



red-y smart pressure controller product information

Electronic pressure controller with integrated flow measurement

Pressure and flow in a single device:

Electronic pressure controller for gases with integrated flow measurement

The new electronic *red-y smart pressure controllers* combine the reliable technology our of thermal mass flow controllers with electronic pressure control.

The devices automatically control a predefined process pressure and at the same time measure and/or limit the flow rate.

On-the-fly switching between pressure control and flow control offers maximum flexibility.

1 device – 3 functions

The *smart pressure controller* combines three functions:

- » **Pressure controller**
- » **Pressure controller with flow measurement/limitation**
- » **Flow controller with pressure measurement**

Operating status indication



The instruments offer an inbuilt LED status indication

Options



Built-in display

Display of flow rate, total and measuring unit. Defining a set point (controller only)



Multigas

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



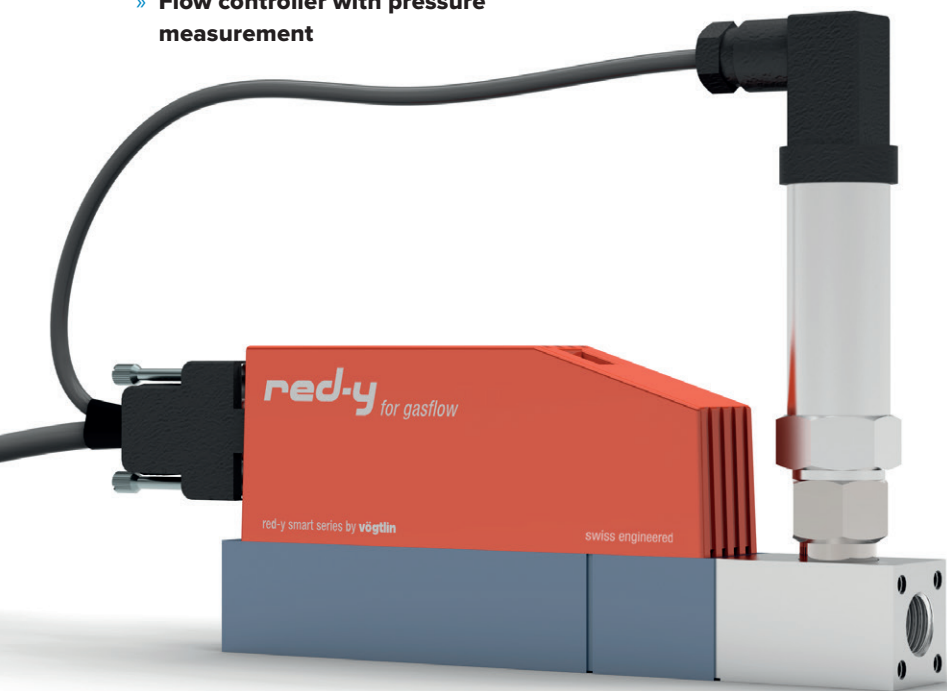
Profibus

The instruments are available with Profibus interface: DP-V0 & DP-V1 protocols



Industrial Ethernet

Two industrial ethernet protocols *Profinet RT* and *EtherCAT* are available



Instrument versions

Integrated pressure control

Accuracy: ± 0.5 % of full scale

Integrated back pressure control

Accuracy: ± 0.5 % of full scale

It's a red-y smart

The pressure controllers combine the innovative equipment design of the *red-y smart series* with the development competence of Vögtlin Instruments GmbH. High-quality components ensure long and trouble-free operation.

3-year warranty*

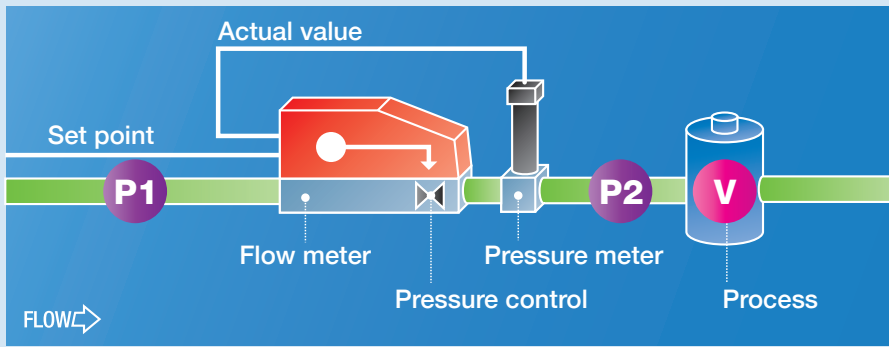


High-quality components ensure long and trouble-free operation

*does not apply to calibration, options and accessories

Pressure control

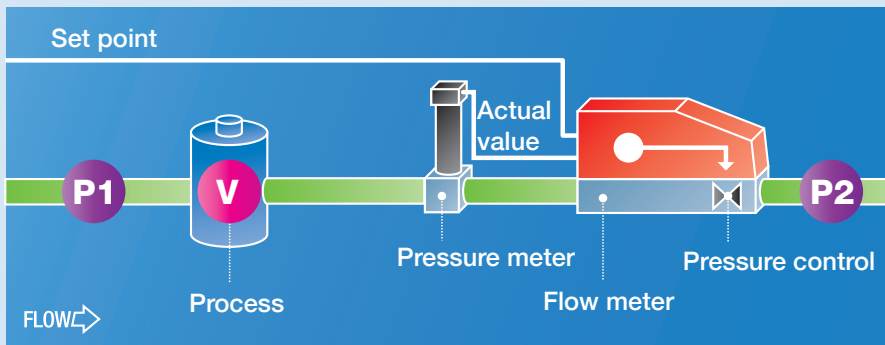
In this application the electronic pressure controller regulates a digitally specified set pressure value. The flow rate depends on the process consumption. Maximum flow limitation enables pressure control of stable gas mixtures, for example.



Application example:
Pressure control of a pressure vessel containing a stable gas mixture for laser gas or welding applications.

Back pressure control

In this configuration the effect of the control valve is reversed. The process generates a certain pressure, which must be readjusted.



Application example:
Overpressure control of a sterile chamber. The flow rate is used as a leakage indicator.

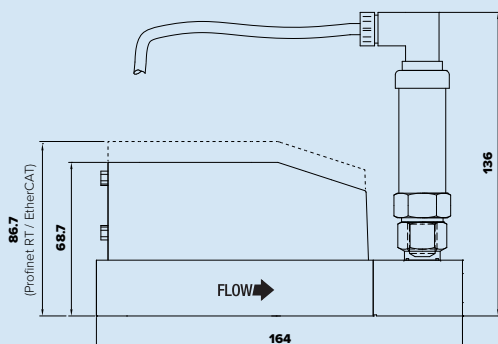
Control & Accessories

Various control options are available:

- » **Directly on the pressure controller, no further control equipment required**
- » **Via PC with our free software get-red-y**
- » **Via PC with LabView software (LabView VIs available)**
- » **Display and Control Device (PCU-10)**
- » **SPS (provided by customer)**
- » **Analog control on request**

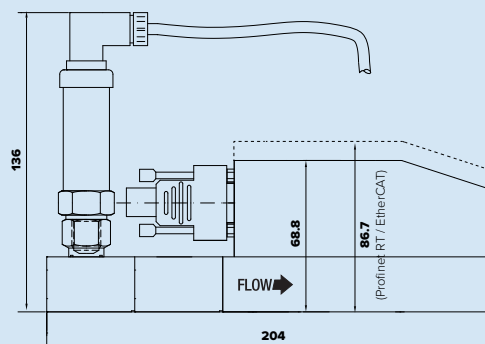
A wide range of cables, power supply units, fittings and filters for fast integration of the pressure controllers is available.

Dimensions G $\frac{1}{4}$ " *



red-y smart pressure controller GSP

*Dimensions G $\frac{1}{2}$ " on request



red-y smart back pressure controller GSB

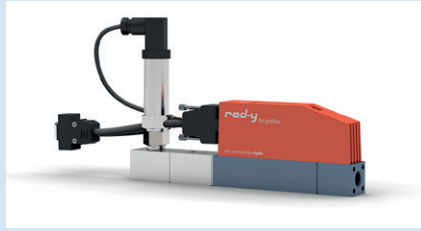
Technical Data <red-y smart pressure controller>

Instrument types



red-y smart pressure controller GSP

Electronic pressure controller



red-y smart back pressure controller GSB

Electronic back pressure controller



IP67/ATEX versions

red-y industrial pressure controller⁽¹⁾

Measuring & control ranges Pressure

Pressure control

Absolute, differential or gauge pressure
Standard measuring ranges from 30 mbar up to 10 bar (graded)
Turndown ratio: 1 : 100

Back pressure control

Absolute, differential or gauge pressure
Standard measuring ranges from 30 mbar up to 10 bar (graded)
Dynamic range depending on the application

Measuring ranges Flow

(Air/Full scale freely selectable)

Connection	Measuring range (air)	
G¼"	from 0.25 ... 25 mln/min	to 0.6 ... 60 lln/min
G½"	from 0.3 ... 30 lln/min	to 4 ... 450 lln/min

Turndown ratio & accuracy Flow

<Standard>

Accuracy: ± 1.0 % of full scale
Turndown ratio: 1 : 50

<Hi-Performance>

(up to 150 lln/min)

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

Pressure controller with external transmitter, special measuring ranges (e.g. 0-20 Pa) & customer-specific solutions on request

Performance data

Media (real gas calibration)	Air, O ₂ ⁽²⁾ , N ₂ ⁽²⁾ , He, Ar, CO ₂ , H ₂ , CH ₄ , C ₃ H ₈ (other gases and gas mixtures on request) ² O ₂ & N ₂ are calibrated with air
Response time Flow Measurement	± 80ms depending on device configuration & according to SEMI standard E17-1011, 5-100% of range under optimized conditions
Response time Pressure Measurement	150ms
Response time Pressure Control	Depending on the measuring section
Repeatability	± 0.2% of full scale (according to SEMI standard E56-0309)
Longterm stability	< 1% of measured value / year
Power supply	24 Vdc (18 – 30 Vdc), 15 Vdc on request
Current consumption Standard	Meter: max. 100mA; Controller: max. 250mA (with valve type 8 max. 490mA)
Current consumption Profinet RT / EtherCAT	Meter: max. 125mA; Controller: max. 340mA (with valve type 8 max. 560mA)
Temperature (environment/gas)	0 – 50°C
Materials	Anodized aluminium, optional stainless steel electropolished 1.4305 or 1.4404 ⁽¹⁾
Seals	FKM, EPDM, optional FFKM
Pressure	Vacuum up to 10 bar g
Pressure sensitivity	< 0.2% / bar of reading (typical N ₂)
Temperature sensitivity	< 0.025% FS measuring range type / °C
Warm-up time	< 1 sec. for full accuracy

Integration

In- / Output signals digital	RS-485; Modbus RTU (Slave); Lab View-VIs available Option: Profibus DP-V0, DP-V1/Profinet RT / EtherCAT
In- / Output signals analog	0..20 mA, 4..20 mA, 0..5 V, 1..5 V, 0..10 V, 2..10 V
Analog setpoints	Realizable with AD-converter (on request)
Process connection	G¼" (BSPP ⁽³⁾ female) up to 60 lln/min, G½" (BSPP ⁽³⁾ female) up to 450 lln/min ³ British Standard Pipe Parallel
Inlet section	None required
Electrical connection	Sub D plug, 9 pole / PG cable gland or M12 plug ⁽¹⁾ Option Profibus: Sub D 9 pole / PG cable gland or M12 plug ⁽¹⁾ Option Profinet RT or EtherCAT: 2x RJ45 (IN/OUT) / M12 plug ⁽¹⁾
Mounting orientation	Any position (consult manufacturer above 5 bar or vertical mounting)

Safety

Test pressure	16 bar a
Leak rate	< 1 x 10 ⁻⁶ mbar l/s He
Ingress protection class	IP50 (IP67 ⁽¹⁾)
EMC	CE EN 61326-1
ATEX Certification⁽¹⁾	Ex II 3G nA IIC T4 Gc (Category 3 / Zone 2) Ex II 3D Ex tc IIIC T100°C Dc (Category 3 / Zone 22)

¹Specifications for red-y industrial pressure controller (IP67/ATEX)/Profinet RT & EtherCAT option for red-y industrial series not yet ATEX certified.

Please contact your sales partner for further information.

Type code <red-y smart pressure controller>

Instrument type	red-y smart series (Gas)	G	S																	
Function	Pressure controller																			P
	Back pressure controller																			B
	With external pressure transmitter																			K
Full scale of measuring range (air)	Customer-specific (Divider A, up to 600mln/min)																			A X
	Customer-specific (Divider B, up to 6000mln/min)																			B X
	Customer-specific (Divider C, up to 60 lln/min)																			C X
	Customer-specific (Divider D, up to 450ln/min)																			D X
Instrument versions defined by the manufacturer	Standard (±1.0% full scale, 1: 50)																			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 output signals pressure transmitter	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) defined by the manufacturer	Type 0.1																			2 1
	Type 0.2																			2 2
	Type 0.5																			2 3
	Type 1.2																			2 6
	Type 4.5																			1 2
	Type 8.0																			1 3
	Valve not defined																			8 8
	Valve mounted																			9 5
	Customer-specific / OEM																			9 9
	No valve																			0 0
Type code		G	S	-																-

**Standard

Worldwide TASI Flow Network



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