


SM4000



Magnetic-inductive flow meter

SMR14DXXFRKG/US-100



| Product characteristics | |
|--|---|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |
| Process connection | threaded connection G 1/4 DN6 flat seal |
| Temperature monitoring | |
| Measuring range | [°C] -20...80 |
| Application | |
| Special feature | Gold-plated contacts |
| Application | totaliser function; for industrial applications |
| Installation | connection to pipe by means of an adapter |
| Media | conductive liquids; water; hydrous media |
| Note on media | conductivity: $\geq 20 \mu\text{S/cm}$ viscosity: $< 70 \text{ mm}^2/\text{s}$ (40 °C) |
| Medium temperature | [°C] 0...60 |
| Pressure rating | [bar] 10 |
| MAWP (for applications according to CRN) | [bar] 7.3 |
| Electrical data | |
| Operating voltage | [V] 18...30 DC; (according to EN 50178 SELV/PELV) |
| Current consumption | [mA] < 80 |
| Protection class | III |
| Reverse polarity protection | yes |
| Power-on delay time | [s] 5 |
| Inputs / outputs | |
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |
| Inputs | |
| Inputs | counter reset |



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| Outputs | | |
|---|----------|--|
| Total number of outputs | | 2 |
| Output signal | | switching signal; analogue signal; pulse signal; IO-Link; (configurable) |
| Electrical design | | PNP/NPN |
| Number of digital outputs | | 2 |
| Output function | | normally open / normally closed; (parameterisable) |
| Max. voltage drop switching output DC | [V] | 2 |
| Permanent current rating of switching output DC | [mA] | 200 |
| Number of analogue outputs | | 1 |
| Analogue current output | [mA] | 4...20; (scalable) |
| Max. load | [Ω] | 500 |
| Analogue voltage output | [V] | 0...10; (scalable) |
| Min. load resistance | [Ω] | 2000 |
| Pulse output | | flow rate meter |
| Short-circuit protection | | yes |
| Type of short-circuit protection | | pulsed |
| Overload protection | | yes |
| Measuring/setting range | | |
| Measuring range | [ml/min] | 5...3000 |
| Display range | [ml/min] | -1999...3600 |
| Resolution | [ml/min] | 1 |
| Set point SP | [ml/min] | 20...3000 |
| Reset point rP | [ml/min] | 5...2984 |
| Analogue start point ASP | [ml/min] | 0...2400 |
| Analogue end point AEP | [ml/min] | 600...3000 |
| Low flow cut-off LFC | [ml/min] | < 60 |
| Volumetric flow quantity monitoring | | |
| Pulse value | | 0.001...3000 l |
| Pulse length | [s] | 0,008...2 |
| Temperature monitoring | | |
| Measuring range | [°C] | -20...80 |
| Resolution | [°C] | 0.2 |
| Set point SP | [°C] | -19.2...80 |
| Reset point rP | [°C] | -19.6...79.6 |
| Analogue start point | [°C] | -20...60 |
| Analogue end point | [°C] | 0...80 |
| In steps of | [°C] | 0.2 |

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| Accuracy / deviations | | |
|--------------------------------------|---|-----------------------------------|
| Flow monitoring | | |
| Accuracy (in the measuring range) | | $\pm (2 \% MW + 0,5 \% MEW)$ |
| Repeatability | | $\pm 0,2\% MEW$ |
| Temperature monitoring | | |
| Accuracy | [K] | $\pm 2,5 (Q > 0,5 \text{ l/min})$ |
| Response times | | |
| Flow monitoring | | |
| Response time | [s] | 0.15; (dAP = 0, T19) |
| Delay time programmable dS, dr | [s] | 0...50 |
| Damping for the switching output dAP | [s] | 0...5 |
| Temperature monitoring | | |
| Dynamic response T05 / T09 | [s] | T09 = 40 (Q > 1 l/min) |
| Software / programming | | |
| Parameter setting options | Flow monitoring; quantity meter; Preset counter; Temperature monitoring; hysteresis / window; normally open / normally closed; switching logic; current/ voltage/pulse output; start-up delay; display can be deactivated; Display unit | |
| Interfaces | | |
| Communication interface | IO-Link | |
| Transmission type | COM2 (38,4 kBaud) | |
| IO-Link revision | 1.1 | |
| SDCI standard | IEC 61131-9 | |
| IO-Link device ID | 671d / 00 02 9Fh | |
| Profiles | Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis | |
| SIO mode | yes | |
| Required master port type | A | |
| Process data analogue | 3 | |
| Process data binary | 2 | |
| Min. process cycle time | [ms] | 4 |
| Operating conditions | | |
| Ambient temperature | [°C] | -10...60 |
| Storage temperature | [°C] | -25...80 |
| Protection | IP 67 | |
| Tests / approvals | | |
| EMC | DIN EN 60947-5-9 | |
| Shock resistance | DIN IEC 68-2-27 | 20 g (11 ms) |
| Vibration resistance | DIN IEC 68-2-6 | 5 g (10...2000 Hz) |
| MTTF | [years] | 144 |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |

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| Mechanical data | | |
|---|---|--|
| Weight [g] | 536.5 | |
| Materials | stainless steel (1.4404 / 316L); PBT-GF20; PC; FKM; TPE | |
| Materials (wetted parts) | stainless steel (1.4404 / 316L); PEEK; FKM | |
| Process connection | threaded connection G 1/4 DN6 flat seal | |
| Displays / operating elements | | |
| Display | Display unit | 6 x LED, green (ml/min, l/h, l, m ³ , °C, 10 ³) |
| | switching status | 2 x LED, yellow |
| | measured values | alphanumeric display, 4-digit |
| | programming | alphanumeric display, 4-digit |
| Remarks | | |
| Remarks | MW = measured value MEW = Final value of the measuring range | |
| Pack quantity | 1 pcs. | |
| Electrical connection | | |
| Connector: 1 x M12; Contacts: gold-plated | | |
|  | | |

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Magnetic-inductive flow meter

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Connection



colours to DIN EN 60947-5-2

OUT1:

- switching output volumetric flow quantity monitoring
- Pulse output quantity meter
- signal output Preset counter
- IO-Link

OUT2:

- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- input counter reset

Core colours :

| | |
|------|-------|
| BK = | black |
| BN = | brown |
| BU = | blue |
| WH = | white |

SM4000

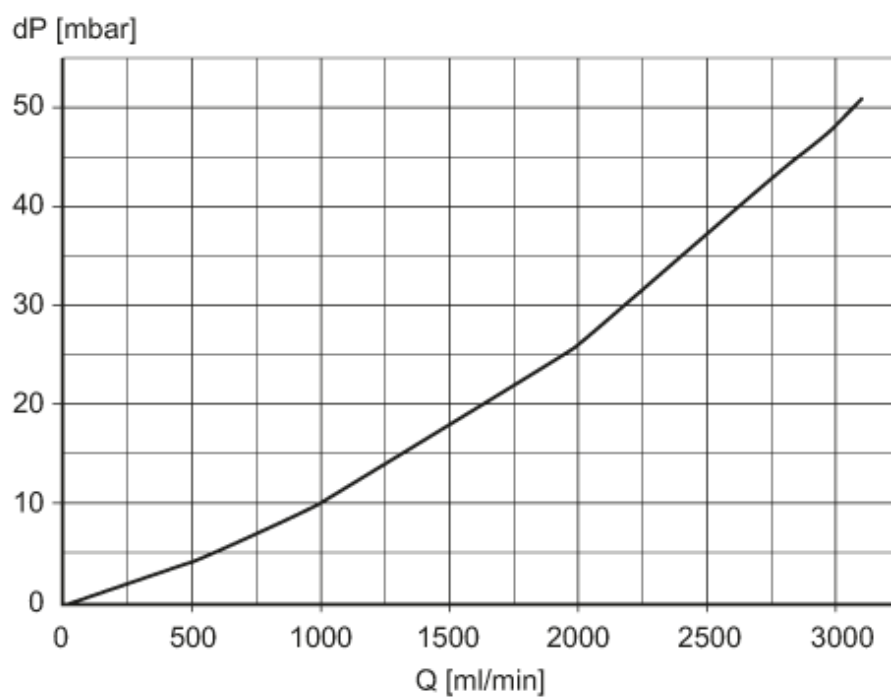


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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity