Battery Powered Digital Mass Flow Meters for Gases

red-y compact 2 series product information

Next Generation red-y compact:
- AA Battery Powered
- Touch Interface
- Micro-USB Port
- Alarm Option
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.

**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

*does not apply to 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 (position sensor)</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 (DIN62684)</th>
<th>Battery power</th>
<th>24 Vdc 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>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

● Standard ○ Option

*backlight not available for battery use; backlit only with external power supply (Micro-USB or 24 Vdc)
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/voegtlinmassflow or www.voegtlin.com

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.

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
**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>Power</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>red</td>
<td>PWR+</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>black</td>
<td>PWR-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input 2</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>white</td>
<td>IN2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input 1</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>brown</td>
<td>IN1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input GND</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>green</td>
<td>IN.GND</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm 3</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>yellow</td>
<td>OUT3.NO</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>grey</td>
<td>OUT3.NC</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>pink</td>
<td>OUT3.COM</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm 2</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>blue</td>
<td>OUT2.A</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>violet</td>
<td>OUT2.B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alarm 1</th>
<th>Pin</th>
<th>Color</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>grey-pink</td>
<td>OUT1.A</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>red-blue</td>
<td>OUT1.B</td>
<td></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**
  - Voltage supply range: 8…30 Vdc (power supply hereafter referred to as the 24 Vdc power supply)
  - Max. current: 300 mA
- **Protection input**
  - Polyfuse (trip current > 500 mA) and reverse polarity protected

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

- **Maximum voltage**: 30 Vdc
- **Relais lifetime**: > 5 million cycles
- **Maximum current**:
  - Switch 1 + 2 (SPST hard contact): 0.5 A / Switch 3 (SPDT contact): 1 A
- **Inputs 1 + 2 (opto-couplers)**
  - Voltage range (polarity sensitive): 5…30 Vdc (@ 5 mA max.)
  - Min. recommended pulse width: 100 msec (sample interval 20 msec)

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

<table>
<thead>
<tr>
<th>Type/Body</th>
<th>Length (mm)</th>
<th>Length of fitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCM G½&quot;</td>
<td>114 44 25 44</td>
<td></td>
</tr>
<tr>
<td>GCR G½&quot;</td>
<td>160 54 35 54</td>
<td></td>
</tr>
<tr>
<td>GCS G½&quot;</td>
<td>207 54 35 54</td>
<td></td>
</tr>
<tr>
<td>GCA G½&quot;</td>
<td>207 54 35 54</td>
<td></td>
</tr>
</tbody>
</table>

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 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 Alarm Functions & Valve
- **compact G½” versions**
  - For 1/2" size with manual valve, the valve is flange mounted

### Measuring ranges

<table>
<thead>
<tr>
<th>(full scale freely selectable)</th>
<th>Type</th>
<th>Measuring range (air)</th>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCX-A</td>
<td>from 0 ... 50 ml/min</td>
<td>to 0 ... 600 ml/min</td>
<td>G¼”</td>
</tr>
<tr>
<td>GCX-B</td>
<td>from 0 ... 600 ml/min</td>
<td>to 0 ... 6000 ml/min</td>
<td>G¼”</td>
</tr>
<tr>
<td>GCX-C</td>
<td>from 0 ... 60 ml/min</td>
<td>to 0 ... 600 ln/min</td>
<td>G½”</td>
</tr>
<tr>
<td>GCX-D</td>
<td>from 0 ... 60 ln/min</td>
<td>to 0 ... 450 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)

#### 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
- G½” (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

#### Environmental protection
- IP-50

#### EMC
- EN 61326-1

### Options

- Panel Mounting Kit
- Vacuum Fittings
- Various Inlet and Outlet Fittings
Worldwide TASI Flow Network

Find your local Vögtlin sales partner on our website:
www.voegtlin.com