

M9.02



Flow monitor and transmitter



M9.02

FLS M9.02 is an extremely efficient flow monitor and is designed to convert the frequency signal of flow sensors into flow rate. The M9.02 monitor is equipped with a large 4" graphic display which shows measured values clearly and a lot of other useful information. Moreover, due to a multicolour display plus a powerful backlight, measurement status can be determined easily from afar too. A tutorial software guarantees a mistake-proof and fast set up of every parameter. Calibration can be performed by indicating the installation features or using a reference value through a new "in-line calibration". A 4-20mA output is available to communicate the flow rate to an external remote device. Appropriate combination of digital outputs allows customised setups for any process to be controlled. The USB port on the back allows you to update the software with a wide range of customisation services as standard and on-demand.

FLOW MONITOR AND TRANSMITTER

APPLICATIONS

- Water treatment plants
- Industrial wastewater treatment and recovery
- Water distribution networks
- Filtration systems
- Swimming pools and spas
- Irrigation and fertilization
- Leak detection
- Cooling monitoring
- Processing and manufacturing industry
- Chemical production

MAIN CHARACTERISTICS

- Large graphic display
- Colour backlighting
- On-line help
- Installation flexibility
- Simple, user-friendly and error-proof calibration software
- Mechanical relay and solid state relay for external alarms and for the control of external devices
- Multilingual menu
- USB port for software upgrade

TECHNICAL DATA

General information

Compatible sensors: Hall - effect flow sensors with frequency output or electromagnetic flow sensors

Materials:

- Case: ABS
- Display: PC
- Panel and wall gasket: silicone rubber
- 5-button keyboard: silicone rubber

Display:

- Full graphic LCD
- Backlight version: 3-colours
- Backlighting activation: User adjustable with 5 levels of timing
- Update rate: 1 second
- Protection class: IP65 front

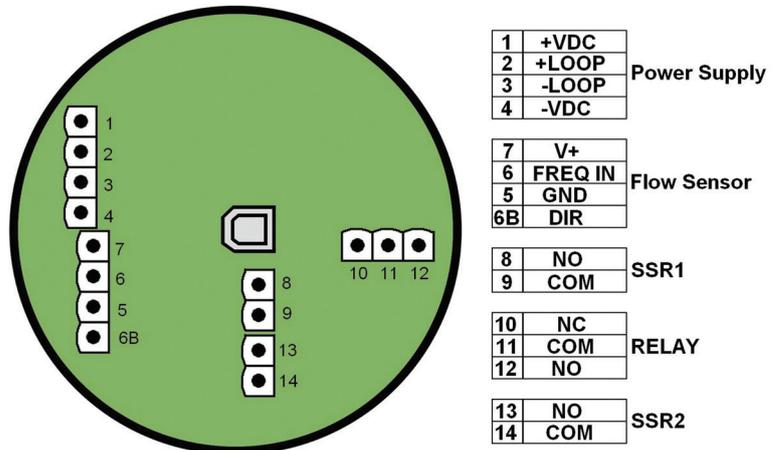
Flow input range (frequency): 0÷1500Hz

Flow input accuracy (frequency): 0.5%

| | |
|----------------------------------|---|
| Electrical data | Supply voltage: from 12 to 24 VDC ±10% regulated |
| | Max electrical consumption: < 200 mA |
| | Hall effect flow sensor power supply: – 5 VDC a < 20 mA – Optically isolated from current loop – Short circuit protected |
| | 1 current output: – 4-20 mA, isolated, fully adjustable and reversible – Max loop impedance: 800 Ω @ 24 VDC - 250 Ω @ 12 VDC |
| | 2 solid state relay outputs: – User selectable as MIN alarm, MAX alarm, pulse output, window alarm, off – Optically isolated, 50 mA max sink, 24 VDC max pull-up voltage – Max pulse/min: 300 – Hysteresis: user selectable |
| | 1 relay output: – User selectable as MIN alarm, MAX alarm, pulse output, window alarm, off – Mechanical Single Pole Double Throw (SPDT) contact – Expected mechanical life (min. operations): 10 ⁷ – Expected electrical life (min. operations): 10 ⁵ switching N.A./N.C. capacity 5 A/240 VAC – Max pulse/min: 60 – Hysteresis: user selectable |
| Environmental data | Operating temperature: from -10°C to 70°C (from 14°F to 158°F) Storage temperature: from -30°C to +80°C (from -22°F to +176°F) Relative humidity: from 0 to 95% not condensing |
| Standards & Approvals | Manufactured under ISO 9001 Manufactured under ISO 14001 CE RoHS Compliance EAC |

ELECTRICAL CONNECTIONS

Rear view of electrical connections



PRODUCT CODES



M9.02.PX - M9.02.WX

Flow Monitor and Transmitter

| Code | Mounting | Power supply | wires power Technology | Sensor Input | Output | Weight (gr.) |
|----------|----------|---------------|------------------------|------------------|---|--------------|
| M9.02.P1 | Panel | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | 500 |
| M9.02.W1 | Wall | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | 550 |
| M9.02.W2 | Wall | 110 - 230 VAC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | 650 |

S.S.R: solid state relay / mech relay.: mechanical relay

M9.02.XX

Flow Monitor and Transmitter Field mount

| Code | Power supply | wires power Technology | Sensor Input | Output | Length | Main Wetted Materials | Weight (gr.) |
|----------|--------------|------------------------|------------------|---|--------|-----------------------|--------------|
| M9.02.01 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L0 | C-PVC EPDM | 550 |
| M9.02.02 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L0 | C-PVC FKM | 550 |
| M9.02.03 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L1 | C-PVC EPDM | 550 |
| M9.02.04 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L1 | C-PVC FKM | 550 |
| M9.02.05 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L0 | PVDF EPDM | 550 |
| M9.02.06 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L0 | PVDF FKM | 550 |
| M9.02.07 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L1 | PVDF EPDM | 550 |
| M9.02.08 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L1 | PVDF FKM | 550 |
| M9.02.09 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L0 | 316L SS EPDM | 600 |
| M9.02.10 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L0 | 316L SS FKM | 600 |
| M9.02.11 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L1 | 316L SS EPDM | 600 |
| M9.02.12 | 12 - 24 VDC | 3/4 wires | Flow (Frequency) | 1* (4-20 mA) 2* (S.S.R.) 1* (mech. relay) | L1 | 316L SS FKM | 600 |

S.S.R: solid state relay / mech relay.: mechanical relay