

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

Totalizer

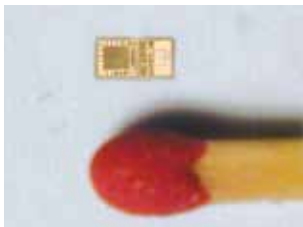
Readings:
56.27 l_n/min
Total:
2568.38 l_n

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

High-precision valve

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

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).

3-year warranty

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



Pressure & temp. 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:



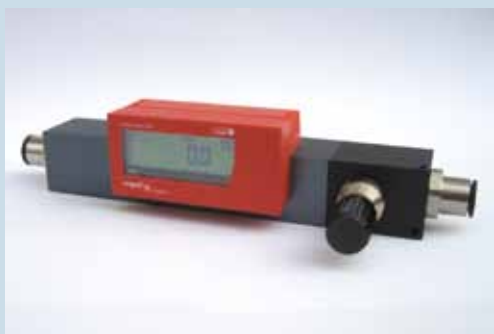
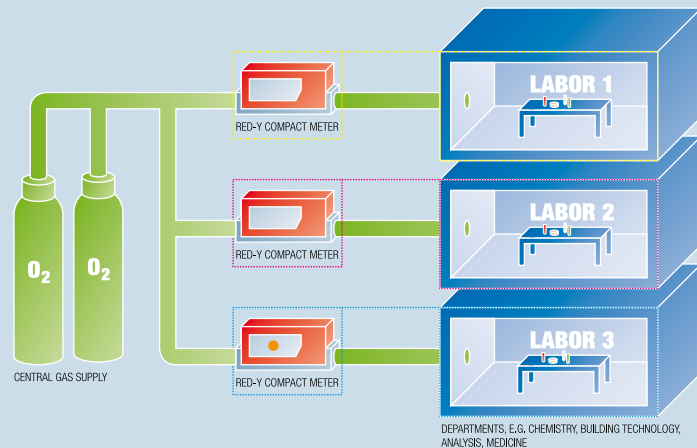
▲ **Convenient variable area flow meter**
Many applications require a higher accuracy together with pressure and temperature compensation which cannot be realized with conventional variable area flow meters

- » 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/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>compact meter GCM <i>Thermal mass flow meter</i></p> <p>compact regulator GCR <i>Thermal mass flow meter with manual valve</i></p> <p>compact switch GCS <i>Thermal mass flow meter with alarm functions</i></p> | | | | | | | | | | | | | | | | | | | | |
| |    | | | | | | | | | | | | | | | | | | | | |
| | <p>compact all-in GCA <i>Thermal mass flow meter with manual valve & alarm functions</i></p> <p>OEM version <i>For customer-specific requirements</i></p> <p>Panel mounting kit <i>Panel mounting kits for IP-50 and IP-65 protection</i></p> | | | | | | | | | | | | | | | | | | | | |
| Measuring ranges (Air) | <p>Full scale freely selectable</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 ... 600 mln/min</td> <td>G¼"</td> </tr> <tr> <td>compact regulator GCR</td> <td>GCX-B from 0 ... 600 mln/min to 0 ... 6000 mln/min</td> <td>G¼"</td> </tr> <tr> <td>compact switch GCS</td> <td>GCX-C from 0 ... 6 l/min to 0 ... 60 l/min</td> <td>G¼"</td> </tr> <tr> <td>compact all-in GCA</td> <td>GCX-D from 0 ... 60 l/min to 0 ... 450 l/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 ... 600 mln/min | G¼" | compact regulator GCR | GCX-B from 0 ... 600 mln/min to 0 ... 6000 mln/min | G¼" | compact switch GCS | GCX-C from 0 ... 6 l/min to 0 ... 60 l/min | G¼" | compact all-in GCA | GCX-D from 0 ... 60 l/min to 0 ... 450 l/min | G½" | | | | | |
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| Performance data | <p>Media (real gas calibration) Air, O₂, N₂, He, Ar, CO₂, H₂, CH₄, C₃H₈ Other gases and gas mixtures on request</p> <p>Accuracy Eco: ± 2.0% of full scale; from 200 l/min ± 3.0% of full scale (air) Special: ± 1.0% of full scale up to 50 l/min (air)</p> <p>Turndown ratio 1 : 50</p> <p>Response time from 500 ms (depending on the application)</p> <p>Repeatability ± 1% of full scale</p> <p>Longterm stability < 1% of measured value / year</p> <p>Power supply Meter & Regulator Lithium battery (<i>Lifetime about 2 years with constant flow</i>) Option: External supply + 24 Vdc ± 10% or Power Supply Device 230 Vac / 24Vdc</p> <p>Power supply Switch & All-in External supply + 24 Vdc ± 10% or Power Supply Device 230 Vac / 24Vdc</p> <p>Operation pressure 0.2 – 11 bar a</p> <p>Temperature (environment/gas) 0 – 50°C</p> <p>Materials Anodized aluminium, optional stainless steel electropolished</p> <p>Seals FKM, optional EPDM</p> <p>Pressure sensitivity < 0.2% / bar of reading (typical N₂)</p> <p>Temperature sensitivity < 0.025% FS measuring range type / °C</p> | | | | | | | | | | | | | | | | | | | | |
| Integration | <p>Display 6-digit LCD in engineering units and bar graph</p> <p>Process connection G¼" female up to 60 l/min, G½" female up to 450 l/min</p> <p>Inlet section None required</p> <p>Mounting orientation Any orientation (horizontal only above 5 bar)</p> <p>Connection cable For external power supply: 2 m and 5 m with loose ends</p> | | | | | | | | | | | | | | | | | | | | |
| Optional flow switch | <p>Settings</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>Contact Floating changeover contact (24 V, 1 A)</p> | | | | | | | | | | | | | | | | | | | | |
| Safety | <p>Test pressure 16 bar a</p> <p>Leak rate < 1 x 10⁻⁶ mbar l/s He</p> <p>Environmental protection IP-50, with panel mounting kit IP-65</p> <p>EMC EN 61326-1</p> | | | | | | | | | | | | | | | | | | | | |
| Dimensions | <p>Dimensions in mm</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><i>*Regulator knob (GCR, GCA): D+25mm</i> <i>**Valve mounted</i></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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