Battery Powered Digital Mass Flow Meters for Gases
Independent digital convenience: Thermal Mass Flow Meters for Gases

The red-y compact 2 series mass flow meters are characterized by powerful technology, intelligent functions and innovative design. This latest generation offers a new level of ease of use: compact design with battery power and touch display for great flexibility.

**Independent Operation**
The flow meters are powered with a standard AA battery or Micro-USB power supply. Optional 24 Vdc power supply available.

**Modular Extensions**
The instruments can be extended and retrofitted with different modules: battery module, power module and alarm module.

**Touch Interface**
The touch display offers intuitive navigation. The many variables that make the unit flexible are easily accessible. Automatic display alignment thanks to position sensor.

**Independent Operation**
The flow meters are powered with a standard AA battery or Micro-USB power supply. Optional 24 Vdc power supply available.

**Modular Extensions**
The instruments can be extended and retrofitted with different modules: battery module, power module and alarm module.

**High Accuracy & Dynamics**
The devices offer high accuracy & a wide dynamic range:
- Accuracy up to ±1% of full scale
- Turndown ratio up to 1 : 100 (depending on application/measuring range)

**Totalizer**
In addition to the actual flow, the total consumption is displayed. Ideal for gas consumption measurements.

**1 Device – Multiple Gases**
One measuring device can be used for up to 3 different gases or gas mixtures.

**Password Protection**
To avoid unauthorised change of settings, the menu of the new red-y compact can be locked with a password.

**3-Year Warranty**
High-quality components ensure long and trouble-free operation.

*The following applies for calibration, battery, options and accessories.*

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**Instrument versions <<red-y compact 2 series>>**

<table>
<thead>
<tr>
<th>Version</th>
<th>Touch Display</th>
<th>Auto display alignment</th>
<th>Choose between multiple home screens</th>
<th>Totalizer</th>
<th>Multigas (up to 3)</th>
<th>Manual valve</th>
<th>Alarm functions</th>
<th>Micro-USB power supply</th>
<th>Battery power</th>
<th>24 Vdc power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>compact meter GCM</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>compact regulator GCR</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>compact switch GCS</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>compact all-in GCA</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<td>●</td>
</tr>
</tbody>
</table>

Standard  | Option

*Backlight not available for battery use; backlit only with external power supply (Micro-USB or 24 Vdc)*

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ISO 9001
The new red-y compact 2 series – Even more stunning features:

» **Wide Choice of Flow Units:**
Choose between a large number of **standardized** and **normalized flow units** of the **Imperial, US customary** and **SI** measuring systems (with user adjustable reference conditions).
The units are selectable from the integrated menu both for the actual flow and the totalized flow.

» **Extended Alarm Functions:**
The red-y compact 2 series provides 3 configurable alarms. The following triggers are available:
**Low alarm, high alarm, window alarm** and **totalizer alarm**
The alarms can be configured with different parameters:
**Normally open, normally closed, hysteresis, auto/manual/remote reset, delay and alarm duration**

» **Device Information & Notifications**
Display of complete device information including all configuration settings. Alerts and notifications show up on the home screen.

» **Upgrade Device Features**
New device features will be available and can be updated through the built-in USB interface. Stay informed on latest releases at [twitter.com/vogtlinmassflow](http://twitter.com/vogtlinmassflow) or [www.voegtlin.com](http://www.voegtlin.com)

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**VA-Meters vs. Massflow Meters**

Many applications require a **higher accuracy** together with **pressure and temperature compensation** which cannot be realized with conventional variable area flow meters. VA-meters are extremely sensitive to pressure and temperature changes. 1 bar change in pressure can generate an error of 50% in your measurement. Our mass flow meters generate repeatability!
The **electronic alarm module offers many options** over a single VA-meter alarm.

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**Autonomy, precision and comfort for your application**

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

» The devices are very compact, can be installed in any position, and are immediately ready for operation
» The built-in touch display with an intuitive navigation offers various settings
» The devices measure real mass flow, independent of changes in pressure and temperature. This provides high accuracy and repeatability to the measuring results
» In addition to the actual value, the total consumption is displayed. This creates transparency in supply systems
» The autonomous operation with a standard AA battery makes the compact a high-precision alternative to variable area flow meters
» High quality: All flow meters are produced and calibrated at our European production center in Germany

Our specialists will be happy to advise: +41 61 756 63 00 or [www.voegtlin.com](http://www.voegtlin.com)
**Alarm option «red-y compact 2 series»**

The models **GCS** (red-y compact 2 switch) and **GCA** (red-y compact 2 all-in) provide **3 configurable alarm relays**. The following triggers are available: High alarm, low alarm, window alarm and totalizer alarm. The alarm module can be retrofitted on existing red-y compact 2 meters & regulators.

**Features:**
- 3 alarm contacts (relays that can switch up to 1 amp, 30 Vdc)
- 2 optical isolated input channels (to optionally reset an alarm remotely)
- Every alarm contact separately settable as high, low, window or totalizer alarm
- Hysteresis, delay and alarm duration time all customer configurable
- Built-in 8…30 Vdc power supply, polyfuse protected
- 2 meter fly lead cable included
- All variables adjustable locally through touch screen

**Pin assignments**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>red</td>
<td>PWR+</td>
</tr>
<tr>
<td>2</td>
<td>black</td>
<td>PWR-</td>
</tr>
<tr>
<td>3</td>
<td>white</td>
<td>IN2</td>
</tr>
<tr>
<td>4</td>
<td>brown</td>
<td>IN1</td>
</tr>
<tr>
<td>5</td>
<td>green</td>
<td>IN.GND</td>
</tr>
<tr>
<td>6</td>
<td>yellow</td>
<td>OUT3.NO</td>
</tr>
<tr>
<td>7</td>
<td>grey</td>
<td>OUT3.NC</td>
</tr>
<tr>
<td>8</td>
<td>pink</td>
<td>OUT3.COM</td>
</tr>
<tr>
<td>9</td>
<td>blue</td>
<td>OUT2.A</td>
</tr>
<tr>
<td>10</td>
<td>violet</td>
<td>OUT2.B</td>
</tr>
<tr>
<td>11</td>
<td>grey-pink</td>
<td>OUT1.A</td>
</tr>
<tr>
<td>12</td>
<td>red-blue</td>
<td>OUT1.B</td>
</tr>
</tbody>
</table>

**Functions**

**Logic functions**
High alarm, low alarm, window alarm, totalizer alarm

**Reset functions**
Auto, manual, external input 1/input 2

**Power input**

<table>
<thead>
<tr>
<th>Voltage supply range</th>
<th>8…30 Vdc (power supply hereafter referred to as the 24 Vdc power supply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. current</td>
<td>300 mA</td>
</tr>
</tbody>
</table>

**Switch ratings switch 1 + 2 (SPST hard contact) / switch 3 (SPDT contact)**

<table>
<thead>
<tr>
<th>Maximum voltage</th>
<th>30 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relais lifetime</td>
<td>&gt; 5 million cycles</td>
</tr>
<tr>
<td>Maximum current</td>
<td>Switch 1 + 2 (SPST hard contact): 0.5 A / Switch 3 (SPDT contact): 1 A</td>
</tr>
</tbody>
</table>

**Inputs 1 + 2 (opto-couplers)**

<table>
<thead>
<tr>
<th>Voltage range (polarity sensitive)</th>
<th>5…30 Vdc (≤ 5 mA max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. recommended pulse width</td>
<td>100 msec (sample interval 20 msec)</td>
</tr>
</tbody>
</table>

**Dimensions «red-y compact 2 series»**

Find more detailed drawings in the **red-y compact 2 series** manual available on [www.voegtlin.com/downloads](http://www.voegtlin.com/downloads)
Technical data «red-y compact 2 series»

**Instrument types**

- **compact meter GCM**
  Mass Flow Meter
- **compact switch GCS**
  Mass Flow Meter with Alarm Functions
- **compact regulator GCR**
  Mass Flow Meter with manual Valve
- **compact all-in GCA**
  Mass Flow Meter with Alarm Functions & Valve
- **compact G½” versions**
  For 1/2” size with manual valve, the valve is flange mounted

**Measuring ranges**

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring range (air)</th>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCX-A</td>
<td>from 0 ... 50 mln/min</td>
<td>G¼”</td>
</tr>
<tr>
<td>GCX-B</td>
<td>from 0 ... 600 mln/min</td>
<td>G¼”</td>
</tr>
<tr>
<td>GCX-C</td>
<td>from 0 ... 6 ln/min</td>
<td>G¼”</td>
</tr>
<tr>
<td>GCX-D</td>
<td>from 0 ... 60 ln/min</td>
<td>G½”</td>
</tr>
</tbody>
</table>

**Performance data**

**Media** (real gas calibration)
- Air, O2*, N2*, He, Ar, CO2, H2, CH4, C3H8 (other gases and gas mixtures on request)
  *O2 & N2 are calibrated with air

**Accuracy** (air & equivalents)
- Eco: ± 2.0% of full scale; ranges > 200 ln/min ± 3.0% of full scale
- Special: ± 1.0% of full scale up to 50 ln/min

**Turndown ratio**
- Eco: 1 : 50
- Special: 1 : 100

**Response time**
- Max. 300 msec (depending on filter settings)

**Flow update by sensor**
- 40 msec (battery mode 500 msec)

**Display update**
- 240 msec (battery mode 500 msec)

**Repeatability**
- ± 0.5% of full scale

**Longterm stability**
- < 1% of measured value / year

**Power supply**
- **Meter GCM & Regulator GCR**
  Standard AA battery (lifetime in months depending on operation) or Micro-USB power supply (DIN 62684)

  **Option:** External power +8...30 Vdc (power consumption max. 120mA)

- **Power supply Switch GCS & All-in GCA**
  External power +8...30 Vdc (power consumption max. 300mA) or Micro-USB power supply (DIN 62684)

**Operation pressure**
- 0.2 – 11 bar a

**Temperature**
- (environment/gas) 0 – 50°C

**Materials**
- Anodized aluminium, optional stainless steel electropolished

**Seals**
- FKM, optional EPDM (FDA)

**Pressure sensitivity**
- < 0.2% / bar of reading (typical N2)

**Temperature sensitivity**
- < 0.025% FS measuring range type / °C

**Warm-up time**
- < 1 sec. for full accuracy

**Integration**

**Display**
- Touch display (128x64 px) with automatic position adjustment (position sensor)
- Backlighted only with external power supply (Micro-USB or 24 Vdc)

**Process connection**
- G¼” (BSPP* female) up to 60 ln/min, G½” (BSPP* female) up to 450 ln/min
  *British Standard Pipe Parallel

**Inlet section**
- None required

**Mounting orientation**
- Any position, consult manufacturer above 5 bar or vertical mounting

**Connection cable**
- For external power supply or alarm module: 2 m with fly leads

**Safety**

**Test pressure**
- 16 bar a

**Leak rate**
- < 1 x 10⁻⁶ mbar l/s He

**Ingress protection class**
- IP-50

**EMC**
- EN 61326-1

**Options**

- Panel Mounting Kit
- Vacuum Fittings
- Various Inlet and Outlet Fittings