



**red-y compact series** product information

# Battery Powered Thermal Mass Flow Meters for Gases

# Digital advantage:

## Thermal Mass Flow Meters for Gases

The flow meters red-y compact series are characterized by powerful technology, intelligent functions, and innovative design. The instruments offer a new level of ease of use: compact design with battery power, clear digital display and smart alarm functions.

### Accurate measurement

The devices offer high accuracy and a wide dynamic range:

**Accuracy  $\pm 1 - 3\%$  of full scale**

(depending on application/measuring range)

**Turndown ratio 1 : 50**

### CMOS sensor technology



The CMOS semiconductor chip is the centerpiece of the flow meter.

Analog-digital conversion takes place in the sensor

### Portable operation



The flow meters can be powered with a battery or with a 24 Vdc power supply. battery lifetime approx. 2 years



### High-precision valve



In the versions with manual valves, high-precision needle valves are used. These valves allow fine adjustment of the flow rate

### 3-year warranty\*



High-quality components ensure long and trouble-free operation

\*does not apply to calibration, options and accessories

### Totalizer

In addition to the actual value, the total consumption can also be displayed. Ideal for gas consumption measurements

### Pressure & temperature compensated

In contrast to variable area flow meters, thermal mass flow devices are insensitive to pressure and temperature changes

### Instrument versions (red-y compact series)

Version	Display of reading	Trend display	Manual valve	Alarm functions	Totalizer	Battery power	24 Vdc supply
compact meter GCM	●	●			○	●	○
compact regulator GCR	●	●	●		○	●	○
compact switch GCS	●	●		●	○		●
compact all-in GCA	●	●	●	●	○		●



● Standard

○ Option

## Autonomy and precision for your 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:



### ▲ Convenient variable area flow meter

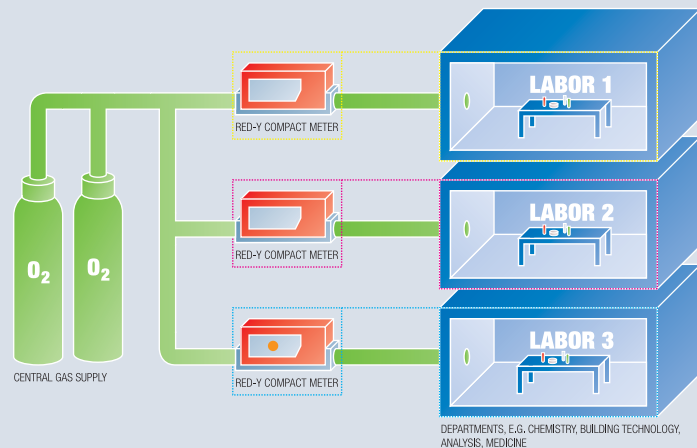
Many applications require a higher accuracy together with pressure and temperature compensation which cannot be realized with conventional variable area flow meters

- » The devices are very compact, can be installed in any position, and are immediately ready for operation
- » The local LC-display offers direct reading
- » In addition to the actual value, the total consumption can be displayed. This creates transparency in supply systems
- » Intelligent alarm functions allow versatile application
- » The autonomous operation with battery makes the compact a high-precision alternative to variable area flow meters
- » High quality: All flow meters are produced and calibrated at our headquarters in Aesch, Switzerland

## Gas consumption measurement increases safety & reduces costs

Consumption measurement for expensive gases increases resource awareness among consumers and reduces consumption.

Your costs are reduced, and you know exactly where, when and how much gas is used. Thermal mass flow meters can be installed simply in the gas pipe and be read immediately.



### ▲ compact regulator GCR G $\frac{1}{2}$ "

The valve is mounted from a flow rate of 50 l $\frac{1}{\text{min}}$

## Real gas calibration

The devices are calibrated with real gas. This guarantees high accuracy and reproducibility. The calibration is traceable to the METAS standard (Federal Office of Metrology, Switzerland).

## Intelligent alarm functions



Versatile alarm functions extend the functionality of the flow meters. For example, a limit value can be set for detecting leakages. The configurable alarm delay allows limit values to be exceeded for a short time.

# Technical data «red-y compact series»

## Instrument types



**compact meter  
GCM**

Mass flow meter



**compact regulator  
GCR**

Mass flow meter  
with manual valve



**compact switch  
GCS**

Mass flow meter  
with alarm functions



**compact all-in  
GCA**

Mass flow meter with  
manual valve & alarm  
functions



**OEM version**

For customer-specific  
requirements



**Panel mounting kit**

Panel mounting kits  
for IP-50 and IP-65  
protection

## Measuring ranges

(full scale freely selectable)	Type	Measuring range (air)		Connection
compact meter <b>GCM</b>	G <b>CX</b> -A	from 0 ... 50 mln/min	to 0 ... 600 mln/min	G $\frac{1}{4}$ "
compact regulator <b>GCR</b>	G <b>CX</b> -B	from 0 ... 600 mln/min	to 0 ... 6000 mln/min	G $\frac{1}{4}$ "
compact switch <b>GCS</b>	G <b>CX</b> -C	from 0 ... 6 ln/min	to 0 ... 60 ln/min	G $\frac{1}{4}$ "
compact all-in <b>GCA</b>	G <b>CX</b> -D	from 0 ... 60 ln/min	to 0 ... 450 ln/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)
<b>Accuracy</b> (air & equivalents)	Eco: $\pm 2.0\%$ of full scale; ranges > 200 ln/min $\pm 3.0\%$ of full scale Special: $\pm 1.0\%$ of full scale up to 50 ln/min
<b>Turndown ratio</b>	1 : 50
<b>Response time</b>	from 500 ms (depending on the application)
<b>Repeatability</b>	$\pm 1\%$ of full scale
<b>Longterm stability</b>	< 1% of measured value / year
<b>Power supply Meter &amp; Regulator</b>	Lithium battery (lifetime about 2 years with constant flow) Option: External supply +12...30 Vdc or power supply device (current consumption max. 30 mA)
<b>Power supply Switch &amp; All-in</b>	External supply +12...30 Vdc or power supply device (current consumption max. 30 mA)
<b>Operation pressure</b>	0.2 – 11 bar a
<b>Temperature</b> (environment/gas)	0 – 50°C
<b>Materials</b>	Anodized aluminium, optional stainless steel electropolished
<b>Seals</b>	FKM, 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>Display</b>	6-digit LCD in engineering units and bar graph
<b>Process connection</b>	G $\frac{1}{4}$ " female up to 60 ln/min, G $\frac{1}{2}$ " female up to 450 ln/min
<b>Inlet section</b>	None required
<b>Mounting orientation</b>	Any orientation (horizontal only above 5 bar)
<b>Connection cable</b>	For external power supply: 2 m and 5 m with loose ends

## Optional Flow Switch

<b>Settings</b>	<i>Function:</i> Min. or max. alarm <i>Threshold:</i> Adjustable between 0 and full scale, normally open or closed <i>Failsafe Condition:</i> User configurable <i>Alarm delay:</i> Adjustable 0 – 180 s <i>Alarm hysteresis:</i> Fully adjustable <i>Alarm suppression:</i> User configurable <i>Alarm reset:</i> Automatic or manual
<b>Contact</b>	Floating changeover contact (24 V, 1 A)

## 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, with panel mounting kit IP-65
<b>EMC</b>	EN 61326-1

## Dimensions

Dimensions in mm	A	B	C	D
GCM, GCR, GCS, GCA G $\frac{1}{4}$ "	114	44	25	44*
GCM, GCS G $\frac{1}{2}$ "	160	54	35	54
GCR, GCA G $\frac{1}{2}$ "	207	54	35	80**

\*Regulator knob (GCR, GCA): D+25mm \*\*Valve mounted

