

Next Generation  
**red-y compact:**

AA Battery Powered  
Touch Interface  
Micro-USB Port  
Alarm Option



**red-y compact 2 series** product information

# 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.

### 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  $\pm 1\%$  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

### Instrument versions «red-y compact 2 series»

Version	Touch Display¹	Auto display alignment (position sensor)	Choose between multiple home screens	Totalizer	Multigas (up to 3)	Manual valve	Alarm functions	Power supply		
								Micro-USB power supply (DIN62684)	Battery power	24 Vdc supply
compact meter GCM	●	●	●	●	○			●	●	○
compact regulator GCR	●	●	●	●	○	●		●	●	○
compact switch GCS	●	●	●	●	○		●			●
compact all-in GCA	●	●	●	●	○	●	●			●

● Standard

○ Option

¹backlight 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/vogtlinmassflow](https://twitter.com/vogtlinmassflow) or [www.voegtlin.com](http://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](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

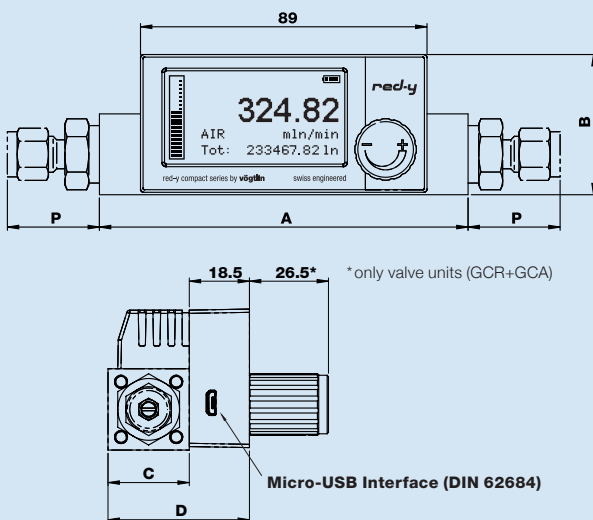
### Pin assignments

		Pin	Color	Assignment
Power		1	red	PWR+
		2	black	PWR-
Input 2		3	white	IN2
Input 1		4	brown	IN1
Input GND		5	green	IN.GND
Alarm 3		6	yellow	OUT3.NO
		7	grey	OUT3.NC
		8	pink	OUT3.COM
Alarm 2		9	blue	OUT2.A
		10	violet	OUT2.B
Alarm 1		11	grey-pink	OUT1.A
		12	red-blue	OUT1.B

### Functions

<b>Logic functions</b>	High alarm, low alarm, window alarm, totalizer alarm
<b>Reset functions</b>	Auto, manual, external input 1 / input 2
<b>Power input</b>	
<b>Voltage supply range</b>	8...30 Vdc (power supply hereafter referred to as the 24 Vdc power supply)
<b>Max. current</b>	300 mA
<b>Protection input</b>	Polyfuse (trip current > 500 mA) and reverse polarity protected
<b>Switch ratings switch 1 + 2 (SPST hard contact) / switch 3 (SPDT contact)</b>	
<b>Maximum voltage</b>	30 Vdc
<b>Relais lifetime</b>	> 5 million cycles
<b>Maximum current</b>	Switch 1 + 2 (SPST hard contact): 0.5 A / Switch 3 (SPDT contact): 1 A
<b>Inputs 1 + 2 (opto-couplers)</b>	
<b>Voltage range</b> (polarity sensitive)	5...30 Vdc (@ 5 mA max.)
<b>Min. recommended pulse width</b>	100 msec (sample interval 20 msec)

## Dimensions «red-y compact 2 series»



Type / Body	Length (mm)				Length of fitting
	A	B	C	D	
GCM G $\frac{1}{4}$ " GCR G $\frac{1}{4}$ " GCS G $\frac{1}{4}$ " GCA G $\frac{1}{4}$ "	114	44	25	44	We offer a range of different inlet/outlet fittings.
GCM G $\frac{1}{2}$ " GCS G $\frac{1}{2}$ "	160	54	35	54	
GCR G $\frac{1}{2}$ " GCA G $\frac{1}{2}$ "	207	54	35	54	

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 G $\frac{1}{2}$ " versions

For 1/2" size with manual valve, the valve is flange mounted

### Measuring ranges

(full scale freely selectable)	Type	Measuring range (air)		Process connection
	GCM-A	from 0 ... 50 l/min	to 0 ... 600 l/min	G $\frac{1}{4}$ "
	GCM-B	from 0 ... 600 l/min	to 0 ... 6000 l/min	G $\frac{1}{4}$ "
	GCM-C	from 0 ... 6 l/min	to 0 ... 60 l/min	G $\frac{1}{4}$ "
	GCM-D	from 0 ... 60 l/min	to 0 ... 450 l/min	G $\frac{1}{2}$ "

### Performance data

<b>Media</b> (real gas calibration)	Air, O $_2^*$ , N $_2^*$ , He, Ar, CO $_2$ , H $_2$ , CH $_4$ , C $_3$ H $_8$ (other gases and gas mixtures on request) *O $_2$ & N $_2$ are calibrated with air
<b>Accuracy</b> (air & equivalents)	Eco: $\pm 2.0\%$ of full scale; ranges > 200 l/min $\pm 3.0\%$ of full scale Special: $\pm 1.0\%$ of full scale up to 50 l/min
<b>Turndown ratio</b>	Eco: 1 : 50      Special: 1 : 100
<b>Response time</b>	Max. 300 msec (depending on filter settings)
<b>Flow update by sensor</b>	40 msec (battery mode 500 msec)
<b>Display update</b>	240 msec (battery mode 500 msec)
<b>Repeatability</b>	$\pm 0.5\%$ of full scale
<b>Longterm stability</b>	< 1% of measured value / year
<b>Power supply Meter GCM &amp; Regulator GCR</b>	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)
<b>Power supply Switch GCS &amp; All-in GCA</b>	External power +8...30 Vdc (power consumption max. 300mA) or Micro-USB power supply (DIN 62684)
<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 (FDA)
<b>Pressure sensitivity</b>	< 0.2% / bar of reading (typical N $_2$ )
<b>Temperature sensitivity</b>	< 0.025% FS measuring range type / °C
<b>Warm-up time</b>	< 1 sec. for full accuracy
<b>Integration</b>	
<b>Display</b>	Touch display (128x64 px) with automatic position adjustment (position sensor) Backlighting only with external power supply (Micro-USB or 24 Vdc)
<b>Process connection</b>	G $\frac{1}{4}$ " (BSPP* female) up to 60 l/min, G $\frac{1}{2}$ " (BSPP* female) up to 450 l/min *British Standard Pipe Parallel
<b>Inlet section</b>	None required
<b>Mounting orientation</b>	Any position, consult manufacturer above 5 bar or vertical mounting
<b>Connection cable</b>	For external power supply or alarm module: 2 m with fly leads
<b>Safety</b>	
<b>Test pressure</b>	16 bar a
<b>Leak rate</b>	< 1 x 10 $^{-6}$ mbar l/s He
<b>Environmental protection</b>	IP-50
<b>EMC</b>	EN 61326-1

### Options



Panel Mounting Kit



Vacuum Fittings



Various Inlet and Outlet Fittings

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