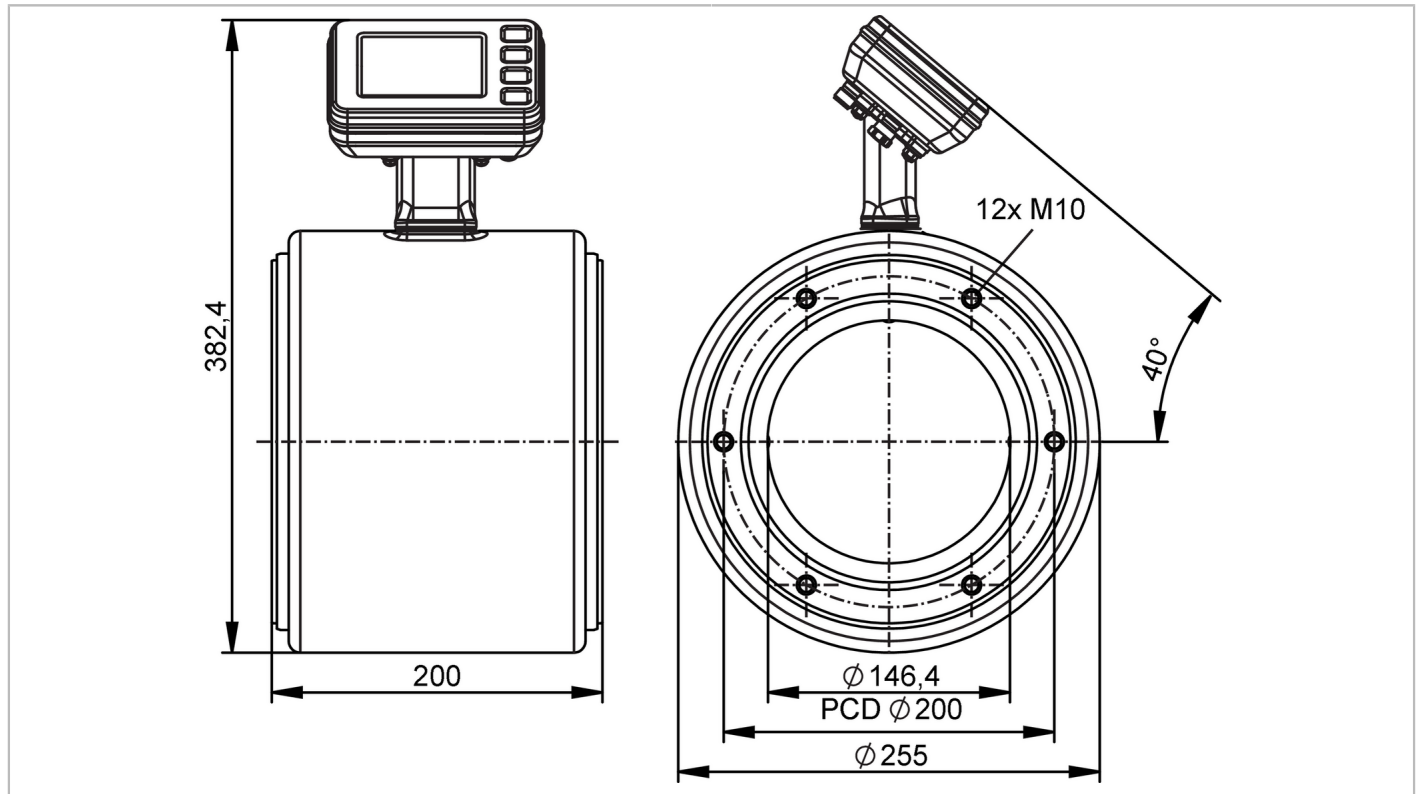


SMF920



Magnetic-inductive flow meter

SMGX2KGFRRKG/USD



EC 1935/2004

FCM



Product characteristics

| | | | | |
|--------------------|----------------------------|-------------------|-----------------|---------------------------|
| Measuring range | 100...10000 l/min | 6000...600000 l/h | 0.09...9.43 m/s | 6...600 m ³ /h |
| Nominal diameter | DN150 (6") | | | |
| Process connection | ifm-specific device flange | | | |

Application

| | |
|-------------------------|---|
| Special feature | gold-plated contacts |
| Application | food and beverage industry |
| Media | Conductive liquids; water; water-based media |
| Note on media | food products such as beer, milk, fruit juices, soft drinks, ketchup, yogurt, yogurt toppings, ice cream conductivity: $\geq 5 \mu\text{S/cm}$ |
| Medium temperature [°C] | -20...150 |
| Min. burst pressure | 24 bar |
| Pressure rating | 16 bar |

Electrical data

| | |
|-----------------------------|--------------------|
| Operating voltage [V] | 18...32 DC |
| Current consumption [mA] | 250; (24V) |
| Protection class | III |
| Reverse polarity protection | yes |
| Power-on delay time [s] | < 5 |
| Measuring principle | magnetic-inductive |

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| Inputs / outputs | | | | |
|--|-----------------------------|--|--------------------|------------------------------|
| Total number of inputs and outputs | 2 | | | |
| Inputs | | | | |
| Inputs | OUT2 | external totalizer reset | | |
| Outputs | | | | |
| Total number of outputs | 2 | | | |
| Output signal | OUT1 | pulse signal; totalizer switching signal; diagnostic signal; IO-Link | | |
| | OUT2 | analog signal; pulse signal; totalizer switching signal; diagnostic signal | | |
| Electrical design | PNP/NPN | | | |
| Pulse output | flow rate meter | | | |
| Short-circuit protection | yes | | | |
| Type of short-circuit protection | yes (non-latching) | | | |
| Overload protection | yes | | | |
| Analog | | | | |
| Number of analog outputs | 1 | | | |
| Analog current output [mA] | 4...20; (skalierbar) | | | |
| Max. load [Ω] | 500 | | | |
| Resolution of analog output | 0.38 μ A | | | |
| Digital | | | | |
| Number of digital outputs | 2 | | | |
| Max. voltage drop switching output DC [V] | 2 | | | |
| Permanent current rating of switching output DC [mA] | 100 | | | |
| Switching frequency DC [Hz] | 0...10000 | | | |
| Measuring/setting range | | | | |
| Measuring range | 100...10000 l/min | 6000...600000 l/h | 0.09...9.43 m/s | 6...600 m ³ /h |
| Display range | -12000...12000 l/min | -720000...720000 l/h | -11.32...11.32 m/s | -720...720 m ³ /h |
| Resolution | 0.1 l/min | 100 l/h | 0.01 m/s | 0.1 m ³ /h |
| Note on factory setting | 0...160,0 m ³ /h | | | |
| Analog start point ASP | -10000...8000 l/min | -600000...480000 l/h | -9.43...7.55 m/s | -600...480 m ³ /h |
| Analog end point AEP | -8000...10000 l/min | -480000...600000 l/h | -7.55...9.43 m/s | -480...600 m ³ /h |
| Low flow cut-off LFC | 0...8000 l/min | 0...480000 l/h | 0...7.43 m/s | 0...480 m ³ /h |
| Pulse length [s] | 0.00005...2 | | | |
| Pulse value | 0.017...99999000 l | | | |
| Temperature monitoring | | | | |
| Measuring range [°C] | -20...150 | | | |
| Display range [°C] | -20...150 | | | |
| Resolution [°C] | 0.01 | | | |
| Analog start point [°C] | -20...116 | | | |
| Analog end point [°C] | 14...150 | | | |

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| Conductivity monitoring | | |
|-----------------------------------|---|--|
| Measuring range | [μS/cm] | 100...100000 |
| Display range | [μS/cm] | 0...10000000 |
| Resolution | [μS/cm] | 1 |
| Analog start point | [μS/cm] | 0...80000 |
| Analog end point | [μS/cm] | 20000...100000 |
| Accuracy / deviations | | |
| Volumetric flow monitoring | | |
| Accuracy (in the measuring range) | with optional factory calibration (availability is being planned) | ± (0,2 % MW + 2 mm/s) |
| | standard | ± (0,5 % MW + 1,5 mm/s) |
| Repeatability | | 0,1% MW |
| Temperature monitoring | | |
| Accuracy | [K] | ± 1 (v > 0,5 m/s) |
| Repeatability | [K] | ± 0,5 (v > 0,5 m/s) |
| Conductivity monitoring | | |
| Accuracy (in the measuring range) | in the range of 100...20000 μS/cm | ±10% MW |
| | in the range of 20000...100000 μS/cm | ±20% MW |
| Repeatability | | ± 5% MW |
| Reaction times | | |
| Volumetric flow monitoring | | |
| Response time | [s] | < 0.3 |
| Damping process value dAP | [s] | 0...5 |
| Temperature monitoring | | |
| Response time | [s] | < 3; (v > 0,5 m/s) |
| Conductivity monitoring | | |
| Response time | [s] | < 2 |
| Software / programming | | |
| Diagnostic functions | | direction of flow detection; liquid detection |
| Interfaces | | |
| Communication interface | | IO-Link |
| Transmission type | | COM3 (230,4 kBaud) |
| IO-Link revision | | 1.1.3 |
| SDCI standard | | IEC 61131-9 |
| Profiles | Smart Sensor - SSP 4.3.4 | Measuring and Switching Sensor, floating point, 4 channel |
| | BLOB | Binary Large Object transfer |
| | Common - I&D | Identification and Diagnosis |
| | Extension | Sensor Control Wide |
| | Extension | Quantity detection, switches when value exceeds the setpoint |
| | Function | Locator |
| Function | ProductURI | |
| SIO mode | | yes |

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| | | |
|---------------------------------|--|-------------------|
| Required master port class | A | |
| Process data analog | 6 | |
| Process data binary | 8 | |
| Min. process cycle time [ms] | 1.9 | |
| IO-Link process data (cyclical) | Function | bit length |
| | totalizer | 32 |
| | flow | 32 |
| | temperature | 32 |
| | conductivity | 32 |
| | status | 4 |
| | binary switching information | 8 |
| IO-Link functions (acyclical) | direction of flow detection; totalizer; memory; operating hours counter; internal temperature; simulation function | |
| Supported DeviceIDs | Type of operation | DeviceID |
| | default | 1807 |

Operating conditions

| | |
|--------------------------|---------------------------------|
| Ambient temperature [°C] | -20...65 |
| Storage temperature [°C] | -20...80 |
| Protection | IP 67; IP 69; (to DIN EN 60529) |

Tests / approvals

| | | |
|------------------------------|---|-------------------|
| EMC | DIN 61326-1 | |
| Shock resistance | DIN IEC 68-2-27 | 20 g (18ms) |
| Vibration resistance | DIN IEC 68-2-6 | 5 g (10...2000Hz) |
| MTTF [years] | 81 | |
| UL approval | UL approval number | I031 |
| | File number UL | E174189 |
| Pressure equipment directive | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |

Mechanical data

| | |
|---|---|
| Weight [g] | 17264 |
| Housing | tubular |
| Inlet pipe length | 5 x DN |
| Outlet pipe length | 2 x DN |
| Dimensions [mm] | Ø 255 / L = 200 |
| Material | housing: stainless steel (1.4404 / 316L); flange: stainless steel (1.4301 / 304); electronics fixture: stainless steel (1.4301 / 304); electronics: stainless steel (1.4404 / 316L); Display: polysulfone; Display-sealing: FKM; LED ring: PP |
| Materials (wetted parts) | Pipe section: PFA; electrodes: stainless steel (1.4435 / 316L) |
| Nominal diameter | DN150 (6") |
| Process connection | ifm-specific device flange |
| Surface characteristics Ra/Rz of the wetted parts | Ra < 0.4 µm |

Displays / operating elements

| | | |
|---------|------------------|---|
| Display | process value | full graphics TFT display, multi-color 3,5" 320 x 240 Pixel |
| | | display layouts: 4 |
| | | display rotation: 4 x 90° |
| | operating status | LED ring, three-color |

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| | |
|--------------------|--|
| Display unit | l/min; l/h; hl/min; hl/h; m ³ /min; m ³ /h; m/s; °C; μS/cm; S/m; ms/cm |
| Factory setting | m ³ /h; °C; μS/cm |
| Language | German; English; Spanish; French; Italian; Japanese; Korean; Portuguese; Chinese |
| Operating elements | 4 capacitive pushbuttons |

Remarks

| | |
|---------|---|
| Remarks | MW = Measured value |
| | MEW = Final value of the measuring range |
| | pulse and totalizer signal are only available for one of the two outputs |
| | reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection |
| | reference conditions (2/2): inlet pipe length 10xDN, outlet pipe length 5xDN, device settling time: 30 minutes, device orientation: horizontal, display orientation: up |
| | accuracy specifications according to factory certificate on delivery |

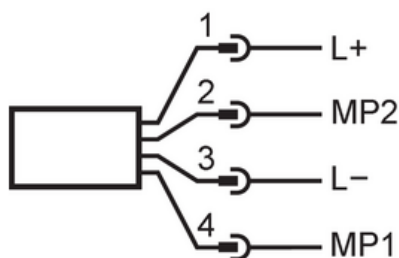
| | |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



| | | |
|---|-----|----------------|
| 1 | L+ | |
| 2 | MP2 | DO2, AO, Reset |
| 3 | L- | |
| 4 | MP1 | DO1, IO-Link |

AO: analog output; DO: digital output; MP: multi-function connection