



red-y smart series product information

Thermal Mass Flow Meters and Controllers for Gases

Reliable and accurate: Thermal Mass Flow Meters and Controllers

Reliable technology and standardized interfaces make the red-y smart series thermal mass flow meters and controllers particularly suitable for measurement and control in gas delivery systems and plant engineering applications.

Accurate measurement

The devices offer high accuracy and a wide dynamic range.

2 instrument versions:

«Standard» and «Hi-Performance»

Accuracy up to $\pm 0.3\%$ of full scale + $\pm 0.5\%$ of reading

Turndown ratio 1 : 100

Extended turndown ratio on request

Analog & digital: 2 in 1



The flow meters and controllers make use of the latest CMOS technology and have a digital (Modbus RTU) and analog interface as standard

Operating status indication



The instruments offer an inbuilt LED status indication

Safe & fast control



The controller uses a tightly sealed control valve with leak rate less than 1×10^{-6} mbar l/s He. The fast control response of approx. 300 ms significantly reduces the setting time

Options



Built-in display

Display of flow rate, total and measuring unit. Defining a set point (controller only)



Multigas

One meter or controller can be used for up to 10 different gases or gas mixtures



Profibus

The instruments are available with Profibus interface: DP-V0 & DP-V1 protocols

3-year warranty*



High-quality components ensure long and trouble-free operation

*does not apply to calibration, options and accessories



«get red-y» software

Efficient device management with the free «get red-y» software:

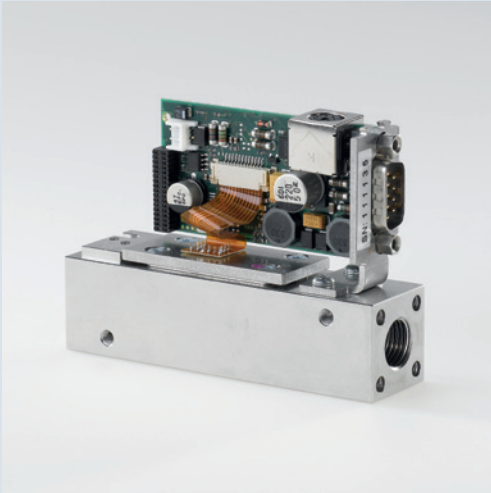
- » **View flow rate & temperature**
- » **Change set points**
- » **Select measured gas**
- » **Visualization of measured data**
- » **Adjusting control parameter**

Optional modules «get red-y» software:

- » **Datalogging**
- » **Gasmixing**
- » **Adjustment/Calibration**

High-quality technology offers maximal value for any application

Through the application of **high-precision MEMS technology** (CMOS sensors), the thermal flow meters and controllers from Vögtlin Instruments AG set new standards in terms of response characteristics and measuring accuracy, and are characterized by maximum convenience:



▲ High-tech in a very compact design

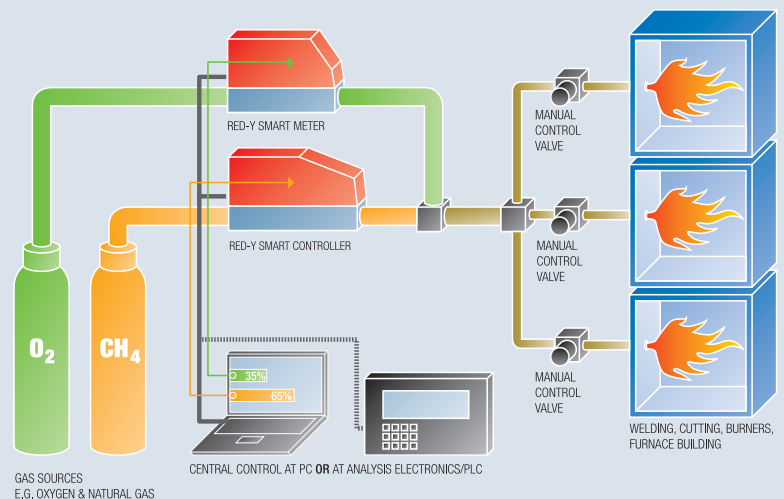
The flow meters and controllers use advanced MEMS technology

- » **Standardized signals enable simple connection to control systems**
- » **Measurements are insensitive to pressure and temperature changes**
- » **All devices are calibrated with real gas. This ensures high accuracy and reproducibility. The calibration is traceable to the METAS standard (Federal Office of Metrology, Switzerland)**
- » **Meters and controllers are easy to service and maintain**
- » **The devices have minimal pressure drop**
- » **A full range of accessories is available: Cables, fittings, etc.**
- » **«Plug & control» with the free software «get red-y»: Simple access via any PC (no additional electronic equipment required)**
- » **High quality: All flow meters are manufactured and calibrated at our headquarters in Aesch, Switzerland**

Flexibility in mixing processes and consumption measurement

Devices with high measuring accuracy and stable control characteristics are important for ensuring precise and consistent quality of gas mixtures.

The thermal mass flow meters and controllers from Vögtlin offer unbeatable technological performance and cost-effectiveness.



Wide range of accessories – immediately ready for operation



Connection cables, power supplies

Optimal range of cables and power supply units for fast integration of flow meters and controllers:

Cables for communication with PC (USB), cables for analog communication, power supply (24 Vdc)

Display and control devices

Permit the operation of up to 10 flow meters and controllers with predefined process recipes.

Fittings, filters

All flow meters and controllers are available with fittings and filters. Contact our sales department for more information.

Our specialists will be happy to advise: **+41 61 756 63 00** or **www.voegtlin.com**

Technical Data «red-y smart series»

Instrument types



smart meter GSM
Thermal mass flow meter



smart controller GSC
Thermal mass flow controller



OEM version
For customer-specific requirements

Instrument versions

| | |
|---|---|
| «Standard» The economic solution | Accuracy: $\pm 1.0\%$ of full scale* Turndown ratio: 1 : 50 |
| «Hi-Performance» With highest accuracy and turndown ratio (available for GSM < 200 l _n /min / GSC < 150 l _n /min (air)) | Accuracy: $\pm 0.3\%$ of 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) | Type | Measuring range (air) | | Connection |
|---|-------|-------------------------------------|------------------------------------|-------------------|
| red-y smart meter GSM Meter | GSM-A | from 0 ... 25 ml _n /min | to 0 ... 600 ml _n /min | G $\frac{1}{4}$ " |
| | GSM-B | from 0 ... 600 ml _n /min | to 0 ... 6000 ml _n /min | G $\frac{1}{4}$ " |
| | GSM-C | from 0 ... 6 l _n /min | to 0 ... 60 l _n /min | G $\frac{1}{4}$ " |
| | GSM-D | from 0 ... 60 l _n /min | to 0 ... 450 l _n /min | G $\frac{1}{2}$ " |
| red-y smart controller GSC Controller | GSC-A | from 0 ... 25 ml _n /min | to 0 ... 600 ml _n /min | G $\frac{1}{4}$ " |
| | GSC-B | from 0 ... 600 ml _n /min | to 0 ... 6000 ml _n /min | G $\frac{1}{4}$ " |
| | GSC-C | from 0 ... 6 l _n /min | to 0 ... 60 l _n /min | G $\frac{1}{4}$ " |
| | GSC-D | from 0 ... 60 l _n /min | to 0 ... 450 l _n /min | G $\frac{1}{2}$ " |

Performance data

| | |
|--------------------------------------|---|
| Media (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) |
| Response time | 50 ms |
| Repeatability | $\pm 0.2\%$ of full scale |
| Longterm stability | < 1% of measured value / year |
| Power supply | 24 Vdc (18 – 30 Vdc), 15 Vdc on request |
| Current consumption | Meter: max. 100mA; Controller: max. 250mA |
| Operation pressure | 0.2 – 11 bar a (GSC with valve type 4.5 and 8 max. 8 bar a) |
| Temperature (environment/gas) | 0 – 50°C |
| Materials | Anodized aluminium, optional stainless steel electropolished |
| Seals | FKM, NBR, optional EPDM |
| Pressure sensitivity | < 0.2% / bar of reading (typical N ₂) |
| Temperature sensitivity | < 0.025% FS measuring range type / °C |
| Warm-up time | < 1 sec. for full accuracy |

Integration

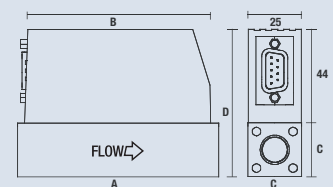
| | |
|-------------------------------|---|
| Output signals analog | 0..20 mA, 4..20 mA, 0.5 V, 1.5 V, 0..10 V, 2..10 V |
| Output signals digital | RS-485; Modbus RTU (Slave); Lab View-VIs available / option: ProfiBus DP-V0, DP-V1 |
| Process connection | G $\frac{1}{4}$ " female less than 60 l _n /min, G $\frac{1}{2}$ " female less than 450 l _n /min |
| Inlet section | None required |
| Electrical connection | Sub D plug, 9 pole |
| Mounting orientation | Any orientation (horizontal only above 5 bar) |

Safety

| | |
|---------------------------------|------------------------------------|
| Test pressure | 16 bar a |
| Leak rate | < 1 x 10 ⁻⁶ mbar l/s He |
| Environmental protection | IP-50 |
| EMC | EN 61326-1 |

Dimensions

| Dimensions in mm | A | B | C | D |
|-----------------------|-----|-----|----|----|
| GSM G $\frac{1}{4}$ " | 94 | 87 | 25 | 69 |
| GSM G $\frac{1}{2}$ " | 145 | 87 | 35 | 79 |
| GSC G $\frac{1}{4}$ " | 124 | 117 | 25 | 69 |
| GSC G $\frac{1}{2}$ " | 170 | 117 | 35 | 79 |



Do you have any questions about our products?

Give us a call:

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Or write us an e-mail:

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You will find your local Vögtlin sales partner on the internet:

www.voegtlin.com

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