red-y smart series product information

Thermal Mass Flow Meters and Controllers for Gases

vögtlin instruments

Reliable and accurate:
Thermal Mass Flow Meters and Controllers

Reliable technology and standardized interfaces make the red-y smart series thermal mass flow meters and controllers particularly suitable for measurement and control in gas delivery systems and plant engineering applications.

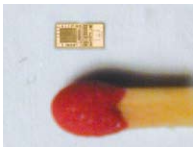
Accurate measurement

The devices offer high accuracy and a wide dynamic range:

- 2 instrument versions: ‹Standard› and ‹Hi-Performance›
- Accuracy up to ± 0.3% of full scale + ±0.5% of reading

Turndown ratio 1 : 100

Analog & digital: 2 in 1

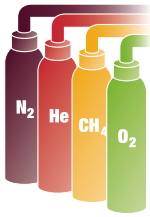


The flow meters and controllers make use of the latest MEMS technology and have a digital (Modbus RTU) and analog interface.

Profibus connection

The instruments are available with Profibus: Profibus DP-V0, DP-V1

Multigas

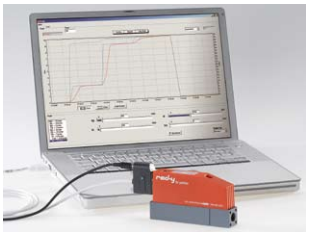


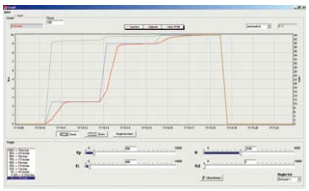
One meter or controller can be used for up to 10 different gases or gas mixtures.

3-year warranty

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

Measuring & controlling with a click





Free software ‹get red-y›:

- View flow rate & temperature
- Change setpoints
- Select measured gas
- Graphical display of measured data
- Adjusting control parameters
- Monitor operating state

‹Plug & measure› with our cable accessories.

Optional functions:

- Datalogging
- Gasmixer

Safe & fast control

The controller uses a tightly sealed control valve with leak rate less than $1x10^{-7}$mbar l/s He.
The fast control response of 50 ms significantly reduces the setting time.

High-quality technology offers maximal value for any application

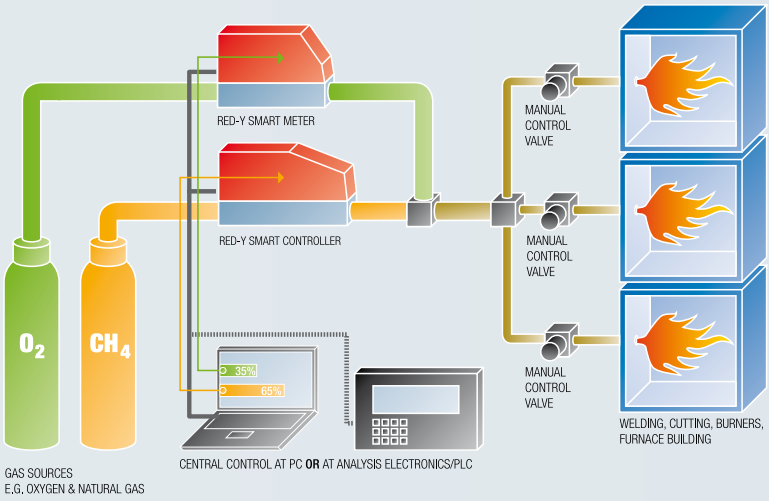
Through the application of **high-precision MEMS technology** (CMOS sensors), the thermal flow meters and controllers from Vögtlin Instruments AG set new standards in terms of response characteristics and measuring accuracy, and are characterized by maximum convenience:

▲ ***High-tech in a very compact design***
The flow meters and controllers use advanced MEMS technology

- **Standardized signals enable simple connection to control systems**
- **Measurements are insensitive to pressure and temperature changes**
- **All 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)
- **Meters and controllers are easy to service and maintain**
- **The devices have minimal pressure drop**
- **A full range of accessories is available:**
  Cables, fittings, etc.
- **‹Plug & control› with the free software ‹get red-y›:**
  Simple access via any PC (no additional electronic equipment required)
- **High quality: All flow meters are manufactured and calibrated at our headquarters in Aesch, Switzerland**

Flexibility in mixing processes and consumption measurement

Devices with high measuring accuracy and stable control characteristics are important for ensuring precise and consistent quality of gas mixtures.
The thermal mass flow meters and controllers from Vögtlin offer unbeatable technological performance and cost-effectiveness.



Wide range of accessories – immediately ready for operation

Connection cables, power supplies

Optimal range of cables and power supply units for fast integration of flow meters and controllers:

- Cables for communication with PC (USB)
- Cables for multiple device control with PC
- Cables for analog communication
- Power supply (24 Vdc)

Fittings, filters

All flow meters and controllers are available with fittings and filters. Contact our sales department for more information.

Technical Data ‹red-y smart series›

Instrument types

smart meter GSM
Thermal mass flow meter

smart controller GSC
Thermal mass flow controller

OEM version
For customer-specific requirements

Instrument versions

‹Standard› – The economic solution

Accuracy: *± 1.5 % of full scale*
Turndown ratio: *1 : 30*

‹Hi-Performance› – With highest accuracy and turndown ratio

Accuracy: *± 0.3 % of full scale + ± 0.5% of reading*
Turndown ratio: *1 : 100*

Measuring ranges (Air)

Full scale freely selectable

	Type	Measuring range (Air)		Connection
red-y smart meter GSM Meter	GSM-A	from 0 ... 25 mln/min	to 0 ... 500 mln/min	G¼“
	GSM-B	from 0 ... 500 mln/min	to 0 ... 5000 mln/min	G¼“
	GSM-C	from 0 ... 5 ln/min	to 0 ... 50 ln/min	G¼“
	GSM-D	from 0 ... 50 ln/min	to 0 ... 450 ln/min	G½“
red-y smart controller GSC Controller	GSC-A	from 0 ... 25 mln/min	to 0 ... 500 mln/min	G¼“
	GSC-B	from 0 ... 500 mln/min	to 0 ... 5000 mln/min	G¼“
	GSC-C	from 0 ... 5 ln/min	to 0 ... 50 ln/min	G¼“
	GSC-D	from 0 ... 50 ln/min	to 0 ... 200 ln/min	G½“

Performance data

Media (real gas calibration)	Air, O2, N2, He, Ar, CO2, H2, CH4, C3H8, SF6 Other gases and gas mixtures on request (real gas calibration or conversion factors)
Response time	50ms
Repeatability	± 0.1% of full scale
Longterm stability	< 1% of measured value / year
Power supply	24 Vdc (18 – 30 Vdc)
Current consumption	Meter: max. 100mA; Controller: max. 250mA
Operation pressure	0.4 – 11 bar a
Temperature	0 – 50°C
Materials	Aluminium, optional stainless steel electropolished
Seals	FKM, optional EPDM
Pressure sensitivity	< 0.2% / bar (typical N2)
Temperature sensitivity	< 0.025% / °C

Integration

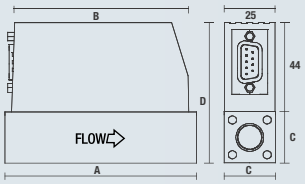
Output signals	
analog	0..20 mA, 4..20 mA, 0..5 V, 1..5 V, 0..10 V, 2..10 V
digital	RS-485; Modbus RTU (Slave); Lab View-VI‘s available Optional: ProfiBus DP-V0, DP-V1
Process connection	G¼“ female less than 50 ln/min, G½“ female less than 450 ln/min
Inlet section	None required
Electrical connection	Sub D plug, 9 pole
Mounting orientation	Any orientation (horizontal only above 5 bar)

Safety

Test pressure	16 bar a
Leak rate	Meter < 1 x 10^{-8} mbar l/s He; Controller < 1 x 10^{-6} mbar l/s He
Environmental protection	IP-50
EMC	EN 50081, EN 50082

Dimensions

Dimensions in mm



	A	B	C	D
GSM G¼”	94	87	25	69
GSM G½”	145	87	35	79
GSC G¼”	124	117	25	69
GSC G½”	170	117	35	79

Subject to technical alterations

Type code ‹red-y smart series›

Instrument type	red-y smart series (Gas)	G	S														
Function	Meter			M													
	Controller			C													
Full scale of measuring range (Air)	25 mln/min (G¼“, 25 x 25mm)					A	1										
	50 mln/min					A	2										
	100 mln/min					A	3										
	200 mln/min					A	4										
	500 mln/min					A	5										
	Customer-specific (Divider A, up to 500mln/min)					A	9										
	500 mln/min (G¼“, 25 x 25mm)					B	2										
	1‘000 mln/min					B	3										
	2‘000 mln/min					B	4										
	5‘000 mln/min					B	5										
	Customer-specific (Divider B, up to 5‘000mln/min)					B	9										
	5 ln/min (G¼“, 25 x 25mm)					C	2										
	10 ln/min					C	3										
	20 ln/min					C	4										
	50 ln/min					C	5										
	Customer-specific (Divider C, up to 50 ln/min)					C	9										
	50 ln/min (G½“, 35 x 35mm)					D	2										
	100 ln/min					D	3										
	200 ln/min					D	4										
	450 ln/min (smart meter standard version only)					D	5										
	Customer-specific (Divider D, up to 450ln/min)					D	9										
Instruments version	Standard (±1.5% full sclale, 1 : 30)							S									
	Hi-Performance (±0.3% full scale, ±0.5% reading, 1 : 100)							T									
	Customer-specific / OEM							K									
Materials (Body, seals)	Aluminium, FKM**									A							
	Aluminium, EPDM									B							
	Stainless steel, FKM									S							
	Stainless steel, EPDM									T							
	Customer-specific / OEM									K							
Analog signals (Output)	Current 4..20 mA**											B					
	Current 0..20 mA											C					
	Voltage 0..5 V											D					
	Voltage 1..5 V											E					
	Voltage 0..10 V											F					
	Voltage 2..10 V											G					
	Customer-specific / OEM											K					
Analog signals (Input)	Current 4..20 mA**												B				
	Current 0..20 mA												C				
	Voltage 0..5 V												D				
	Voltage 1..5 V												E				
	Voltage 0..10 V												F				
	Voltage 2..10 V												G				
	Not defined												N				
	Customer-specific / OEM												K				
Control valve (integrated)	Nozzle 0.1 mm													2	1		
defined by manufacturer	Nozzle 0.2 mm													2	2		
	Nozzle 0.5 mm													2	3		
	Nozzle 1.2 mm													2	6		
	Nozzle 4.5 mm													1	2		
	Valve not defined													8	8		
	Valve mounted													9	5		
	Customer-specific / OEM													9	9		
	No valve													0	0		
Type code		G	S		–					–							

**Standard

Have you any questions about our products? Give us a call:

+41 (0) 61 756 63 00

Or write us an e-mail:

info@voegtlin.com

You will find your local Vögtlin sales partner on the internet:

www.voegtlin.com

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