

# F-201CM

Metal Sealed Mass Flow Meter for high purity gas supply



## Technical specifications

### Measurement & control

|                                     |  |
|-------------------------------------|--|
| Type of media                       | Gases  |
| Flow range                          | min. 0.12...6 ml <sub>N</sub> /min<br>max. 1...50 l <sub>N</sub> /min    |
| Accuracy                            | ±0.5% Rd plus ±0.1%FS  |
| Repeatability                       | <±0.2% Rd (or <±0.04% FS whichever is greater)                           |
| Turndown ratio                      | 1:150 (1:50 in analog mode)  |
| Multi fluid capability              | storage of max. 8 calibration curves                                     |
| Settling time (in control, typical) | 1 second typical above 5% FS; option: down to 600 msec                   |
| Control stability                   | ±0.1 % FS (typical for 1 l <sub>N</sub> /min N <sub>2</sub> )            |
| Operating temperature               | -10...+70°C  |
| Temperature sensitivity             | zero: < 0.05% FS/°C; span: < 0.05% Rd/°C                                 |
| Leak integrity, outboard            | tested < 2 x 10 <sup>-9</sup> mbar l/s He                                |
| Pressure sensitivity                | 0.1% Rd/bar typical N <sub>2</sub> ; 0.01% Rd/bar typical H <sub>2</sub> |
| Pressure range sensor               | 0 to 64 bar  |
| Leak-by through closed valve        | < 10 <sup>-5</sup> Pa.m <sup>3</sup> /s He                               |
| Mounting                            | max. error at 90° off horizontal 0.2% at 1 bar, typical N <sub>2</sub>   |
| Warm-up time                        | 30 minutes   |
| Storage/transport conditions        | 0...+50°C, max. 95% RH (non-condensing)                                  |

### Approvals

|         |    |
|---------|----|
| Marking | CE |
|---------|----|

### Mechanical specs

|                       |   |
|-----------------------|---|
| Pressure rating (PN)  | 64  |
| Ingress protection    | IP40  |
| Material wetted parts | stainless steel 316L or comparable  |
| Sealing material      | Outer seals: metal-to-metal (no rings); Inner seal / valve seat: FFKM/Kalrez® |
| Plunger material      | FFKM/Kalrez®; option FKM/Viton®   |
| Process connections   | 1/4" face seal male   |
| Weight                | 0.7 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: PROFIBUS DP, CANopen®, DeviceNet™, PROFINET, EtherCAT®, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK, FLOW-BUS |

### Electrical interfaces

|   |                      |
|---|----------------------|
| Power (main connector)                                      | 9-pin D-sub (male)   |
| Function (main connector)                                   | Analog, RS232, RS485 |
| PROFIBUS DP   | 9-pin D-sub (female) |
| CANopen / DeviceNet   | 5-pin M12A (male)    |
| Modbus RTU/ASCII/FLOW-BUS                                   | RJ45                 |
| Modbus TCP / EtherNet/IP / EtherCAT® / PROFINET / POWERLINK | 2x RJ45              |