

IN-FLOW

# F-201EI

Mass Flow Controller for low pressure drop or corrosive gas service



## Technical specifications

### Measurement & control

|                                     |                                                                            |
|-------------------------------------|----------------------------------------------------------------------------|
| Type of media                       | Gases                                                                      |
| Flow range                          | min. 0.028...1.4 l <sub>N</sub> /min<br>max. 0.24...12 l <sub>N</sub> /min |
| Accuracy                            | ±1% FS                                                                     |
| Repeatability                       | <±0.2% Rd (or <±0.04% FS whichever is greater)                             |
| Turndown ratio                      | 1:50 (2...100%)                                                            |
| Multi fluid capability              | Storage of max. 8 calibration curves                                       |
| Settling time (in control, typical) | 2 ... 3 sec.                                                               |
| Control stability                   | < ± 0.1 % FS (typical)                                                     |
| Operating temperature               | -10...+70°C; 0...+50°C for ATEX zone 2, KCs, Class I Div 2                 |
| Temperature sensitivity             | < 0.1% FS/°C                                                               |
| Leak integrity, outboard            | tested < 2 x 10 <sup>-9</sup> mbar l/s He                                  |
| Pressure sensitivity                | 0.1% Rd/bar typical N2; 0.01% Rd/bar typical H2                            |
| Max. Kv-value                       | 6.6 x 10 <sup>-2</sup>                                                     |
| Mounting                            | max. error at 90° off horizontal 0.2% at 1 bar, typical N2                 |
| Warm-up time                        | 30 minutes                                                                 |
| Storage/transport conditions        | 0...+50°C, max. 95% RH (non-condensing)                                    |

### Approvals

|                   |                                 |
|-------------------|---------------------------------|
| Electrical safety | IEC 61010-1                     |
| Marking           | CE, UKCA, RoHS, WEEE, REACH     |
| Ex-Protection     | Class I Div 2, ATEX Zone 2, KCs |

### Mechanical specs

|                                |                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Pressure rating (PN) - in barg | 10                                                                                                                                                  |
| Ingress protection             | IP65                                                                                                                                                |
| Material wetted parts          | stainless steel 316L or comparable                                                                                                                  |
| Sealing material               | standard: FKM/Viton®; options: EPDM, FFKM/Kalrez®, FDA and USP Class VI approved compounds                                                          |
| Plunger material               | standard: FFKM with PI (polyimide) foil; options: EPDM with PI foil, FDA and USP Class VI approved EPDM, FDA and USP Class VI approved FFKM/Kalrez® |
| Process connections            | compression type or face seal (VCR/VCO) couplings                                                                                                   |
| Weight                         | 1.3 kg                                                                                                                                              |

### Electrical properties

|                       |                                                                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply          | +15...24 Vdc                                                                                                                                     |
| Power consumption     | 3.5 W typical at 24 V<br>for fieldbus: add 0.9 W                                                                                                 |
| Analog output         | 0...5 (10) Vdc or 0 (4)...20 mA (sourcing)                                                                                                       |
| Analog setpoint       | 0...5 (10) Vdc or 0 (4)...20 mA (sinking)                                                                                                        |
| Digital communication | standard: RS232 options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK or FLOW-BUS |

### Electrical interfaces

|                                                             |                        |
|-------------------------------------------------------------|------------------------|
| Power (main connector)                                      | 8-pin DIN (male)       |
| Function (instrument connector)                             | Analog, RS232, RS485   |
| PROFIBUS DP                                                 | 8-pin M12B (female)    |
| CANopen / DeviceNet                                         | 5-pin M12A (male)      |
| Modbus RTU/ASCII/FLOW-BUS                                   | 5-pin M12A (male)      |
| Modbus TCP / EtherNet/IP / EtherCAT® / PROFINET / POWERLINK | 2x 4 pin M12D (female) |