

red-y smart FDA: High-tech mass flow controllers and mass flow meters with FDA-Statement

4.0 technology for highest demands:

Latest Swiss high-tech development for gases of the red-y smart series with **FDA-Statement** are particularly suitable for measuring and control tasks in **Pharma**, **Biotechnologie** and **Life Science**.

- ★ Body materials stainless steel 316L (1.4404)
- ★ Seals FDA USP Class VI, ADI free
- ★ Test Certificate 3.1 according to ISO 10474 / EN 10204
- ★ High accuracy & wide dynamic range
- ★ High repeatability & reliability
- ★ Long-term stability





Technical Data

| Instrument versions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|-----------------------|--|------------|--------------------------------|-------|--|-------------------|-------|--|-------------------|-------|--|-------------------|-------|---|-------------------|--|-------|--|-------------------|-------|--|-------------------|-------|--|-------------------|-------|---|-------------------|
| 〈Standard〉 The economic solution | Accuracy: $\pm 1.0\%$ full scale (*) Turndown ratio: 1 : 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 〈Hi-Performance〉 highest accuracy and turndown ratio for GSM < 200 lN/min / GSC < 150 lN/min (air) | Accuracy: $\pm 0.3\%$ full scale + $\pm 0.5\%$ of reading(*) Turndown ratio: 1 : 100 * An additional error of $\pm 0.25\%$ may apply for analogue signals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measuring ranges (Air/Full scale freely selectable) | <table border="1"> <thead> <tr> <th>Type</th> <th colspan="2">Measuring range (air)</th> <th>Connection</th> </tr> </thead> <tbody> <tr> <td rowspan="4">red-y smart meter GSM Meter</td> <td>GSM-A</td> <td>from 0 ... 25 mlN/min to 0 ... 600 mlN/min</td> <td>G$\frac{1}{4}$"</td> </tr> <tr> <td>GSM-B</td> <td>from 0 ... 600 mlN/min to 0 ... 6000 mlN/min</td> <td>G$\frac{1}{4}$"</td> </tr> <tr> <td>GSM-C</td> <td>from 0 ... 6 lN/min to 0 ... 60 lN/min</td> <td>G$\frac{1}{4}$"</td> </tr> <tr> <td>GSM-D</td> <td>from 0 ... 60 lN/mi to 0 ... 450 lN/min</td> <td>G$\frac{1}{2}$"</td> </tr> <tr> <td rowspan="4">red-y smart controller GSC Controller</td> <td>GSM-A</td> <td>from 0 ... 25 mlN/min to 0 ... 600 mlN/min</td> <td>G$\frac{1}{4}$"</td> </tr> <tr> <td>GSM-B</td> <td>from 0 ... 600 mlN/min to 0 ... 6000 mlN/min</td> <td>G$\frac{1}{4}$"</td> </tr> <tr> <td>GSM-C</td> <td>from 0 ... 6 lN/min to 0 ... 60 lN/min</td> <td>G$\frac{1}{4}$"</td> </tr> <tr> <td>GSM-D</td> <td>from 0 ... 60 lN/mi to 0 ... 450 lN/min</td> <td>G$\frac{1}{2}$"</td> </tr> </tbody> </table> | Type | Measuring range (air) | | Connection | red-y smart meter GSM Meter | GSM-A | from 0 ... 25 mlN/min to 0 ... 600 mlN/min | G $\frac{1}{4}$ " | GSM-B | from 0 ... 600 mlN/min to 0 ... 6000 mlN/min | G $\frac{1}{4}$ " | GSM-C | from 0 ... 6 lN/min to 0 ... 60 lN/min | G $\frac{1}{4}$ " | GSM-D | from 0 ... 60 lN/mi to 0 ... 450 lN/min | G $\frac{1}{2}$ " | red-y smart controller GSC Controller | GSM-A | from 0 ... 25 mlN/min to 0 ... 600 mlN/min | G $\frac{1}{4}$ " | GSM-B | from 0 ... 600 mlN/min to 0 ... 6000 mlN/min | G $\frac{1}{4}$ " | GSM-C | from 0 ... 6 lN/min to 0 ... 60 lN/min | G $\frac{1}{4}$ " | GSM-D | from 0 ... 60 lN/mi to 0 ... 450 lN/min | G $\frac{1}{2}$ " |
| Type | Measuring range (air) | | Connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| red-y smart meter GSM Meter | GSM-A | from 0 ... 25 mlN/min to 0 ... 600 mlN/min | G $\frac{1}{4}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GSM-B | from 0 ... 600 mlN/min to 0 ... 6000 mlN/min | G $\frac{1}{4}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GSM-C | from 0 ... 6 lN/min to 0 ... 60 lN/min | G $\frac{1}{4}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GSM-D | from 0 ... 60 lN/mi to 0 ... 450 lN/min | G $\frac{1}{2}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| red-y smart controller GSC Controller | GSM-A | from 0 ... 25 mlN/min to 0 ... 600 mlN/min | G $\frac{1}{4}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GSM-B | from 0 ... 600 mlN/min to 0 ... 6000 mlN/min | G $\frac{1}{4}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GSM-C | from 0 ... 6 lN/min to 0 ... 60 lN/min | G $\frac{1}{4}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GSM-D | from 0 ... 60 lN/mi to 0 ... 450 lN/min | G $\frac{1}{2}$ " | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Interfaces

- ★ Analog
- ★ Modbus RTU
- ★ Profibus DP-V0/DP-V1
- ★ Profinet RT
- ★ EtherCAT



| | |
|-------------------------------|--|
| Performance data | |
| Median (real gas calibration) | Air, O ₂ *, N ₂ *, He, Ar, CO ₂ , H ₂ , CH ₄ , C ₃ H ₈ (other gases and gas mixtures on request) *O ₂ / N ₂ are calibrated with air |
| Response time | Meter (GSM): ± 80ms(3); Controller (GSC): ± 500ms(*) *depending on device configuration & according to SEMI standard E17-1011, 5-100% of range |
| Repeatability | ± 0.2% of full scale |
| Longterm stability | < 1% of measured value / year |
| Power supply | 24 Vdc (18 – 30 Vdc), 15 Vdc on request |
| Stromaufnahme | Meter (GSM): max. 100mA; Controller (GSC): max. 250mA (GSC V Typ 8 max. 410mA) |
| Operation pressure | 0.2 – 11 bar a (GSC mit Ventil Typ 4.5 und 8 bis max. 8 bar a) |
| Temperature (environment/gas) | 0 – 50°C |
| Materials | stainless steel 316L 1.4404 |
| Seals | EPDM |
| Pressure sensitivity | < 0.2% / bar of reading (typical N ₂) |
| Temperature sensitivity | < 0.025% / °C FS measuring range type |
| Warm-up time | < 1 sec. for full accuracy |
| Integration | |
| Output signals analog | 0..20 mA, 4..20 mA, 0..5 V, 1..5 V, 0..10 V, 2..10 V |
| Output signals digital | RS-485; Modbus RTU (Slave); Lab View-VIs available Option: Profibus DP-V0, DP-V1 / Profinet RT / EtherCAT |
| Process connection | G ¹ / ₄ " (BSPP(*) fem) bis 60 l/min, G ¹ / ₂ " (BSPP(*) fem) bis 450 l/min *British Standard Pipe Parallel |
| Inlet section | None required |
| Electrical connection | Sub D plug, 9 pole Option Profibus: Sub D 9 pole / Option Profinet RT or EtherCAT: 2x RJ45 (IN/OUT) |
| Mounting orientation | Any position (consult manufacturer above 5 bar or vertical mounting) |
| Safety | |
| Test pressure | 16 bar a |
| Leak rate | < 1 x 10 ⁻⁶ mbar l/s He |
| Environmental protection | IP50 |
| EMC | EN 61326-1 |

A quality product distributed by

CONTREC
Technology in Science and Health

CONTREC AG
Riedstrasse 6
CH-8953 Dietikon

Tel. 044 746 3220
Fax 044 746 3229

info@contrec.ch
www.contrec.ch