

**NEW**  
**red-y compact:**  
Battery, Power supply,  
Alarm & **4-20mA/**  
**Pulse Module**



**red-y compact series** product information

# Digital Mass Flow Meters and Regulators for Gases

# Independent digital convenience:

## Thermal Mass Flow Meters & Regulators for Gases

The **red-y compact series** mass flow meters and regulators 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. Select one of the other smart add-on modules.

### Touch Display



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

### Integrated Manual Valve



Needle valve with 15 turns for precise flow adjustment

### 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)

### Independent Operation



The flow meters can be powered internal with a standard AA battery or Micro-USB power supply. Optional 24 VDC power supply available

### Modular Extensions



4 expansion modules:

- Battery
- Power supply
- Alarm
- Analog/pulse out

### 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. Long term stability, no drift

### 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



### VA-meters vs. Mass 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 are not sensitive to temperature + pressure and ensure repeatability. The electronic alarm module offers many options over a single VA-meter alarm. Optional 4-20 mA out + pulse output.



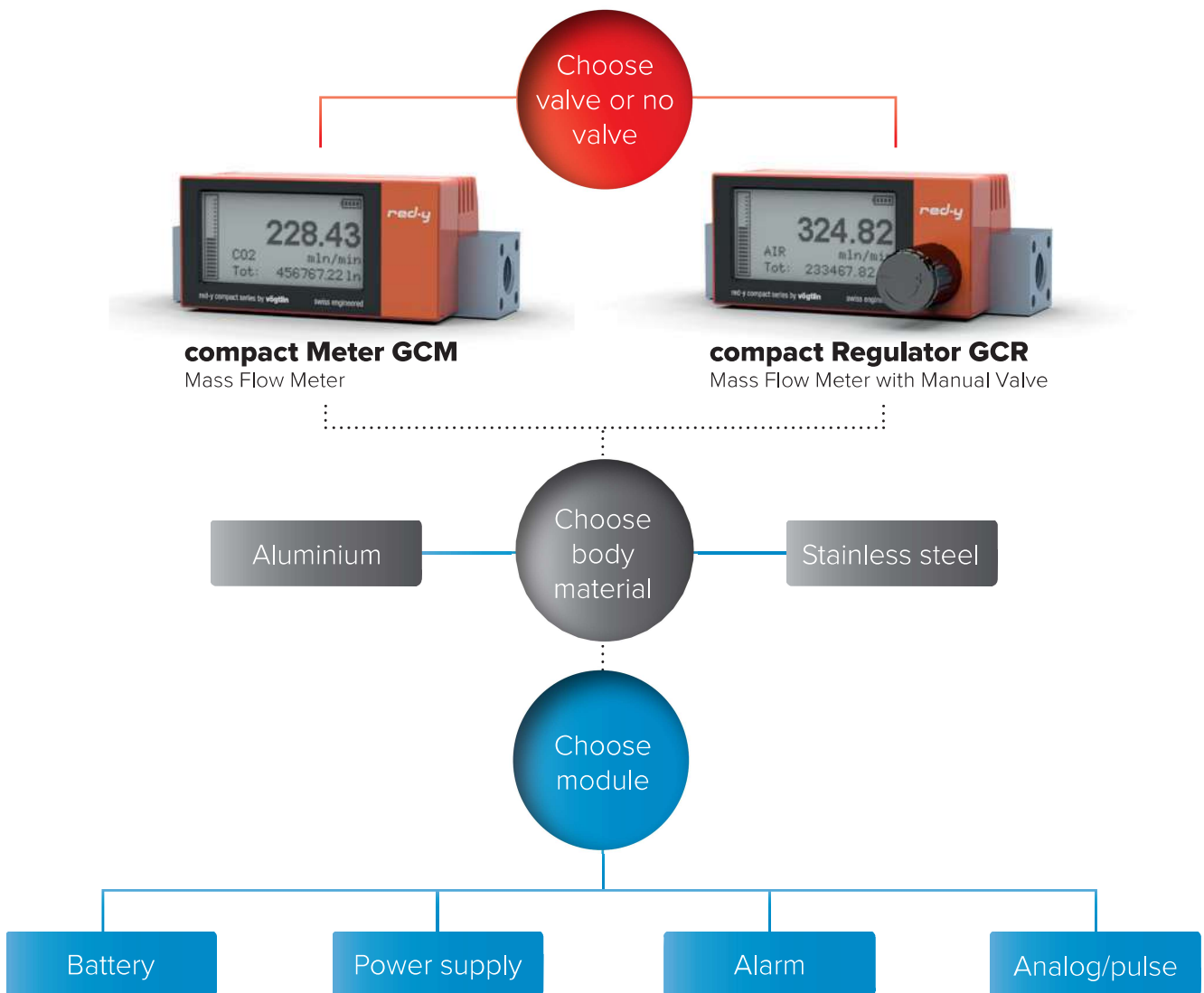
## Accuracy, Flexibility, Reliability and Portability

Through the use of **high-precision MEMS technology** (CMOS sensors), the thermal flow meters from Vögtlin Instruments GmbH set the standard in terms of long term stability, response time and measuring accuracy:

- » **The device is compact, can operate in any position and do not need any warm-up time**
- » **The build-in touch display with a simple navigation offers lots of settings**
- » **The devices measure real mass flow, independent of changes in pressure and temperature**
- » **Build-in accurate totalizer for consumption measurements**
- » **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**

## How to select a *compact*?

Select the **function**, **material specifications** and the **module** for your application.



All modules are interchangeable and can be retrofitted, but only one module can be use at a time.



This selection shows the basics only, other items that need to be selected are the flow rate, elastomers, accuracy and turndown, valve size and valve options. We recommend you submit your request though this webpage.

## The compact provides 4 modules as selectable options

### Battery module (default)

The battery module is the default for the compact. With this module the compact can autonomously run on a single standard AA battery. This creates an unique portable gas flow meter or regulator.

The unit also has a micro-USB connector that can be used as an alternative power supply and which can also be used to update the firmware free of charge (see website for more information).

### Power supply module

With the power supply module the compact can be powered from an external 15...30 VDC power source. The module comes with either a 2 or 5 meter cable with fly leads. This module can also be supplied with a wall plug power supply. This unit converts 100-250 VAC into 24 VDC power for the unit. This AC powered module comes with a 1.5 meter cable and you can select a plug for EU, US, GB, AU or CN. Maximum current is 25 mA at 24 VDC power.

### Alarm module

#### The alarm module option provides:

- » 3 alarm contacts (relays up to 1 amp, 30 VDC)
- » 2 optical isolated input channels (reset alarm)
- » Every alarm contact separately configurable as:
  - » High flow alarm
  - » Low flow alarm
  - » Window flow alarm
  - » Totalizer alarm
- » Hysteresis, delay and alarm duration time adjustable
- » Built-in 15...30 VDC power supply, polyfuse protected
- » 2 or 5 meter fly lead cable included (loose ends)
- » All variables adjustable locally through touch screen

#### Pin assignments

		Color	Assignment
<b>Power</b>		red	PWR+
		black	PWR-
<b>Input 2</b>		white	IN2
<b>Input 1</b>		brown	IN1
<b>Input GND</b>		green	IN.GND
<b>Alarm 3</b>		yellow	OUT3.NO
		grey	OUT3.NC
		pink	OUT3.COM
<b>Alarm 2</b>		blue	OUT2.A
		violet	OUT2.B
<b>Alarm 1</b>		grey-pink	OUT1.A
		red-blue	OUT1.B

## Specifications

### Power input

<b>Voltage supply range</b>	15...30 VDC
<b>Maximum current</b>	Maximum current 50 mA at 24 VDC power
<b>Protection input</b>	Polyfuse (trip current > 500mA) and reverse polarity protected

### Switch ratings switch 1 + 2 (SPST hard contact)

<b>Maximum rating</b>	30 VDC/0.5 A
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### Switch ratings switch 3 (DPST hard contact)

<b>Maximum rating</b>	30 VDC/1 A
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### Inputs 1 + 2 (Opto-couplers)

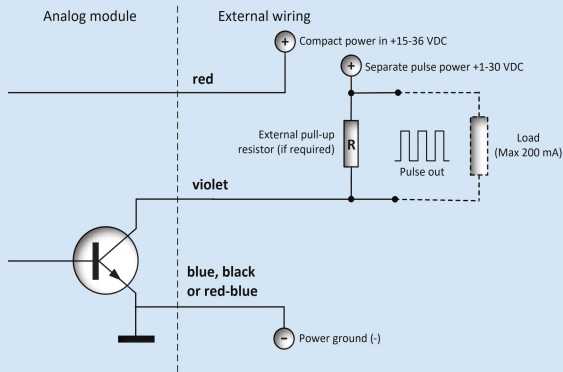
<b>Voltage range (polarity sensitive)</b>	5...30 VDC (@ 5 mA maximum)
<b>Min. recommended pulse width</b>	100 msec (sample interval: 20 msec)



## Analog/pulse module

### The analog/pulse module provides:

- » One active 4-20 mA output (adjustable 0-22 mA)
  - » Maximum load 1000 ohm @ 24 VDC power
  - » Full customer configurable
- » Open collector pulse output
  - » Frequency up to 25 Hz
  - » Voltage pulse: 1...30 VDC



15...36 VDC power supply to **compact**, polyfuse protected

### Pin assignments

		Color	Assignment
Power		red	PWR+
		black	PWR-
Pulse out		blue	PULSE OUT-
		violet	PULSE OUT+
Analog out		grey-pink	mA OUT-
		red-blue	mA OUT+

### Specifications

#### Power input

**Voltage supply range** 15...30 VDC

**Current** 50 mA (with 20mA out @230 Ω) and a power supply of 24 VDC

#### Analog output:

**Current output** 4-20 mA (0-22 mA adjustable). Active signal, load independent

**Maximum load** 1000Ω @ 24 VDC

**Uncertainty** Maximum 0.25% of the full scale of the instrument's uncertainty

**Protection** Polyfuse 150 mA trip current

#### Pulse output:

**Type output** Open collector

**Possible voltage pulse supply** 1-30 VDC

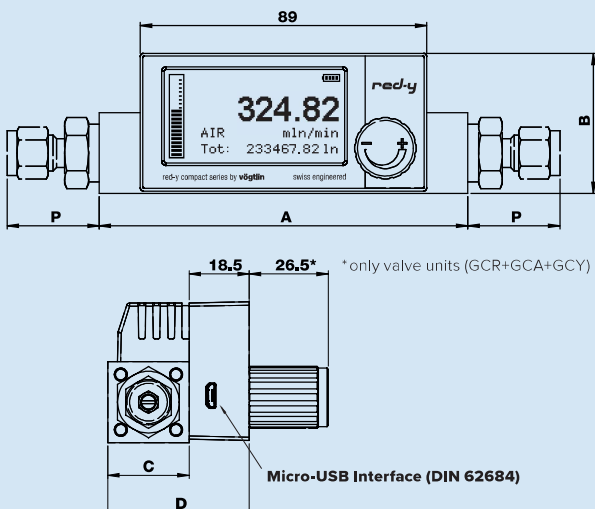
**Pulse** frequency (Maximum 25 Hz). Pulse length adjustable (minimum 20 msec)

**Protection** Polyfuse, 200 mA trip current

#### Settings interface

**Configuration of module** **compact** integrated touch screen

### Dimensions red-y compact series



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

# Technical data red-y compact series

## Instrument types



**compact meter GCM**  
Mass Flow Meter



**compact regulator GCR**  
Mass Flow Meter with manual Valve



**compact G $\frac{1}{2}$ " (GCM or GCR 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
	G <b>CX</b> -A	from 0 ... 5 mIn/min*	to 0 ... 600 mIn/min	G $\frac{1}{4}$ "
	G <b>CX</b> -B	from 0 ... 600 mIn/min	to 0 ... 6000 mIn/min	G $\frac{1}{4}$ "
	G <b>CX</b> -C	from 0 ... 6 In/min	to 0 ... 60 In/min	G $\frac{1}{4}$ "
	G <b>CX</b> -D	from 0 ... 60 In/min	to 0 ... 450 In/min	G $\frac{1}{2}$ "

\*regulator 0 to 25 mIn/min

## 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 In/min $\pm 3.0\%$ of full scale Eco plus: $\pm 2.0\%$ of full scale; ranges > 200 In/min $\pm 3.0\%$ of full scale Special: $\pm 1.0\%$ of full scale up to 50 In/min
<b>Turndown ratio</b>	Eco: 1 : 50      Eco plus and special: 1 : 100 (not available below 0-10 mIn/min)
<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>	0.1 % of full scale per year, if clean gas is used
<b>Power supply Meter GCM &amp; Regulator GCR</b>	Standard AA battery (lifetime depending on operation) or Micro-USB power supply (DIN 62684) Option: External power 15...30 VDC
<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

## Integration

<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 $\frac{1}{4}$ " (BSPF* female) up to 60 In/min, G $\frac{1}{2}$ " (BSPF* female) up to 450 In/min *British Standard Pipe Parallel
<b>Inlet section</b>	No requirements
<b>Mounting orientation</b>	Any position, consult manufacturer above 5 bar or vertical mounting

## Safety

<b>Test pressure</b>	16 bar a
<b>Leak rate</b> (external)	< 1 x 10 <sup>-6</sup> mbar l/s He
<b>Environmental protection</b>	IP-50
<b>EMC</b>	EN 61326-1

## Options



Panel mounting kit



Flanged vacuum fittings



Various inlet and outlet fittings



## Worldwide TASI<sup>®</sup> Flow Network



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