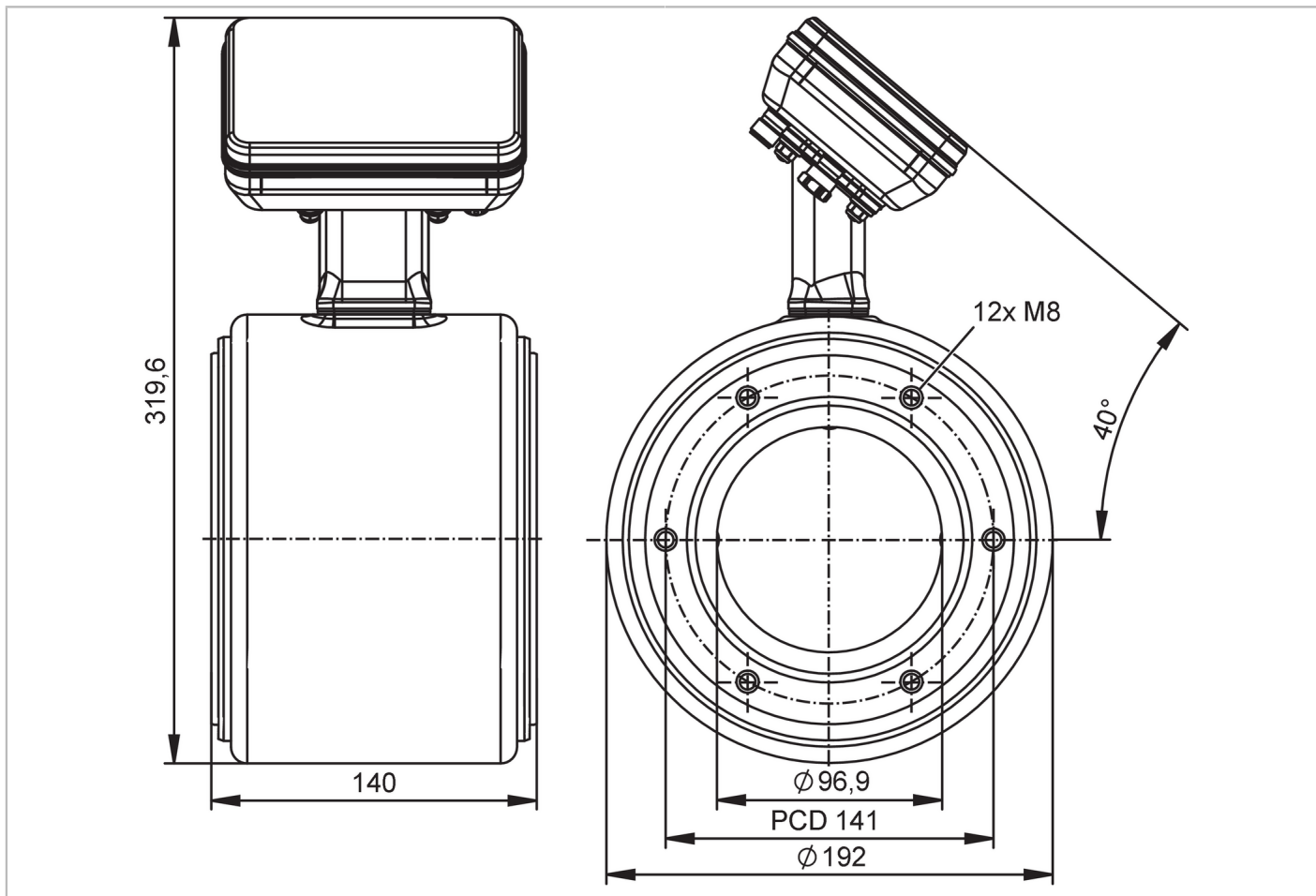


SMF750



Magnetic-inductive flow meter

SMGX0KGFFRKG/UST



EC 1935/2004

FCM



Product characteristics

| | | | | |
|--------------------|----------------------------|---------------------------|-----------------|------------------|
| Measuring range | 50...5000 l/min | 3...300 m ³ /h | 13.2...1321 gpm | 0.33...32.8 ft/s |
| Nominal diameter | DN100 (4") | | | |
| 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: ≥ 5 μS/cm | | | |
| Medium temperature [°C] | -20...150 | | | |
| Min. burst pressure | 37.5 bar | 543.75 psi | 3.75 MPa | |
| Pressure rating | 25 bar | 362.5 psi | 2.5 MPa | |

Electrical data

| | | | | |
|-----------------------------|------------|--|--|--|
| Operating voltage [V] | 18...32 DC | | | |
| Current consumption [mA] | 250; (24V) | | | |
| Protection class | III | | | |
| Reverse polarity protection | yes | | | |

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| | | | | | |
|---|---------|----------------------------|--|--------------------|--------------------|
| Power-on delay time | [s] | < 5 | | | |
| Measuring principle | | magnetic-inductive | | | |
| 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 μA | | | |
| 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 | | 50...5000 l/min | 3...300 m ³ /h | 13.2...1321 gpm | 0.33...32.8 ft/s |
| Note on factory setting | | 0...70,0 m ³ /h | | | |
| Analog start point ASP | | -5000...4000 l/min | -300...240 m ³ /h | -1321...1056.8 gpm | -32.8...26.24 ft/s |
| Analog end point AEP | | -4000...5000 l/min | -240...300 m ³ /h | -1056.8...1321 gpm | -26.24...32.8 ft/s |
| Low flow cut-off LFC | | 0...4000 l/min | 0...240 m ³ /h | 0...1056.8 gpm | 0...26.24 ft/s |
| Pulse length | [s] | 0.00005...2 | | | |
| Pulse value | | 0.009...99999000 l | | | |
| Temperature monitoring | | | | | |
| Measuring range | | -20...150 °C | | -4...302 °F | |
| Analog start point | | -20...116 °C | | -4...240.8 °F | |
| Analog end point | | 14...150 °C | | 57.2...302 °F | |
| Conductivity monitoring | | | | | |
| Measuring range | [μS/cm] | 100...100000 | | | |
| Analog start point | [μS/cm] | 0...80000 | | | |

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| | | |
|---------------------------------------|---|--|
| Analog end point | [μ S/cm] | 20000...100000 |
| Accuracy / deviations | | |
| Volumetric flow monitoring | | |
| Accuracy (under reference conditions) | with optional factory calibration (availability is being planned) | \pm (0,2 % MW + 2 mm/s) |
| | standard | \pm (0,5 % MW + 1,5 mm/s) |
| Repeatability | | 0,1% MW |
| Temperature monitoring | | |
| Accuracy | [K] | \pm 1 ($v > 0,5$ m/s) |
| Repeatability | [K] | \pm 0,5 ($v > 0,5$ m/s) |
| Conductivity monitoring | | |
| Accuracy (in the measuring range) | in the range of 100...20000 μ S/cm | \pm 10% MW |
| | in the range of 20000...100000 μ S/cm | \pm 20% MW |
| Repeatability | | \pm 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 |
| Required master port class | | A |
| Process data analog | | 6 |
| Process data binary | | 8 |
| Min. process cycle time | [ms] | 1.9 |

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| | | |
|------------------------------------|--|-------------------|
| IO-Link process data (cyclical) | Function | bit length |
| | totalizer | 32 |
| | flow | 32 |
| | temperature | 32 |
| | conductivity | 32 |
| | status | 4 |
| IO-Link functions (acyclical) | binary switching information | 8 |
| | direction of flow detection; totalizer; memory; operating hours counter; internal temperature; simulation function | |
| Supported DeviceIDs | Type of operation | DeviceID |
| | default | 1803 |

| Operating conditions | | |
|----------------------|---------------------------------|-------------|
| Ambient temperature | -20...65 °C | -4...149 °F |
| Storage temperature | -20...80 °C | -4...176 °F |
| Protection | IP 67; IP 69; (to DIN EN 60529) | |

| Tests / approvals | | |
|------------------------------|---|-------------------|
| EMC | DIN 61326-1 | |
| CPA approval | model number | SMF |
| | accuracy class | 0,5 |
| Shock resistance | DIN IEC 68-2-27 | 20 g (18ms) |
| Vibration resistance | DIN IEC 68-2-6 | 5 g (10...2000Hz) |
| MTTF [years] | 82 | |
| UL approval | UL approval number | I032 |
| Pressure equipment directive | sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |

| Mechanical data | | |
|---|---|--|
| Weight [g] | 8818.2 | |
| Housing | tubular | |
| Inlet pipe length | 5 x DN | |
| Outlet pipe length | 2 x DN | |
| Dimensions [mm] | Ø 192 / L = 140 | |
| 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); LED ring: PP | |
| Materials (wetted parts) | Pipe section: PFA; electrodes: stainless steel (1.4435 / 316L) | |
| Nominal diameter | DN100 (4") | |
| Process connection | ifm-specific device flange | |
| Surface characteristics Ra/Rz of the wetted parts | Ra < 0.4 µm | |

| Displays / operating elements | | |
|-------------------------------|------------------------------|-----------------------|
| Display | operating status | LED ring, three-color |
| Factory setting | m ³ /h; °C; µS/cm | |

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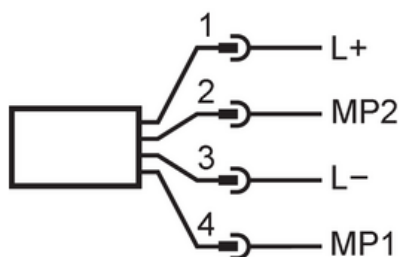
| Remarks | |
|---------------|---|
| Remarks | MW = Measured value |
| | MEW = Final value of the measuring range |
| | pulse and totalizer signal are only available for one of the two outputs |
| | reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series 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 |
| Pack quantity | 1 pcs. |

Electrical connection

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



Connection



Electrical connection - plug

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

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