

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  $\pm 1.0\%$  of full scale
- \* Turndown ratio 1 : 50

## Portable operation



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

## Totalizer

Readings:  
56.27 l/min  
Total:  
2568.38 l

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



## 3-year warranty

High-quality components ensure long and trouble-free operation.

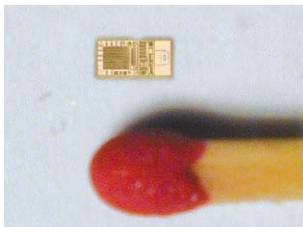
## High-precision valve

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

## Pressure & temp. compensated

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

## MEMS sensor technology



The MEMS chip is the centerpiece of the flow meter. Analog-digital conversion takes place in the sensor.

## 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

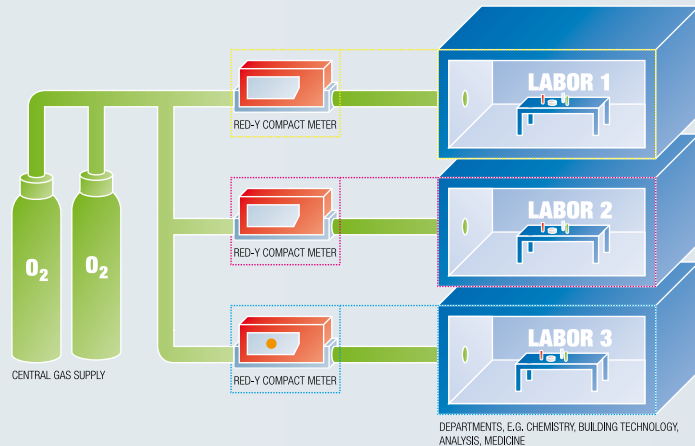
Many applications require a higher accuracy together with pressure and temperature compensation which cannot be realized with conventional variable area flow meters

- \* 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 and 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 meter GSM G $\frac{1}{2}$ "

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

## 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																					
	  																				
	<p><b>compact meter GCM</b> Thermal mass flow meter</p> <p><b>compact regulator GCR</b> Thermal mass flow meter with manual valve</p> <p><b>compact switch GCS</b> Thermal mass flow meter with alarm functions</p>																				
	  																				
	<p><b>compact all-in GCA</b> Thermal mass flow meter with manual valve &amp; alarm functions</p> <p><b>OEM version</b> For customer-specific requirements</p> <p><b>Panel mounting kit</b> Panel mounting kits for IP-50 and IP-65 protection</p>																				
Measuring ranges (Air)	<p><b>Full scale freely selectable</b></p> <table border="1"> <thead> <tr> <th>Type</th> <th>Measuring range (Air)</th> <th>Connection</th> </tr> </thead> <tbody> <tr> <td>compact meter GCM</td> <td>GCX-A from 0 ... 50 mln/min to 0 ... 500 mln/min</td> <td>G¼"</td> </tr> <tr> <td>compact regulator GCR</td> <td>GCX-B from 0 ... 500 mln/min to 0 ... 5000 mln/min</td> <td>G¼"</td> </tr> <tr> <td>compact switch GCS</td> <td>GCX-C from 0 ... 5 ln/min to 0 ... 50 ln/min</td> <td>G¼"</td> </tr> <tr> <td>compact all-in GCA</td> <td>GCX-D from 0 ... 50 ln/min to 0 ... 300 ln/min</td> <td>G½"</td> </tr> </tbody> </table>	Type	Measuring range (Air)	Connection	compact meter GCM	GCX-A from 0 ... 50 mln/min to 0 ... 500 mln/min	G¼"	compact regulator GCR	GCX-B from 0 ... 500 mln/min to 0 ... 5000 mln/min	G¼"	compact switch GCS	GCX-C from 0 ... 5 ln/min to 0 ... 50 ln/min	G¼"	compact all-in GCA	GCX-D from 0 ... 50 ln/min to 0 ... 300 ln/min	G½"					
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Performance data	<p><b>Media (real gas calibration)</b> Air, O2, N2, He, Ar, CO2, H2, CH4, C3H8, SF6 Other gases and gas mixtures on request (real gas calibration or conversion factors)</p> <p><b>Accuracy</b> ± 1.0% of full scale; GCX-D ± 2.0% of full scale</p> <p><b>Turndown ratio</b> 1 : 50</p> <p><b>Response time</b> 500 ms (accuracy better than 99%)</p> <p><b>Power supply</b> <i>Meter &amp; Regulator</i> Lithium battery (Lifetime about 2 years with constant flow) Option: External supply + 24 Vdc ± 10% <i>Switch &amp; All-in</i> External supply + 24 Vdc ± 10%</p> <p><b>Pressure</b> Up to 11 bar a</p> <p><b>Temperature</b> 0 – 50°C</p> <p><b>Materials</b> Aluminium, optional stainless steel electropolished</p> <p><b>Seals</b> FKM, optional EPDM</p>																				
Integration	<p><b>Display</b> 6-digit LCD in engineering units and bar graph</p> <p><b>Gasanschluss</b> G¼" female up to 50 ln/min, G½" female up to 300 ln/min</p> <p><b>Inlet section</b> None required</p> <p><b>Mounting orientation</b> Any orientation (horizontal only above 5 bar)</p> <p><b>Front plate dimensions</b> 48x96 mm (DIN-Standard)</p> <p><b>Connection cable</b> For external power supply: 2 m and 5 m with loose ends</p>																				
Optional flow switch	<p><b>Settings</b></p> <p><i>Function</i> Min. or max. alarm</p> <p><i>Threshold</i> Adjustable between 0 and full scale, normally open or closed</p> <p><i>Failsafe Condition</i> User configurable</p> <p><i>Alarm delay</i> Adjustable 0 – 180 s</p> <p><i>Alarm hysteresis</i> Fully adjustable</p> <p><i>Alarm suppression</i> User configurable</p> <p><i>Alarm reset</i> Automatic or manual</p> <p><b>Contact</b> Floating changeover contact (24 V, 1 A)</p>																				
Safety	<p><b>Test pressure</b> 16 bar a</p> <p><b>Leak rate</b> &lt; 1 x 10<sup>-8</sup> mbar l/s He</p> <p><b>Environmental protection</b> IP-50, with panel mounting kit IP-65</p> <p><b>EMC</b> EN 50081, EN 50082</p>																				
Dimensions	<p><b>Dimensions in mm</b></p>  <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>GCM, GCR, GCS, GCA G¼"</td> <td>114</td> <td>44</td> <td>25</td> <td>44*</td> </tr> <tr> <td>GCM, GCS G½"</td> <td>160</td> <td>54</td> <td>35</td> <td>54</td> </tr> <tr> <td>GCR, GCA G½"</td> <td>207</td> <td>54</td> <td>35</td> <td>80**</td> </tr> </tbody> </table> <p>*Regulator knob (GCR, GCA): D+25mm **Valve mounted</p>		A	B	C	D	GCM, GCR, GCS, GCA G¼"	114	44	25	44*	GCM, GCS G½"	160	54	35	54	GCR, GCA G½"	207	54	35	80**
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**www.voegtlin.com**