



**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  $1 \times 10^{-6}$  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

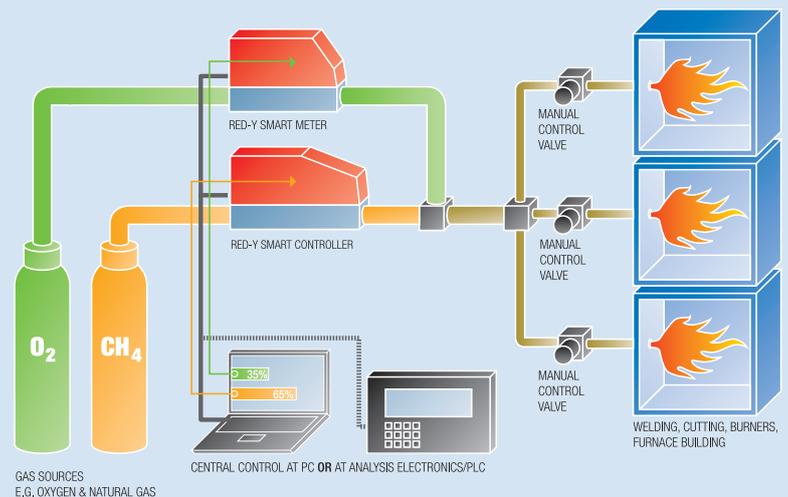
The flow meters and controllers use advanced MEMS technology

- » **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](http://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

<b>«Standard»</b> The economic solution	Accuracy: ± 1.0 % of full scale* Turndown ratio: 1 : 50
<b>«Hi-Performance»</b> With highest accuracy and turndown ratio (available for GSM < 200 l <sub>n</sub> /min / GSC < 150 l <sub>n</sub> /min (air))	Accuracy: ± 0.3 % of full scale + ± 0.5% of reading* Turndown ratio: 1 : 100 *An additional error of ±0.25% may apply for analogue signals

## Measuring ranges

(Air/Full scale freely selectable)	Type	Measuring range (air)		Connection
<b>red-y smart meter GSM</b> Meter	GSM-A	from 0 ... 25 ml <sub>n</sub> /min	to 0 ... 600 ml <sub>n</sub> /min	G $\frac{1}{4}$ "
	GSM-B	from 0 ... 600 ml <sub>n</sub> /min	to 0 ... 6000 ml <sub>n</sub> /min	G $\frac{1}{4}$ "
	GSM-C	from 0 ... 6 l <sub>n</sub> /min	to 0 ... 60 l <sub>n</sub> /min	G $\frac{1}{4}$ "
	GSM-D	from 0 ... 60 l <sub>n</sub> /min	to 0 ... 450 l <sub>n</sub> /min	G $\frac{1}{2}$ "
<b>red-y smart controller GSC</b> Controller	GSC-A	from 0 ... 25 ml <sub>n</sub> /min	to 0 ... 600 ml <sub>n</sub> /min	G $\frac{1}{4}$ "
	GSC-B	from 0 ... 600 ml <sub>n</sub> /min	to 0 ... 6000 ml <sub>n</sub> /min	G $\frac{1}{4}$ "
	GSC-C	from 0 ... 6 l <sub>n</sub> /min	to 0 ... 60 l <sub>n</sub> /min	G $\frac{1}{4}$ "
	GSC-D	from 0 ... 60 l <sub>n</sub> /min	to 0 ... 450 l <sub>n</sub> /min	G $\frac{1}{2}$ "

## Performance data

<b>Media</b> (real gas calibration)	Air, O <sub>2</sub> *, N <sub>2</sub> *, He, Ar, CO <sub>2</sub> , H <sub>2</sub> , CH <sub>4</sub> , C <sub>3</sub> H <sub>8</sub> (other gases and gas mixtures on request) *O <sub>2</sub> & N <sub>2</sub> are calibrated with air
<b>Response time</b>	Meter: 50 ms; Controller: 150 ms
<b>Repeatability</b>	± 0.2% of full scale
<b>Longterm stability</b>	< 1% of measured value / year
<b>Power supply</b>	24 Vdc (18 – 30 Vdc), 15 Vdc on request
<b>Current consumption</b>	Meter: max. 100mA; Controller: max. 250mA
<b>Operation pressure</b>	0.2 – 11 bar a (GSC with valve type 4.5 and 8 max. 8 bar a)
<b>Temperature</b> (environment/gas)	0 – 50°C
<b>Materials</b>	Anodized aluminium, optional stainless steel electropolished
<b>Seals</b>	FKM, NBR, optional EPDM
<b>Pressure sensitivity</b>	< 0.2% / bar of reading (typical N <sub>2</sub> )
<b>Temperature sensitivity</b>	< 0.025% FS measuring range type / °C
<b>Warm-up time</b>	< 1 sec. for full accuracy

## Integration

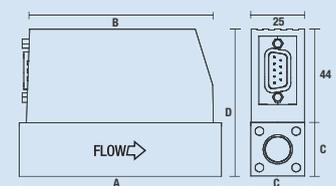
<b>Output signals analog</b>	0..20 mA, 4..20 mA, 0.5 V, 1.5 V, 0..10 V, 2..10 V
<b>Output signals digital</b>	RS-485; Modbus RTU (Slave); Lab View-VIs available / option: ProfiBus DP-V0, DP-V1
<b>Process connection</b>	G $\frac{1}{4}$ " (BSPP* female) up to 60 l <sub>n</sub> /min, G $\frac{1}{2}$ " (BSPP* female) up to 450 l <sub>n</sub> /min *British Standard Pipe Parallel
<b>Inlet section</b>	None required
<b>Electrical connection</b>	Sub D plug, 9 pole
<b>Mounting orientation</b>	Any position (consult manufacturer above 5 bar or vertical mounting)

## Safety

<b>Test pressure</b>	16 bar a
<b>Leak rate</b>	< 1 x 10 <sup>-6</sup> mbar l/s He
<b>Environmental protection</b>	IP-50
<b>EMC</b>	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





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