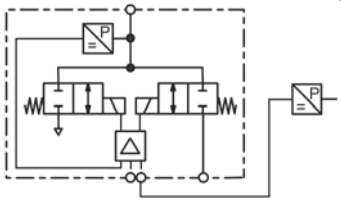
Principle	Description	Accuracy max.	Pressure range bar	Connection thread	Device	Page
control valve high accuracy	on PCB	± 0.2 %	0 ... 0.005/ 10	G⅛	PM	**10.02**
	falling characteristic	± 0.2 %	0 ... 0.005/ 35	G⅛	PQ1	**10.04**
	with double loop	± 0.2 %	0 ... 0.005/ 35	G⅛	PQ2	**10.05**
	up to 2000 l/min	± 0.25 %	0 ... 0.1 / 35	¼″NPT - ¾″NPT	PQ3...PQ6	**10.07**
proport. magnet very robust	proven, many options	± 0.5 %	0 ... 0.5 / 1	G⅛ - G1	PR	**10.09**
	for flow applications	± 0.5 %	0 ... 6 / 50	G⅜	PF	**10.11**
	digital control, also SST	± 0.5 %	0 ... 0.1 / 50	G⅛ - G1	PP	**10.13**
	programmable	± 0.5 %	0 ... 1 / 12	G⅛ - G⅜	PD	**10.15**
flapper/nozzle highly sensitive	integrated booster, Atex	± 0.5 %	0,2 ... 1 / 8	¼″NPT	PT6	**10.18**
piezo-operated very fast	high accurate, Atex	± 0.25 %	0,2 ... 1 / 8	¼″NPT	PT7	**10.19**
	minimal power consumption	± 0.2 %	0 ... 0.1 / 16	G⅛ and G¼	PRE	**10.21**
motorised regul.	failfreeze	± 1 %	0,14 ... 1.8 / 8	¼″NPT	P180	**10.22**
high pressure	proportional magnet	± 0.5 %	0 ... 30 / 50	G¼	PP0	**10.13**
	control valves	± 0.5 %	0 ... 40 / 70	G⅛	PQH	**10.17**
ATEX	control valves	± 1 %	0 ... 2 / 6	G⅛	PCEX	**10.16**
	flapper / nozzle	± 0.5 %	0,2 ... 1 / 8	¼″NPT	PT6	**10.18**
	piezo-operated	± 0.25 %	0,2 ... 1 / 8	¼″NPT	PT7	**10.19**
vacuum	on PCB	± 0.2 %	-1 ... 0 / + 1	G⅛	PM	**10.02**
	control valves	± 0.2 %	-1 ... 0 / + 1	G⅛	PQ1	**10.04**
	with double loop	± 0.2 %	-1 ... 0 / + 1	G⅛	PQ2	**10.05**
	proportional magnet	± 0.5 %	-1 ... 0 / + 1	G⅛ - G1	PR	**10.09**
	digital control	± 0.5 %	-1 ... 0	G⅛ - G1	PP	**10.13**
	piezo-operated	± 0.2 %	-1 ... 1 / +10	G⅛ and G¼	PRE	**10.21**
setpoint	with 10-speed-potentiometer				PPB	**10.23**

10

Proportional Pressure Regulators

Proportional Pressure Regulator on PCB, Accurate to 0.2% PM

Description	Proportional control valve with closed loop control technology for better control of pressurised gases. The instrument can be built as single closed loop or dual closed loop control valve.		
Media	dry, lubricated or unlubricated and 5 µm filtered compressed air or non-corrosive gases		
Fail freeze	constant outlet pressure at voltage drop		
Second loop	0…10 V, impedance 4.7 kΩ,	ratio of internal to external relationship is 10% to 90%	
Supply voltage	15…24 V DC, residual ripple < 10%, with reverse voltage protection		
Impedance	0…10 V / 4.7 kΩ, 4…20 mA / 100 Ω,	jumper selectable command	
Monitor signal	0…10 V at max. 10 mA		
Electrical connection	terminal strip for 2.5 mm²		
Power consumption	3.6 W regulating, 0.5 W non-regulating	**Air consumption**	without constant bleed
Linearity / Hysteresis	< 0.15% FS	**Repeatability**	< 0.02 FS
Temperature influence	< 1% FS at 0 °C to 50 °C / 32 °F to 122 °F	**Adjustment**	zero point and span
Temperature range	0 °C to 70 °C / 32 °F to 158 °F	**Mounting position**	any, vibration-resistant
Material	Ports: brass	Elastomer:	FKM
	Transducer: aluminium and silicon	Valves:	nickel-plated brass



with single or double loop

Dimensions A mm	B mm	C mm	Flow rate l/min*1	Supply pressure max. mbar/bar	Accuracy %	Connection thread G	Pressure range mbar/bar	Order number
Proportional press. regulator 0-10 V input and monitor signal, supply voltage 24 V DC, fail freeze, single loop for DIN rail								**PM**
56	78	54	35	10 mbar	0.2	G⅛	0… 5 mbar	**PM1DE-A5**
				20 mbar			0… 10 mbar	**PM1DE-B1**
				200 mbar			0…100 mbar	**PM1DE-C1**
				1000 mbar			0…600 mbar	**PM1DE-C6**
56	78	54	35	2 bar	0.2	G⅛	0… 1 bar	**PM1DE-01**
				3 bar			0… 2 bar	**PM1DE-02**
				9 bar			0… 4 bar	**PM1DE-04**
				9 bar			0… 6 bar	**PM1DE-06**
				15 bar			0… 10 bar	**PM1DE-10**
56	78	54	35	2 bar	0.2	G⅛	0… -1 bar	**PM1DE-V0**
				2 bar			-1… +1 bar	**PM1DE-V1**

PM . D
DIN rail mounting

PM . P
panel mounting

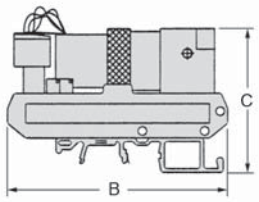
PM . M
mounting on manifold block

Special options, add the appropriate letter

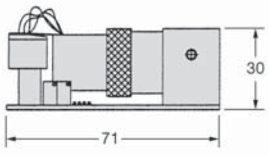
double loop	second loop feedback 0 ...10 V	PM**2** . . - . .
4-20 mA	supply signal, jumper selectable command	PM . . **I** - . .
flow 100 l/min	increased flow rate	PM . . . - . . **HF**
panel mounting	on plane level	PM . **P** . - . .
mounting for manifolds	connections downwards	PM . **M** . - . .

Zubehör, lose beigelegt

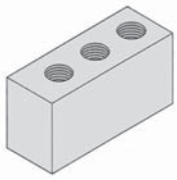
manifold block	for 2 to 7 valves	number of valves added to order number	**SBM- .**



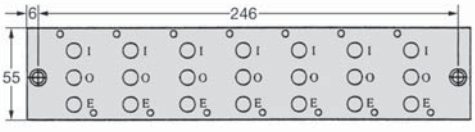
PM . D for DIN rail

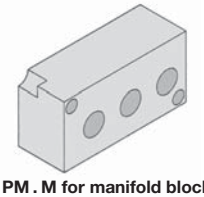


PM . D for panel mounting

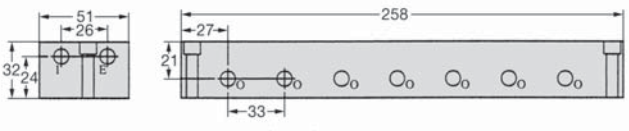


PM . D for DIN rail

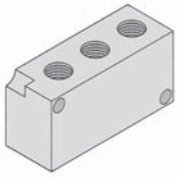




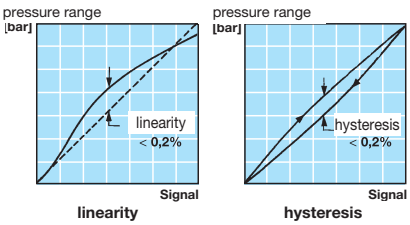
PM . M for manifold block



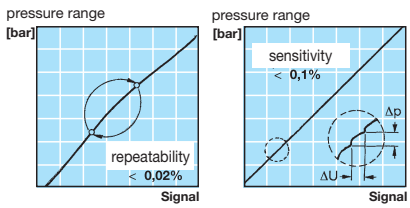
manifold block for 2 to 7 valves



PM . P for panel mounting



linearity **hysteresis**



repeatability **sensitivity**

*1 at 7 bar supply pressure and open outlet, at regulated flow rate of 3 l/min
*2 higher supply pressures on request

For further details about double loop see PQ2

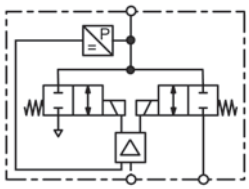
PDF CAD
www.aircom.net

Order example: PM1DE-A5

Proportional Pressure Regulator with Single or Double Loop, Accurate to 0.2% PQ

Technical features

• **Pressure range**	0 … 10 mbar up to 0 … 35 bar	• **Linearity**	± 0.15% FS
• **Input signal**	0 … 10 V and 4 … 20 mA	• **Hysteresis**	± 0.15% FS
• **Security**	constant outlet pressure at voltage drop	• **Response sensitivity**	< 0.1% FS
• **Response time**	10 to 15 ms	• **Repeatability**	± 0.02% FS
• **Adjustment**	zero point and span	• **Protection class**	IP 65
• **Sensitivity**	immune to shock and vibration up to 25 g	• **Air consumption**	without constant bleed



accurate to 0.2%

General technical features

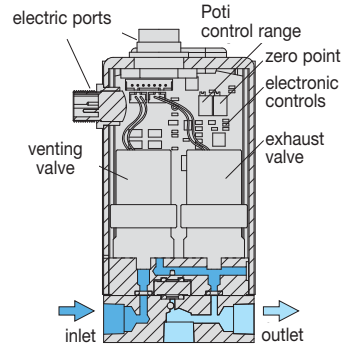
Description Two solenoid valves control the system pressure. One valve is for inlet control, the other for outlet control. A strain gauge pressure transducer measures system pressure and provides a feedback signal to the electronic controls. Any difference between command and feedback signals causes one of the solenoid valves to open, causing system pressure to increase or decrease.

Mounting position any, immune to shock and vibration up to 25 g

Protection class IP 65 housing

Temperature range -5 °C to 70 °C / 23 °F to 158 °F

Material Body: aluminium Elastomer: FKM Ports: brass
Transducer: aluminium and silicon Valves: nickel-plated brass



cross-section PQ

Pneumatic features

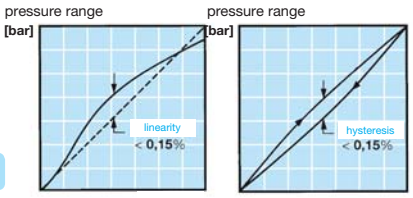
Media dry, unlubricated and 5 µm filtered compressed air or non-corrosive gases

Supply pressure see chart, minimum 10% above outlet pressure

Flow rate 35 l/min at 7 bar supply pressure and open outlet, optionally 100 l/min
3 l/min at controlled outlet pressure

Exhaust same nominal size as on inlet valve, thus same relief capacity

Air consumption without constant bleed



linearity **hysteresis**

Electrical features

Supply voltage 15 … 24 V DC, reverse voltage protection existing

Power consumption 3.6 W for regulation, 0.5 W non-regulating

Signal range 0 … 10 V, optionally 4 … 20 mA

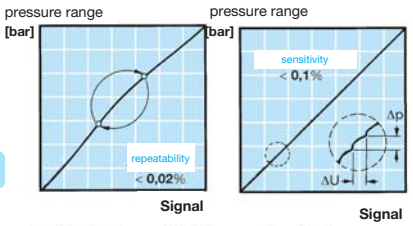
Impedance 4.7 kΩ at voltage signal, 100 Ω at current signal
10 kΩ at voltage signal, 100 Ω at current signal, for external feedback

Monitor signal impedance > 4.7 kΩ at voltage signal, <100 Ω at current signal

Electrical connector plug M16x0.75, 7-pin, with coupling socket

Monitor signal 0 … 10 V, optionally 4 … 20 mA

Security constant outlet pressure at voltage drop



repeatability **sensitivity**

Accuracy

Linearity/Hysteresis ± 0.15% FS

Response sensitivity < 0.1% FS

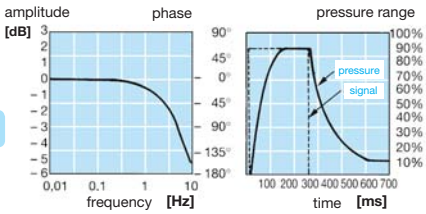
Response time 10 to 15 ms

Repeatability ± 0.02% FS

Temperature influence < 0.01% FS per °C/K at 0 °C to 50 °C / 32 °F to 122 °F
< 1.00% FS per °C/K at 50 °C to 70 °C / 122 °F to 158 °F

Accuracy over all ± 0.2 % FS

Regulating time < 2 s to fill 0.1 l volume to 90% of the initial pressure (or to exhaust)
< 40 s to fill 2 l volume to 90% of the initial pressure (< 80 s to exhaust)



dynamics **regulating time**

Adjustment

Zero point The zero point can be increased by up to 20% of full scale, e.g. from 0 bar to 1.2 bar at a 6 bar regulator. External adjustment via potentiometer Z "zero".

Span The maximum pressure value of the control range can be reduced by up to 20% depending on the selected pressure range, e.g. from 6 to 4.8 bar. External adjustment via

*1 at 7 bar supply pressure and 3 bar outlet pressure

PDF CAD
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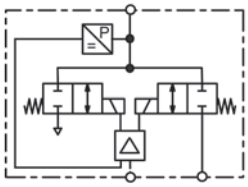
Proportional Pressure Regulator with Single Loop, Accurate to 0.2% PQ1

Description The pneumatic proportional valve produces outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system consisting of valves, manifold, housing and electronic controls.

Single loop Pressure is controlled by two solenoid valves. One valve functions as inlet control, the other as exhaust. The pressure outlet is measured by an internal pressure transducer which provides a feedback signal to the electronic controls. This feedback signal is compared with the command input signal. Any difference between the two signals causes one of the two solenoid valves to open, allowing flow into or out of the system. Accurate pressure is maintained by these two valves.

Accuracy

Linearity / Hysteresis:	± 0.15% FS
Response sensitivity:	< 0.1% FS
Repeatability:	± 0.02% FS
Accuracy over all:	± 0.2% FS



G⅛
0 ... 10 mbar/35 bar

Dimensions A mm	B mm	C mm	Flow rate l/min*1	Supply pressure max. mbar/bar*2	Accuracy %	Connection thread G	Pressure range mbar/bar	Order number

Single loop regulator

0 ... 10 V input and feedback signal, supply voltage 24 V DC, 35 l/min*1, with coupling socket **PQ1**

51	106	8	35	10 mbar	0.2	G⅛	0 ... 5 mbar	**PQ1EE-A5**
				20 mbar			0 ... 10 mbar	**PQ1EE-B1**
				40 mbar			0 ... 20 mbar	**PQ1EE-B2**
				100 mbar			0 ... 50 mbar	**PQ1EE-B5**
				200 mbar			0 ... 100 mbar	**PQ1EE-C1**
				400 mbar			0 ... 200 mbar	**PQ1EE-C2**
				800 mbar			0 ... 400 mbar	**PQ1EE-C4**
				1000 mbar			0 ... 600 mbar	**PQ1EE-C6**
51	106	8	35	2 bar	0.2	G⅛	0 ... 1 bar	**PQ1EE-01**
				3 bar			0 ... 2 bar	**PQ1EE-02**
				9 bar			0 ... 4 bar	**PQ1EE-04**
				9 bar			0 ... 6 bar	**PQ1EE-06**
				9 bar			0 ... 8 bar	**PQ1EE-08**
				15 bar			0 ... 10 bar	**PQ1EE-10**
				15 bar			0 ... 12 bar	**PQ1EE-12**
				24 bar			0 ... 16 bar	**PQ1EE-16**
				24 bar			0 ... 20 bar	**PQ1EE-20**
				38 bar			0 ... 25 bar	**PQ1EE-25**
				38 bar			0 ... 30 bar	**PQ1EE-30**
				38 bar			0 ... 35 bar	**PQ1EE-35**
51	106	8	35	0 bar	0.2	G⅛	0 ... -1 bar	**PQ1EE-V0**
				2 bar			-1 ... +1 bar	**PQ1EE-V1**

PQ1

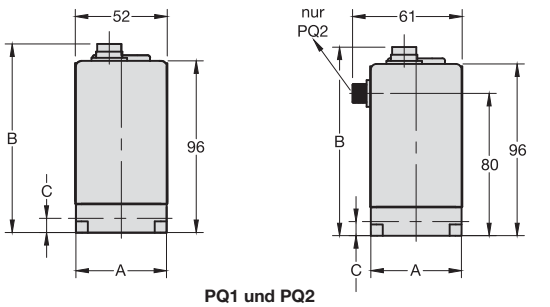
Special options, add the appropriate letter or number

4-20 mA	input and monitor signal	PQ1 **IC**- . .
flow 100 l/min	increased flow rate, max. 10 bar, not combinable with Opt. ..X58	PQ1 . . - . .**HF**
continuous regulation	improved characteristic curve through proportional inlet valve, max. 10 bar	PQ1 . . - . .**X58**
declining curve	inverted outlet	PQ1 . . - . .**X59**

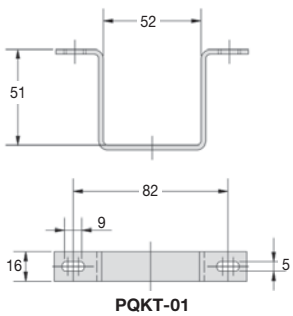
Accessories

coupling socket	M16x0,75, 7-pin with 2 m cable	straight	**PRK-A2L**
		angular	**PRK-C2L**
mounting bracket	made of steel		**PQKT-01**

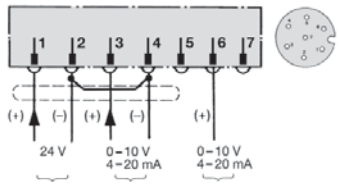
PRK-A **PRK-C**



PQ1 und PQ2



PQKT-01



connection diagram for supply and signal

*1 at 7 bar supply pressure and open outlet, at regulated flow rate of 3 l/min
*2 higher supply pressure on request
*3 air consumption

Technical details: see previous page

PDF CAD
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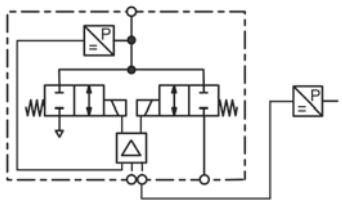
Order example: PQ1EE-A5

Proportional Pressure Regulator with Double Loop, Accurate to 0.2% PQ2

Description	The pneumatic proportional valve produces outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system consisting of valves, manifold, housing and electronic controls.
Double loop	The servo valve expands in single loop operation by combining an additional feedback from an external sensing device with the internal transducer. The external sensor provides information on the control status. The PQ2 then compares the command signal with the second loop feedback signal. Should there be a difference in the signal comparisons, the servo valve will make adjustments to the internal loop to bring the system into balance. This provides accurate final outlet. The acceptance of electrical feedback from an external sensor enables precise control of conditions such as pressure, force, torque, position or flow.
External pressure transducer	Any pressure transducer for 0-10 V and 4-20 mA output signal and suitable for 15-24V DC supply voltage can be applied. An appropriate coupling socket plus cable is required.



G⅛
0…10 mbar/35 bar

Dimensions A mm	B mm	C mm	Flow rate l/min*1	Supply pressure max. mbar/bar*2	Accuracy %	Connection thread G	Pressure range mbar/bar	Order number
Double loop regulator				0 … 10 V input / feedback / second loop signal, supply voltage 24 V DC, 35 l/min*1, with both coupling sockets				**PQ2**
51	106	8	35	10 mbar	0.2	G⅛	0… 5 mbar	**PQ2EE-A5**
				20 mbar			0… 10 mbar	**PQ2EE-B1**
				40 mbar			0… 20 mbar	**PQ2EE-B2**
				100 mbar			0… 50 mbar	**PQ2EE-B5**
				200 mbar			0…100 mbar	**PQ2EE-C1**
				400 mbar			0…200 mbar	**PQ2EE-C2**
				800 mbar			0…400 mbar	**PQ2EE-C4**
				1000 mbar			0…600 mbar	**PQ2EE-C6**
51	106	8	35	2 bar	0.2	G⅛	0… 1 bar	**PQ2EE-01**
				3 bar			0… 2 bar	**PQ2EE-02**
				9 bar			0… 4 bar	**PQ2EE-04**
				9 bar			0… 6 bar	**PQ2EE-06**
				9 bar			0… 8 bar	**PQ2EE-08**
				15 bar			0… 10 bar	**PQ2EE-10**
				15 bar			0… 12 bar	**PQ2EE-12**
				24 bar			0… 16 bar	**PQ2EE-16**
				24 bar			0… 20 bar	**PQ2EE-20**
				38 bar			0… 25 bar	**PQ2EE-25**
				38 bar			0… 30 bar	**PQ2EE-30**
				38 bar			0… 35 bar	**PQ2EE-35**
51	106	8	35	0 bar	0.2	G⅛	0… -1 bar	**PQ2EE-V0**
				2 bar			-1… +1 bar	**PQ2EE-V1**

PQ2

combination example:
booster with proportional valve and second loop via pressure transducer

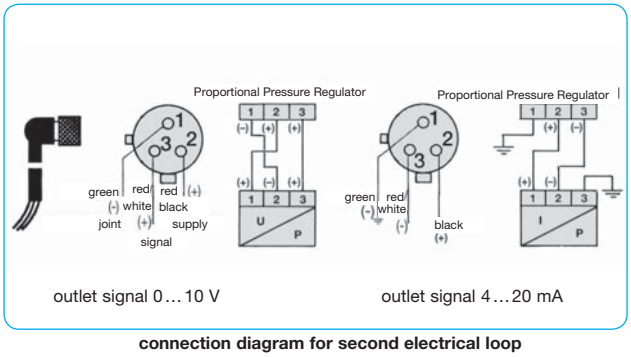
Special options, add the appropriate letter or number

4-20 mA	input / feedback / second loop signal	PQ2 **IC**- . .
flow 100 l/min	increased flow rate, max. 10 bar	PQ2 . . - . . **HF**
continuous regulation	improved characteristic curve through proportional inlet valve, max. 10 bar	PQ2 . . - . . **X58**
declining curve	inverted outlet	PQ2 . . - . . **X59**

Accessories

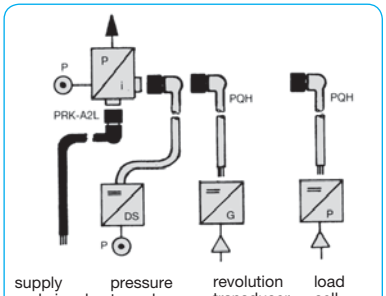
coupling socket	M16 x 0.75,	7-pin with 2.0 m cable,	supply and signal,	straight	**PRK-A2L**
				angular	**PRK-C2L**
coupling socket	½″UNF,	3-pin with 0.9 m cable,	for second loop,	straight	**PQH-L1**
				angular	**PQH-L2**
mounting bracket	made of steel				**PQKT-01**

PRK-A **PRK-C**



outlet signal 0…10 V outlet signal 4…20 mA

connection diagram for second electrical loop



PQ2 with second loop

*1 at 7 bar supply pressure and open outlet, at regulated flow rate of 3 l/min
*2 higher supply pressures on request

Technical details: see previous page

PDF CAD
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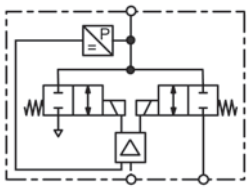
Order example: PQ2EE-A5

Proportional Pressure Regulator with High Accuracy and High Flow PQ3...PQ6

Technical features

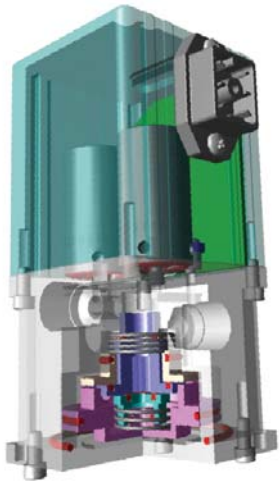
• **Pressure range**	-1... 35 bar	• **Accuracy**	± 0.4 %
• **Input signal**	0-10 V; 4-20 mA	• **Mounting position**	any
• **Protection class**	IP65	• **Adjustment**	zero point, span, hysteresis
• **Response time**	15 ... 20 ms	• **Air consumption**	without air consumption
• **Power consumption**	6 W		



accurate 0.4 %

General technical features

Description	Two solenoid valves control the system pressure. One valve is for inlet control, the other for outlet control. In order to achieve high volume flow the regulator is pilot-controlled, i.e. the valves control an integral volume booster. Extraordinary accuracy is reached by measuring the outlet pressure of the booster and feeding back the according signal.
Mounting position	any, preferably upright
Protection class	IP65
Temperature range	0 °C to 70 °C / 32 °F to 158 °F
Material	Booster body: nickel-plated aluminium; Elastomer: FKM, NBR/Buna-N; Transducer: aluminium and silicon; Valves: nickel-plated brass

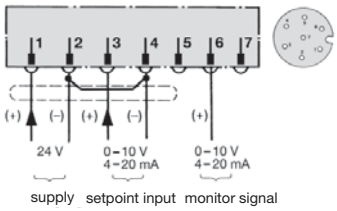


Pneumatic features

Media	dry, unlubricated and 40 µm filtered compressed air or non-corrosive gases
Supply pressure	see chart, minimum 10% above outlet pressure
Flow rate	**PQ3**: 700 l/min at 8 bar supply pressure and 6 bar outlet pressure **PQ4 / PQ6**: 2000 l/min at 8 bar supply pressure and 6 bar outlet pressure
Exhaust	nearly same relief capacity as ventilation capacity
Air consumption	without constant bleed

Electrical features

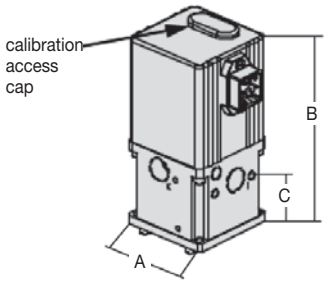
Supply voltage	15-24 V DC
Power consumption	max. 6 W
Command signal	0-10 V, optionally 4-20 mA
Command signal impedance	10 kΩ at voltage signal, 100 Ω at current signal
Electrical connector	plug M16x0.75, 7-pin, with coupling socket, optionally plug M12
Monitor signal	0-10 V, optionally 4-20 mA
Security	constant outlet pressure at voltage drop



connection diagram for supply and signal

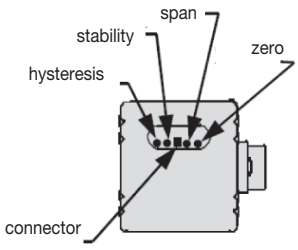
Accuracy

Linearity / Hysteresis	± 0.3% FS > 7 bar outlet pressure ± 0,5% FS
Response sensitivity	< 0.1% FS
Response time	10 … 15 ms
Repeatability	± 0.2% FS
Accuracy	± 0.4% FS



Adjustment

Adjustment	Adjustment by calibration access cap on the top of the valve.
Zero point	The zero point can be changed by up to 10% of full scale, e.g. from 0 bar to 0.6 bar at a 6 bar regulator. External adjustment via potentiometer Z "zero".
Span	The maximum pressure value of the control range can be reduced by up to 10%, e.g. from 6 bar to 5.4 bar. External adjustment via potentiometer S "span".
Hysteresis	Response sensitivity can be adjusted via potentiometer H “hysteresis”.



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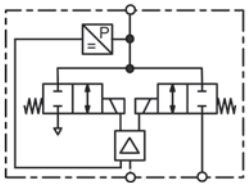
Proportional Pressure Regulator with High Accuracy and High Flow PQ3...PQ6

Description

Closed loop electronic pressure regulator consisting of two solenoid valves, an internal pressure transducer, and an electronic control circuit mounted to an integral volume booster. The pressure is controlled by activating the solenoid valves, which apply pressure to the pilot side of the volume booster.

Single loop

Pressure is controlled by two solenoid valves. One valve functions as inlet control, the other as exhaust. The pressure outlet is measured by an internal pressure transducer which provides a feedback signal to the electronic controls. This feedback signal is compared with the command input signal. Any difference between the two signals causes one of the two solenoid valves to open, allowing flow into or out of the system. Accurate pressure is maintained by these two valves.



0...0.1 bar/35 bar

Dimensions A mm	B mm	C mm	Flow rate l/min*1	Supply pressure max. bar	Accuracy %	Connection thread G/NPT	Pressure range bar	Order number
Single loop regulator				0 ... 10 V input and feedback signal supply voltage 24 V DC, with coupling socket				**PQ3/PQ4/PQ6**
51	123	34	700	0.2	0.25	¼″ NPT	0...0,1	**PQ3EE-C1**
				1.0			0...0,5	**PQ3EE-C5**
				2.0			0...1,0	**PQ3EE-01**
				3.0			0...2,0	**PQ3EE-02**
				9.0			0...4,0	**PQ3EE-04**
				9.0			0...6,0	**PQ3EE-06**
				9.0			0...8,0	**PQ3EE-08**
				15			0... 10	**PQ3EE-10**
				15		⅜″ NPT	0... 12	**PQ3EE-12**
				24			0... 16	**PQ3EE-16**
				24			0... 20	**PQ3EE-20**
				38			0... 25	**PQ3EE-25**
				38			0... 30	**PQ3EE-30**
				38			0... 35	**PQ3EE-35**
77	175	65	2000	0.2	0.4	½″ NPT	0...0,1	**PQ4EE-C1**
				1.0			0...0,5	**PQ4EE-C5**
				2.0			0...1,0	**PQ4EE-01**
				3.0			0...2,0	**PQ4EE-02**
				9.0			0...4,0	**PQ4EE-04**
				9.0			0...6,0	**PQ4EE-06**
				9.0			0...8,0	**PQ4EE-08**
				15			0... 10	**PQ4EE-10**
77	175	65	2000	0.2	0.4	¾″ NPT	0...0,1	**PQ6EE-C1**
				1.0			0...0,5	**PQ6EE-C5**
				2.0			0...1,0	**PQ6EE-01**
				3.0			0...2,0	**PQ6EE-02**
				9.0			0...4,0	**PQ6EE-04**
				9.0			0...6,0	**PQ6EE-06**
				9.0			0...8,0	**PQ6EE-08**
				15			0... 10	**PQ6EE-10**

PQ3EE-10

PQ4EE-10

Special options, add the appropriate letter

4-20 mA	input and monitor signal	PQ . I**C**- . .
M12 connector	5-pin (coupling socket not included)	PQ . . . -. **.M12**

Accessories

coupling socket	M16x0.75, 7-pin with 2 m cable		straight	**PRK-A2L**
			angular	**PRK-C2L**
coupling socket	M12x1,	5-pin with 2 m cable, 5 x 0.25	angular	**KM12-C5-2**
		5-pin with 5 m cable, 5 x 0.25	angular	**KM12-C5-5**
mounting bracket	made of steel		for PQ3	**PQKT-01**
mounting bracket	made of steel		for PQ4/PQ6	**PQKT-02**

PRK-A **PRK-C**

Technical details: see previous page

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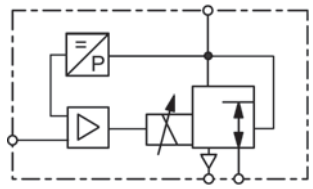
Order example: PQ3EE-C1

Proportional Pressure Regulator ”AirTronic”® PR

Description	The pneumatic proportional valve controls the outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system in a compact monoblock assembly with proportional solenoid valve, electronic regulator and internal pressure transducer. In the process, the outlet pressure is transformed into a proportional electrical signal and compared with the input signal. If the outlet pressure exceeds the preset setpoint, the valve exhausts down to the pressure desired. The valve has no constant bleed. At absence of input signal or supply voltage the valve exhausts. The power supply of the setpoint potentiometer is provided by the proportional valve via connector pin number 5.
Pressure transducer	Open transducers: 100 mbar, 500 mbar, 1 bar and vacuum
Application examples	Proportional pressure regulators are being used for blowing machines, ultrasonic equipments, testing machines, painting systems, contouring systems, laser welding machines, textile machines, cheese presses, pneumatic brakes, clamping devices and medical engineering.



G⅛ up to G1

General technical features

Description	3-port/2-way valve with proportional magnet, integrated hybrid PCB and closed loop with pressure transducer in compact monoblock assembly.		
Mounting position	any, preferably upright		
Protection class	IP 54 with standard connector, IP 65 with special connector		
Temperature range	0 °C up to 50 °C / 32 °F to 122 °F, high temperature version on request		
Material	Body:	brass (G⅛) and aluminium (G¼, G½ u. G1)	Inner valve: brass and SST
	Seals:	NBR/Buna-N, on request EPDM or FKM	FKM for 50 bar version

Pneumatic features

Media	dry, lubricated, unlubricated and 50 µm filtered compressed air or non-corrosive gases
Supply pressure	see chart, min. 10% above outlet pressure
Flow rate	see chart, at 7 bar inlet pressure and open outlet
Exhaust	same nominal size as on inlet valve, thus same relief capacity
Air consumption	without air consumption

Electrical features

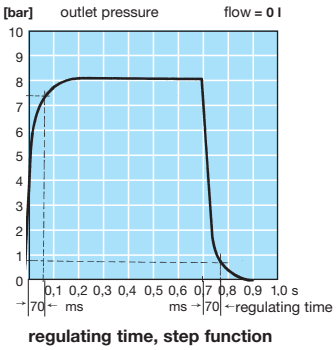
Supply voltage	24 V DC + 15% - 10%, residual ripple max. 10%
Power consumption	12 W at G⅛, 22 W at G¼, 30 W at G½, 44 W at G1
Current consumption	0.5A at G⅛, 1.0A at G¼, 1.25A at G½, 1.7A at G1
Command signal	0 … 10 V, 0 … 20 mA, 4 … 20 mA, digital or Profibus DB rising curve as standard, optionally declining curve
Impedance	100 kΩ at voltage signal (0.1 mA current consumption) 500 Ω at current signal
Electrical connector	circular plug according to DIN 43651, 7-pin plug for analogue signal 16-pin plug for digital signal

Accuracy

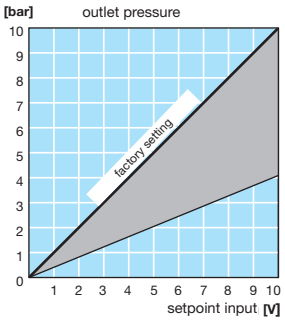
Linearity / Hysteresis	< 1% FS
Response sensitivity	< 0.1% FS
Repeatability	< 0.1% FS
Over all accuracy	± 0.5%
Regulating time	< 1 s over the range, 70 ms at 10 to 90% or 90 to 10% of the range

Adjustment

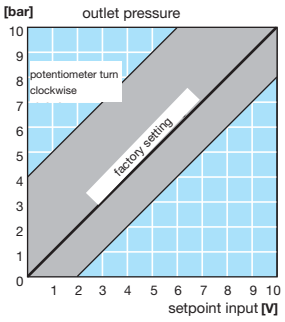
Zero point	calibration ± 10% FS via potentiometer P2
Range	calibration + 5% FS or -10% FS via potentiometer P1
Amplification	calibration 1:1 up to 1:10 via potentiometer P7



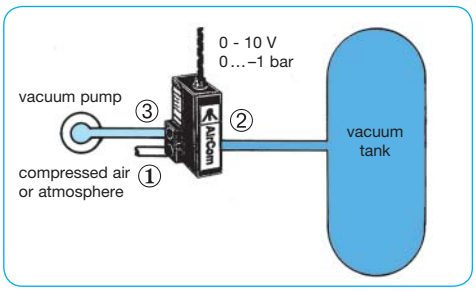
regulating time, step function



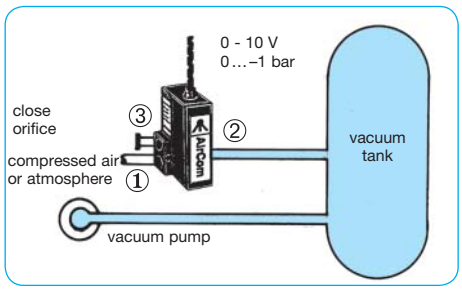
slope, range adjustment



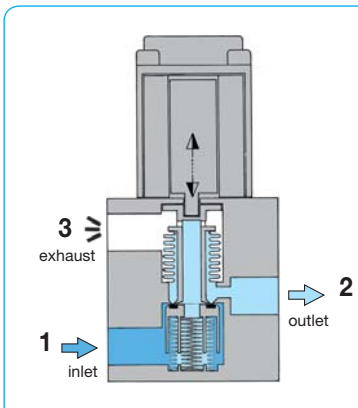
zero point, adjustment



Downstream regulation (V1)
The vacuum pump saves energy and it is easy to fill the tank either with vacuum or pressure. A filter is recommended at orifice ①.



Upstream regulation (V2)
Upstream installation is preferred if rapid evacuation of a tank or system is required. A filter is recommended at orifice ①.



cross-section

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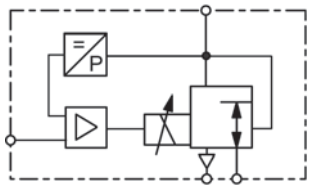
Proportional Pressure Regulator ”AirTronic”® PR

Technical features

• **Pressure range**	0…-1.0 bar to 0…1.0 bar	• **Linearity / Hysteresis**	< 1% FS
• **Command signal**	0…10 V, 0…20 mA, 4…20 mA, digital	• **Response sensitivity**	± 0,5% FS
• **Feedback signal**	0…10 V, 0…20 mA, 4…20 mA	• **Repeatability**	± 0,5% FS
• **Adjustment**	zero point, range and amplification	• **Regulating time**	< 1 s
• **Pressure sensors**	100 / 500 mbar, 1 bar	• **Power consumption**	12 / 22 / 30 / 44 W
• **Flow rate**	250 / 820 / 1700 / 6500 l/min	• **Exhaust**	full nominal size



G⅛ up to G1
0…100 mbar/50 bar

Dimensions A mm	B mm	C mm	Nominal size DN	K_v-value (m^3/h)	Flow rate l/min*1	Supply max. bar	Connection thread G	Pressure range bar	Order number
Proportional pressure valve						0-10 V input signal, supply voltage 24 V DC, with coupling socket			**PR**
35	80	63	3	0.18	210	-1	G⅛	0…-1.0	**PRA00-00V1**
						-1		0…-0.5	**PRA00-00V1A5**
						-1		0…-0.1	**PRA00-00V1A1**
						3		-1.0… 1.0	**PRA00-01V1**
						1		0… 0.1	**PRA00-A100**
						2		0… 0.5	**PRA00-A500**
						2		0… 1.0	**PRA00-0100**
52	105	74	6	0.6	700	-1	G¼	0…-1.0	**PR000-00V1**
						-1		0…-0.5	**PR000-00V1A5**
						-1		0…-0.1	**PR000-00V1A1**
						3		-1.0… 1.0	**PR000-01V1**
						1		0… 0.1	**PR000-A100**
						2		0… 0.5	**PR000-A500**
						2		0… 1.0	**PR000-0100**
70	150	101	12	1.2	1400	-1	G½	0…-1.0	**PR100-00V1**
						2		0… 1.0	**PR100-0100**
96	190	115	20	4.8	5600	-1	G1	0…-1.0	**PR200-00V1**
						2		0… 1.0	**PR200-0100**

PRA

PR1

Special options, add the appropriate letter or number

input signal	0-20 mA		PR . . **1**-....
	4-20 mA		PR . . **2**-....
	8 bit digital with hold function		PR . . **3**-....
	Profibus DP	from G¼ on	PR . . **8**-....
feedback signal	0-10 V		PR . **1** . -....
	0-20 mA		PR . **2** . -....
	4-20 mA		PR . **3** . -....
external feedback signal	0-10 V		PR . **4** . -....
	0-20 mA		PR . **5** . -....
	4-20 mA		PR . **6** . -....
deviant pressure range	indicate on order		PR . . . -**XX**. .
for vacuum	Bypass version	G⅛ and G¼	PR . . . -. . **V2**
		G½	PR1. . -. . **V2**
		G1	PR2. . -. . **V2**
for absolute pressure			PR . . . -. . **0A**
protection class IP65	special cable box, PRK-IP65		PR . . . -. . **06**
body made of stainless steel	valve body and inner parts , 1.4304, EPDM seals, G¼ and G½		PR . . . -. . **SS**
body made of aluminium	nly valve body, max. 20 bar	G¼ only	PR . . . -. . **19**
for oxygen	specially cleaned, FKM elastomer		PR . . . -. . **15**

example: combination PR with booster

Accessories

coupling socket	7-pin with 2 m cable	straight	**PRK-A2L**
	7-pin with 5 m cable	straight	**PRK-A5L**
	7-pin with 2 m cable, IP65	straight	**PRK-I2L**
	7-pin with 2 m cable	angular	**PRK-C2L**
	7-pin with 5 m cable	angular	**PRK-C5L**
other cable length	e.g. 10 m available		

PRK-A **PRK-C**

*1 at 6 bar supply pressure and 5 bar outlet pressure

Technical details: see previous page

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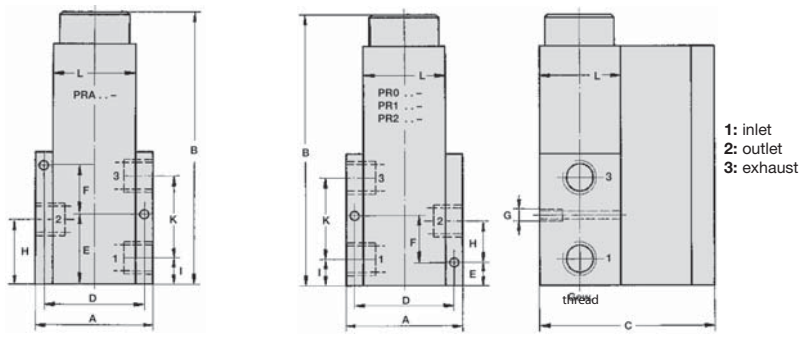
Order example:
PRA00-00V1

Dimensions and Connection Diagram ”AirTronic”®



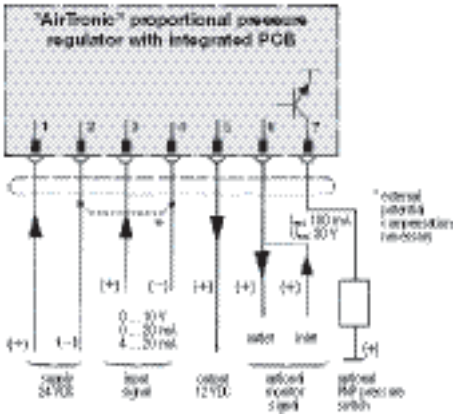
1: inlet
2: outlet
3: exhaust

Proport. regulator	thread	A	B	C	D	E
PRA . . –	G ⅛	35	80	63	29	18
PR0 . . –	G ¼	52	105	74	43	10
PR1 . . –	G ½	70	150	101	57.5	12
PR2 . . –	G 1	96	190	115	79	15

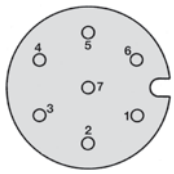
Proport. regulator	F	G	H	I	K	L
PRA . . –	7	M 4	15	10	16.6	25
PR0 . . –	20	M 4	16	11*	34	36
PR1 . . –	28	M 6	23	15	48.5	45
PR2 . . –	33	M 8	30	20	60	60

* 14 mm from 30 bar pressure range on

”AirTronic”® proportional pressure regulator with integrated PCB

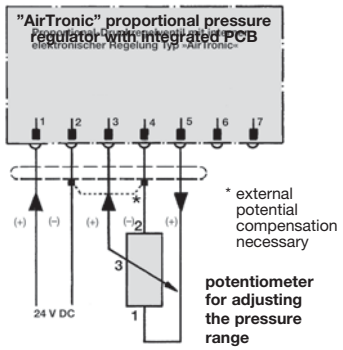


”AirTronic”® connection diagram

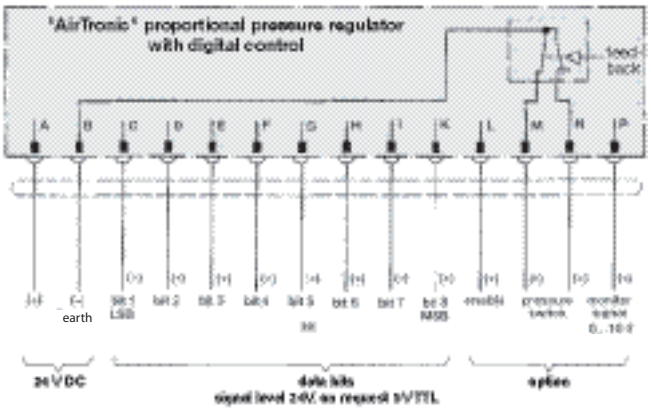


colour of wire		
pin	4-wire	7-wire
1	white	grey
2	brown	blue
3	yellow	yellow
4	green	green
5	–	brown
6	–	white
7	–	pink

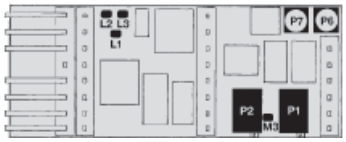
pin numbers seen from solder pin side



Connection diagram with potentiometer

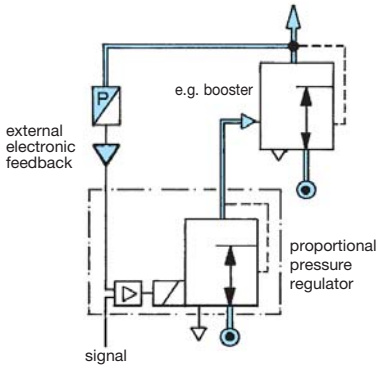


Connection diagram for digitally controlled proportional pressure regulator

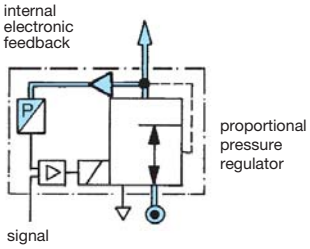


P1	range:	–10%...+5%
P2	zero point:	± 10%
P6	option pressure switch:	5...15%
P7	proportional amplification:	1...11
M3	measuring point offset zero	
L1	earth (GND)	
L2	solenoid	+24 V
L3	solenoid (pulse width modulation)	PWM

Adjustment of the proportional regulator



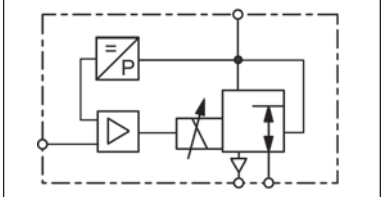
External electronic feedback
0 ... 10 V or 0/4 ... 20 mA



Internal electronic feedback
as standard

Proportional Pressure Regulator for Flow Applications PF

Description	The pneumatic proportional valve controls the outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system in a compact mono block assembly with proportional solenoid valve, electronic regulator and internal pressure transducer. The valve works as a slide valve and is designed for flow applications such as thermal cutting. The digital control system offers advantages at installation and commissioning for adapting the valve to special applications. The regulator can be set and optimised using a PC, RS232 adapter and software. Data record can be saved and used for further valves. The valve has a constant bleed. At absence of input signal or supply voltage the valve exhausts.		
Software	Display: signal, outlet pressure, PID parameters, pressure switch signal etc.		
Scope function	view setpoint, outlet pressure, internal signals from PID control		
Media	dry, lubricated, unlubricated and 50 µm filtered compressed air or non-corrosive gases		
Supply voltage	24 V DC ± 10 V, residual ripple < 10%	**Power consumption**	14 W (810mA current consumption)
Signal range	0-10 V, 100 kΩ impedance 0/4-20 mA, 250 Ω impedance		
Electr. connection	plug M12x1, 5-pin (protection class IP65)	**Mounting position**	any, preferably solenoid on top
Accuracy	hysteresis: 0.5% FS	**Linearity/repeatability**	< ± 0.5% FS
Temp. range	fluid / ambient: 0 °C to 60 °C / 32 °F to 140 °F	**Material**	Body: aluminium Elastomer: NBR/Buna-N



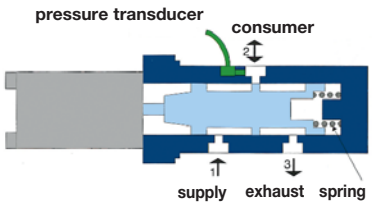
G⅜
0...6 bar/50 bar

Dimensions A mm	B mm	C mm	Nominal size DN	K_v-value (m^3/h)	Flow rate l/min*1	Supply max. bar	Connection thread G	Pressure range bar	Order number
Proportional pressure regulator						**0-10 V command signal, supply voltage 24 V DC, without M12 coupling socket**			**PF**
60	160	78	8	1,45	1 700	12	G⅜	0 ... 6	**PF000-0600**
						18		0 ... 10	**PF000-1000**
						18		0 ... 16	**PF000-1600**
						22		0 ... 20	**PF000-2000**
						40		0 ... 30	**PF000-3000**
						50		0 ... 40	**PF000-4000**
						60		0 ... 50	**PF000-5000**

PF000-1000

Special options, add the appropriate letter or number

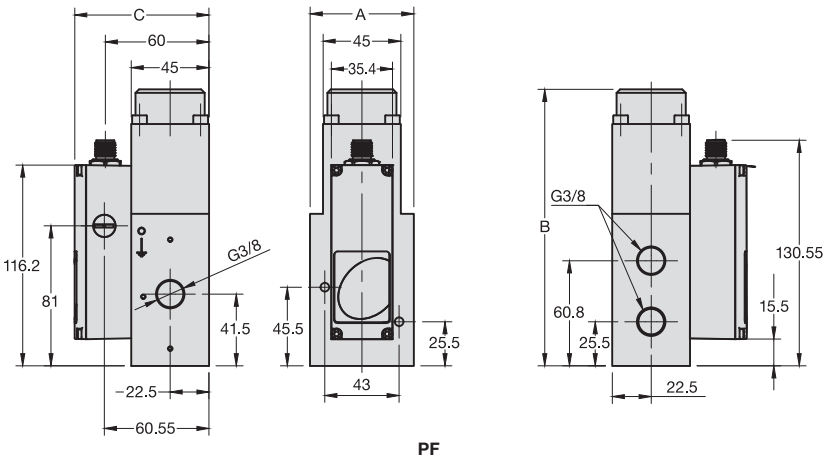
commmand signal	0-20 mA	PF . . **1**- . . . .
	4-20 mA	PF . . **2**- . . . .
monitor signal	0-10 V	PF . **1** . - . . . .
	4-20 mA	PF . **3** . - . . . .
deviant pressure range	indicate on order	PF . . . -**XX**. .
for oxygen	specially cleaned, FKM elastomers	PF . . . - . .**15**



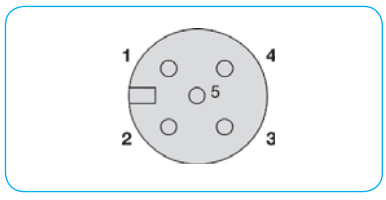
The position of the slide is continuously shifting according to command signal and pressure change at the outlet. Thereby a constant outlet pressure is achieved.

Accessories

RS232 module	with 9-pin D-sub plug and 2 m cable		**PDRS232**
software	basic version "light"		**PDSOFT1**
coupling socket	M12x1, 5-pin, with 2 m cable, 5 x 0.25	angular	**KM12-C5-2**
	M12x1, 5-pin, with 5 m cable, 6 x 0.25	angular	**KM12-C5-5**



PF



view from solder pin side

pin	description	5-wire cable (2m)	6-wire cable (5m)
1	24 V supply voltage	brown	brown
2	analog input signal	white	white
3	supply ground	blue	green
	analog ground		yellow
4	analog outlet signal	black	pink
5	digital pressure switch signal	grey	grey
housing	EMC shield	shield	shield

connection diagram

*1 at 6 bar supply pressure and 5 bar outlet pressure

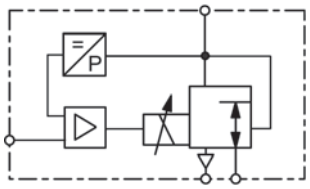
PDF CAD
www.aircom.net

Order example:
PF000-0600

Description The pneumatic proportional valve controls the outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system in a compact mono block assembly with proportional solenoid valve, electronic regulatior and internal pressure transducer. The valve works as a 3-port/2-way valve with proportional magnet. The digital control system offers advantages at installation and commissioning for adapting the valve to special applications. The regulator can be set and optimised using a PC, RS232 adapter and software. Data record can be saved and used for further valves. The valve has no constant bleed. At absence of input signal or supply voltage the valve exhausts.

Software

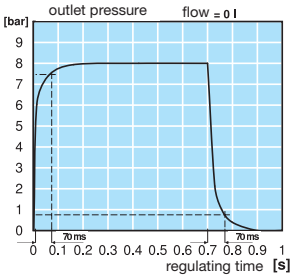
Display:	signal, outlet pressure, parameter, pressure switch signal etc.
Scope function:	view setpoint, outlet pressure, internal signals from PID control
Parameters:	command signal, zero point, overload threshold, ramp
Valve diagnosis:	parameters factory set or customised, optimization of the valve



G⅛ up to G1

General technical features

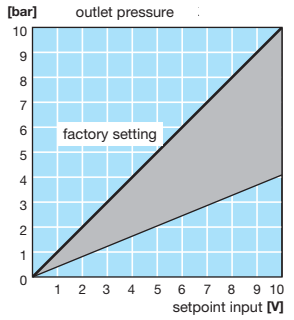
Description	3-port/2-way valve with proportional magnet and digital control
Mounting position	any, preferably vertical
Protection class	IP65 with mounted coupling socket
Temperature range	0 °C to 60 °C / 32 °F to 140 °F, fluid / ambient temperature
Material	Body: brass (for G⅛ and G¼) or aluminium (for G½ and G1) Inner valve: brass and stainless steel Seals: NBR/Buna-N, EPDM or FKM on request, FKM for 50 bar version



regulating time, step function

Pneumatic features

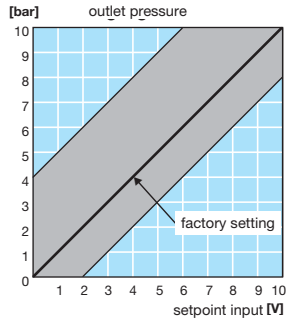
Media	dry, lubricated, unlubricated and 5 µm filtered compressed air or non-corrosive gases
Supply pressure	see chart
Flow rate	see chart, at 7 bar supply pressure and open outlet
Exhaust	same nominal size as on inlet valve, thus same relief capacity
Air consumption	without air consumption



slope, range adjustment

Electrical features

Supply voltage	24 V DC ±10%
Electrical connection	M12, 5-pin coupling socket
Power consumption	12 W at G⅛, 24 W at G¼, 34 W at G½, 44 W at G1
Current consumption	500 mA at G⅛, 1000 mA at G¼, 1400 mA at G½, 1800 mA at G1
Command signal	0-10 V, 0-20 mA, 4-20 mA
Impedance	100 kΩ at voltage signal (0.1 mA current consumption) 250 Ω at current signal
Setpoint input	0-10 V, 0-20 mA, 4-20 mA



zero point, adjustment

Accuracy

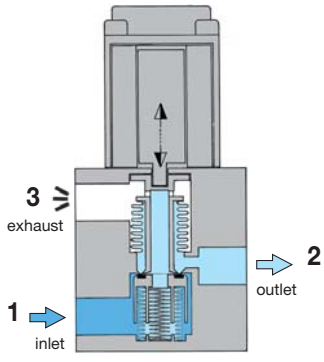
Linearity / Hysteresis	< ± 0.5% FS
Repeatability	± 0.5% FS
Response sensitivity	± 0.5% FS
Over all accuracy	± 0.5% FS

Adjustment and parameter settings

Zero point / range	Zero point and range can be calibrated percentagewise.
Control mode / Amplification	Through the software different control modes may be chosen. All parameters of P/PI/PID controllers can be tuned.
Diagnosis	A diagnostic tool including data recording is available within the software.
Characteristic curve	Increasing or decreasing curve can be set (increasing by standard).

Downstream regulation for vacuum/positive pressure regulators (V1)
Recommended when tank shall be evacuated or filled with positive pressure. At inlet port (1) either compressed air or atmosphere has to be applied. The use of a filter is advisable.

Downstream regulation for vacuum regulators (V3)
Recommended when tank shall be evacuated. Exhaust port (3) will be closed. Inlet port (1) must be connected with vacuum pump. Outlet port (2) has to be connected with consumer or tank.



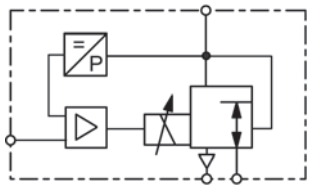
cross section

Proport. pressure
10

Digital Proportional Pressure Regulator "AirTronic"®D PP

Technical features

• **Pressure range**	0…0.1 bar bis 0…50 bar	• **Linearity / Hysteresis**	± 0.5% FS
• **Command signal**	0-10 V, 0-20 mA, 4-20 mA	• **Response sensitivity**	± 0.5% FS
• **Output signal**	0-10 V, 0-20 mA, 4-20 mA	• **Repeatability**	± 0.5% FS
• **Regulating time**	< 1 s	• **Rated input**	12 / 22 / 30 / 44 W
• **Pressure sensor**	100 / 500 mbar, 1 / 5 / 10 / 16 / 20 / 30 / 50 bar	• **Relief capacity**	full nominal size
• **Flow rate**	250 / 820 / 1700 / 6500 l/min		

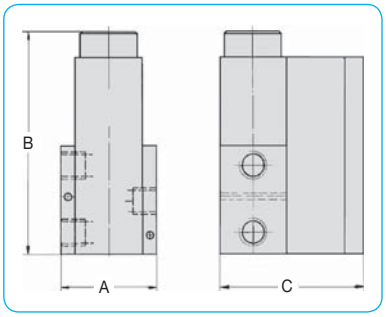


G⅛ up to G1
0…100 mbar/50 bar

Dimensions A mm	B mm	C mm	Nominal size DN	K_v-value (m^3/h)	Flow rate l/min*1	Supply max. bar	Connection thread G	Pressure range bar	Order number
Proportional pressure regulator 0-10 V command signal, supply voltage 24 V DC, with coupling socket									**PP**
35	83	57	3	0.18	210	-1	G⅛	0…-1.0	**PPA00-00V3**
						2		0… 0.1	**PPA00-A100**
						2		0… 0.5	**PPA00-A500**
						2		0… 1.0	**PPA00-0100**
						8		0… 3.0	**PPA00-0300**
						12		0… 6.0	**PPA00-0600**
						12		0… 10	**PPA00-1000**
						18		0… 16	**PPA00-1600**
						22		0… 20	**PPA00-2000**
						30		0… 25	**PPA00-2500**
52	105	68	6	0.6	700	-1	G¼	0…-1.0	**PP000-00V3**
						2		0… 0.1	**PP000-A100**
						2		0… 0.5	**PP000-A500**
						2		0… 1.0	**PP000-0100**
						8		0… 3.0	**PP000-0300**
						12		0… 6.0	**PP000-0600**
						12		0… 10	**PP000-1000**
						18		0… 16	**PP000-1600**
						22		0… 20	**PP000-2000**
						40		0… 30	**PP000-3000**
						60		0… 50	**PP000-5000**
70	136	85	12	1.2	1400	-1	G½	0…-1.0	**PP100-00V3**
						2		0… 1.0	**PP100-0100**
						8		0… 3.0	**PP100-0300**
						12		0… 6.0	**PP100-0600**
						12		0… 10	**PP100-1000**
						14		0… 12	**PP100-1200**
96	190	101	20	4.8	5600	-1	G1	0…-1.0	**PP200-00V3**
						2		0… 1.0	**PP200-0100**
						8		0… 3.0	**PP200-0300**
						12		0… 6.0	**PP200-0600**
						12		0… 10	**PP200-1000**
						14		0… 12	**PP200-1200**

PPA

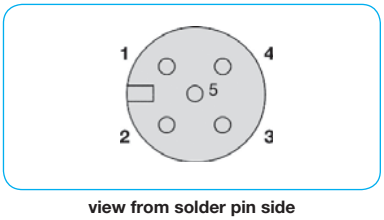
PP0



dimensions

Special options, add the appropriate letter or number

setpoint input	0-20 mA	**1**			4-20 mA	PP . . **2**- . . . .
feedback output	0-10 V	**1**	0-20 mA	**2**	4-20 mA	PP . **3** . - . . . .
deviant pressure range	indicate on order					PP . . . -**XX**. .
for absolute pressure						PP . . . - . . **0A**
body made of stainless steel	P_2 = max. 20 bar, body / inner parts, 1.4304, EPDM, G¼ and G½					PP . . . - . . **SS**
body made of aluminium	valve body only, max. 20 bar				G¼ only	PP 0 . . - . . **19**
for oxygen	specially cleaned, FKM elastomer					PP . . . - . . **15**
for dynamic application	P_2 = for 30 bar- up to 50 bar version				G¼ only	PP 0 . . - . . **DY**
cascade regulation	w/o monitor signal 2. sensor, electr. feedback 0-10 V					PP . . . - . . . **KU**
	w/o monitor signal 2. sensor, electr. feedback 4-20 mA					PP . . . - . . . **KI**



view from solder pin side

Zubehör, lose beigelegt

S232 module	with D-sub plug and	2 m cable			**PDRS232**
software	basic version "light"				**PDSOFT1**
coupling socket	M12x1, 5-pin with	2 m cable, 5 x 0.25		angular	**KM12-C5-2**
		5 m cable, 5 x 0.25		angular	**KM12-C5-5**
adapter cable	M12x1, 5-pin with	0.2 m cable			**PRK-PR-PP**

pin	description	5-wire cable (2m)	6-wire cable (5m)
1	24 V supply voltage	brown	brown
2	analog input signal	white	white
3	supply earth	blue	green
	analog earth		yellow
4	analog outlet signal	black	pink
5	digital pressure switch signal	grey	grey
housing	EMC shield	shield	shield

connection diagram

*1 at 6 bar supply pressure and 5 bar outlet pressure

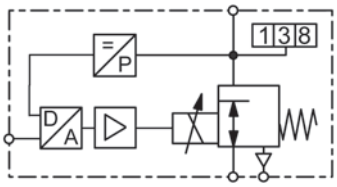
Technical details: see previous page

PDF CAD
www.aircom.net

Order example:
PPA00-00V3

Proportional Pressure Regulator, programmable PD

Description	The proportional pressure regulator is digitally controlled and works as a 3/2 valve with proportional magnet and closed loop. The digital control system offers advantages at installation and commissioning for adapting the valve to special applications. The regulator can be set and optimised using a PC, RS232 adapter and software.
Software	Display: signal, outlet pressure, PID parameters, pressure switch signal etc. Scope function: view setpoint, outlet pressure, internal signals from PID control
Parameters	command signal, zero point, overload threshold, ramp Valve diagnosis: parameters factory-set or customised, optimization of the valve.



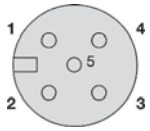
G⅛ to G⅜ or flange programmable

General technical features

Description	3-port/2-way valve with proportional magnet and digital control
Mounting position	any, preferably upright
Protection class	IP65 with mounted coupling socket
Temperature range	0 °C to 50 °C / 32 °F to 122 °F ambient
Material	Body: aluminium Inner valve: POM (Polyacetal) Elastomer: NBR/Buna N and FPM

Pneumatic features

Media	dry, lubricated or unlubricated and 50 µm filtered compressed air or non-corrosive gases
Supply pressure	see chart
Flow rate	see chart, at 7 bar supply pressure and open outlet
Exhaust	same nominal size as on inlet valve, thus same relief capacity
Air consumption	without air consumption



view from solder pin side

Electrical features

Supply voltage	24 V DC ± 10%
Electrical connection	M12x1, 5-pin plug, with coupling socket
Power consumption	12 W at nominal size 4, 40 W at nominal size 8
Current consumption	850 mA at nominal size 4, 1640 mA at nominal size 8
Command signal	0-10 V, 0-20 mA, 4-20 mA
Impedance	100 kΩ at voltage signal (0.1 mA current consumption) 500 Ω at current signal
Feedback output	0-10 V = 3 bar only, 6 bar and 10 bar pressure range possible

pin	description	5 wire cable (2m)	6 wire cable (5m)
1	24 V supply voltage	brown	brown
2	analog input signal	white	white
3	supply earth	blue	green
	analog earth		yellow
4	analog outlet signal	black	pink
5	digital pressure switch signal	grey	grey
housing	EMC shield	shield	shield

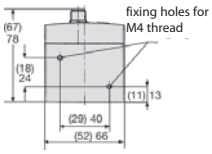
Accuracy

Linearity / Hysteresis	< 1,0% FS	**Response sensitivity**	< 0,5% FS
Repeatability	< 0,5% FS	**Minimum setpoint**	100 mV (0.2 mA / 4.2 mA)
Minimum outlet pressure	1% FS	**Over all accuracy**	± 0,5% FS

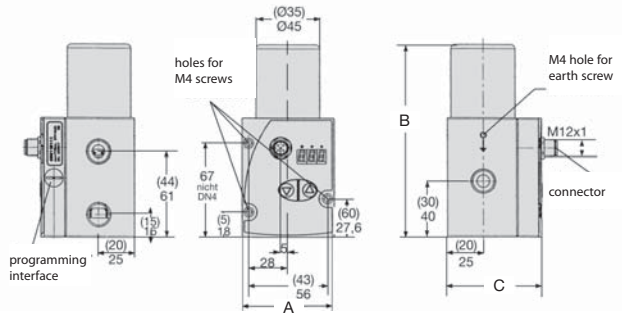
Adjustment and parameter settings

Zero point / range	Zero point and range can be calibrated percentagewise.
Control mode / Amplification	Through the software different control modes may be chosen. All parameters of P/PI/PID controllers can be tuned.
Diagnosis	A diagnostic tool including data recording is available within the software.
Characteristic curve	Increasing or decreasing curve can be set (increasing by standard).

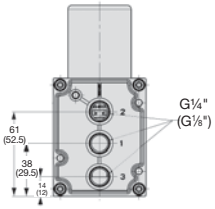
value = DN8
in ( ) = DN4



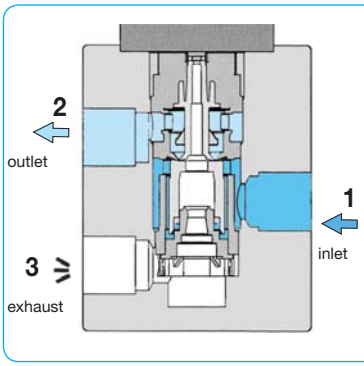
bottom view



PDA / PDB



version with flange

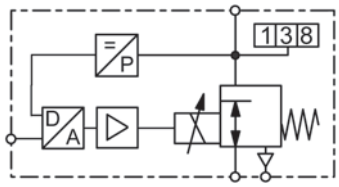


cross-section

PDF CAD
www.aircom.net

Proportional Pressure Regulator, programmable PD

Description	The proportional pressure regulator is digitally controlled and works as a 3/2 valve with proportional magnet and closed loop. The digital control system offers advantages at installation and commissioning for adapting the valve to special applications. The regulator can be set and optimised using a PC, RS232 adapter and software.		
Media	dry, lubricated, unlubricated and 50 µm filtered compressed air or non-corrosive gases		
Supply voltage	24 V DC ± 10 V, residual ripple < 10%		
Signal range	0-10 V, 100 kΩ impedance, 0/4-20 mA, 250 Ω impedance		
Electrical connection	plug M12x1, 5-pin, with coupling socket	**Pressure switch**	PNP, adjustable ± 5% from setpoint
Power consumption	21 W at DN4, 40 W at DN8		
Linearity/Hysteresis	< 0.5% FS / < 1% FS	**Repeatability**	< 0.5% FS
Mounting position	any	**Protection class**	IP65
Temperature range	fluid: 0 °C to 60 °C / 32 °F to 140 °F	ambient:	0 °C to 50 °C / 32 °F to 122 °F
Material	Body: aluminium Elastomer: NBR/Buna-N	Inner valve:	POM



G⅛ to G⅜ or flange programmable

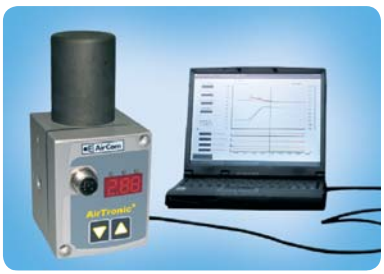
Proportional pressure regulator

0-10 V input and outlet signal, supply 24 V DC, without display, with coupling socket

Dimensions A mm	B mm	C mm	Nominal size DN	Flow rate l/min*1	Supply max. bar	Connection thread G	Pressure range bar	Order number PD
52	112	67	4	0.43	470	6	G⅛	0 … 1	**PDA41-010**
						6		0 … 3	**PDA41-030**
						9		0 … 5	**PDA41-050**
						9		0 … 6	**PDA41-060**
						13		0 … 8	**PDA41-080**
						13		0 … 10	**PDA41-100**
						13		0 … 12	**PDA41-120**
						6	G¼	0 … 1	**PDA42-010**
						6		0 … 3	**PDA42-030**
						9		0 … 5	**PDA42-050**
						9		0 … 6	**PDA42-060**
						13		0 … 8	**PDA42-080**
						13		0 … 10	**PDA42-100**
						13		0 … 12	**PDA42-120**
66	138	78	8	1.2	1300	6	G¼	0 … 1	**PDA82-010**
						6		0 … 3	**PDA82-030**
						9		0 … 5	**PDA82-050**
						9		0 … 6	**PDA82-060**
						13		0 … 8	**PDA82-080**
						13		0 … 10	**PDA82-100**
						13		0 … 12	**PDA82-120**
						6	G⅜	0 … 1	**PDA83-010**
						6		0 … 3	**PDA83-030**
						9		0 … 5	**PDA83-050**
						9		0 … 6	**PDA83-060**
						13		0 … 8	**PDA83-080**
						13		0 … 10	**PDA83-100**
						13		0 … 12	**PDA83-120**

PDA without display

PDB with display



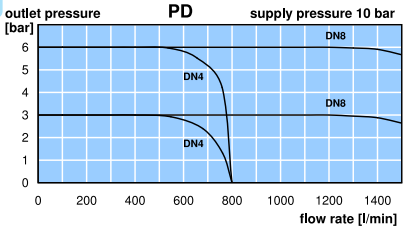
programming via PC

Special options, add the appropriate letter or number

display	3-digit, red		PD**B**. .-. . .
flange version		for PDA41/82	PD . .**F**-. . .
NPT	connection thread		PD . . . -. .**N**
0-20 mA	setpoint input and monitor signal		PD . . . -. .**1**
4-20 mA	setpoint input and monitor signal		PD . . . -. .**2**
cascade regulation	w/o monitor signal 2. sensor, electr. feedback 0-10 V		PD . . . -. .**KU**
	w/o monitor signal 2. sensor, electr. feedback 4-20 mA		PD . . . -. .**KI**

Accessories

RS232 module	with D-sub plug and 2 m cable				**PDRS232**
software	basic version "light"				**PDSOFT1**
coupling socket	M12x1,	5-pin, with	2 m cable, 5 x 0.25	angular	**KM12-C5-2**
			5 m cable, 5 x 0.25	angular	**KM12-C5-5**



*1 at 6 bar supply pressure and 5 bar outlet pressure

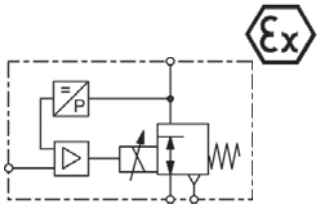
Technical details: see previous page

PDF CAD
www.aircom.net

Order example: PDA41-010

Piezo Proportional Pressure Regulator with ATEX approval PCEX

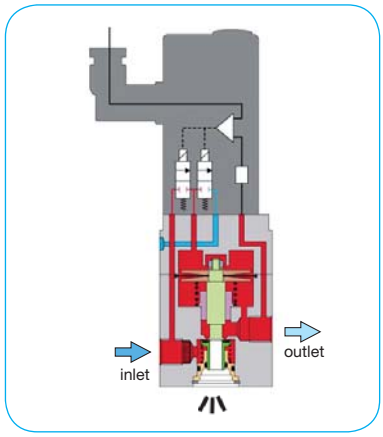
Description	Piezo-operated proportional pressure valve with closed loop in a two-wire system. Outlet pressure is proportional to an electrical input signal. The valve can be mounted in any position and is immune to shock or vibration. It is pilot-controlled to reach a higher flow rate.
Media	lubricated or unlubricated and 50 µm filtered compressed air or non-corrosive gases
Supply voltage	not necessary due to two-wire system (supply through 4...20 mA command signal)
Electrical connector	coupling socket, 4-pin according to DIN 43651, size 15 x 15 mm connector turnable in 90° steps
ATEX classification	Compliance with directive 94/9/EC for use in potentially explosive atmosphere of group IIC, temperature classification T4. Ignition protection type: II1G Ex ia IIC T4; II1D Ex D20 T135°C
Power consumption	< 200 mW
Failsafe feature	exhaust at power breakdown
Linearity/Hysteresis	< 1% FS
Repeatability	< 0.5% FS
Mounting position	any
Protection class	IP 65
Air consumption	The pilot valve has an air consumption of 1.6 l/min
Temperature range	Media: 0 °C to 60 °C / 32 °F to 140 °F Ambient: 0 °C to 60 °C / 32 °F to 140 °F
Material	Body: aluminium and plastic Elastomer: NBR/Buna-N and FKM Inner valve: stainless steel and plastic



G⅛, accurate to 1% with constant bleed

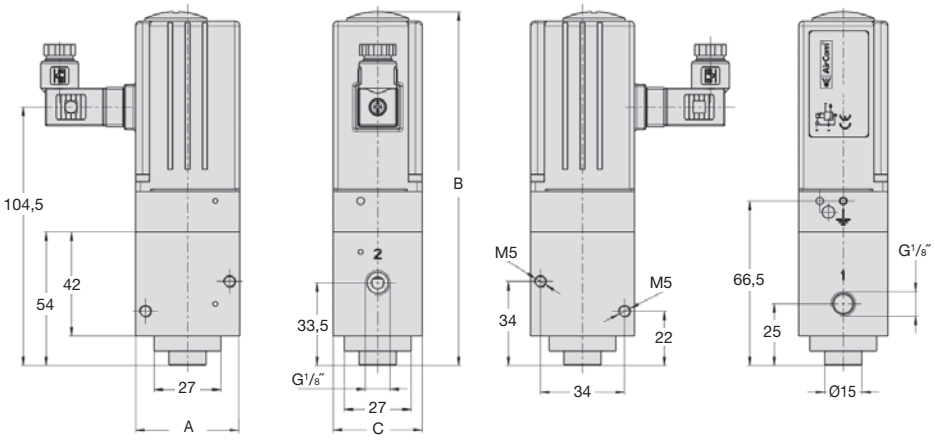
Dimensions A mm	B mm	C mm	Nominal size DN	K_v-value (m^3/h)	Flow rate l/min*1	Supply min./max. bar	Connection thread G	Pressure range bar	Order number
Proportional pressure regulator 4-20 mA input signal, ATEX with coupling socket, with constant bleed									**PCEX**
42	143	36	4	0.5	550	2.5 / 3.0	G⅛	0...2	**PCEX-02**
						3.5 / 5.0		0...3	**PCEX-03**
						4.5 / 6.0		0...4	**PCEX-04**
						5.5 / 8.0		0...5	**PCEX-05**
						6.5 / 8.0		0...6	**PCEX-06**

PCEX

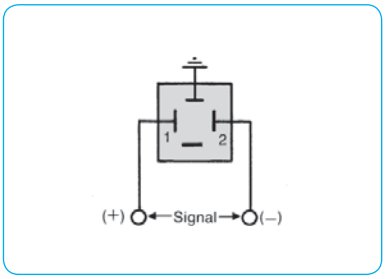


cross-section

1: supply port
2: outlet port
3: exhaust



PCEX



connection diagram

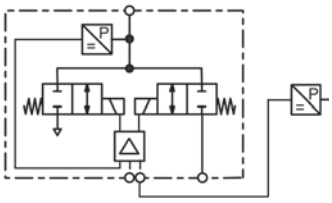
*1 at 6 bar supply pressure, 5 bar outlet pressure, equal exhaust forward flow

PDF CAD
www.aircom.net

Order example: PCEX-02

Proportional Regulator for Pressure up to 70 bar PQH

Description	Proportional control valve with closed loop control technology for better control of pressurised gases. The instrument can be built as single closed loop or dual closed loop control valve.
Media	dry, lubricated or unlubricated and 20 µm filtered compressed air or non-corrosive gases
Fail freeze	constant outlet pressure at voltage drop
Second loop	0-10 V, impedance 4.7 kΩ, ratio of internal to external relationship is 10% to 90%
Supply voltage	15-24 V DC, residual ripple < 10%, with reverse voltage protection
Impedance	0-10 V / 10 kΩ, 4-20 mA / 100 Ω
Protection class	IP65
Electrical connector	M12, 6-pin
Power consumption	24 W (985mA) regulating, 2.4W (100mA) non-regulating
Linearity/Hysteresis	< 0.5% FS **Repeatability** < 0.5% FS
Adjustment	zero, span, hysteresis
Temperature range	0 °C to 70 °C / 32 °F to 158 °F **Mounting position** any, vibration-resistant
Material	Ports: brass Elastomer: FKM
	Transducer: silicon Valves: stainless steel



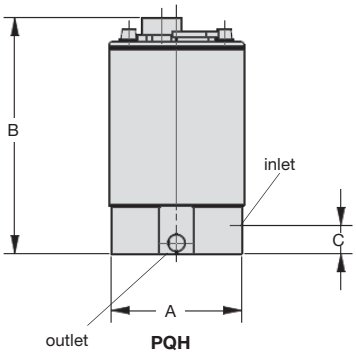
single or double loop

Dimensions A	B	C	K_v-value	Flow rate	Supply pressure	Accuracy	Connection thread	Pressure range	Order number
mm	mm	mm	(m^3/h)	l/min*1	max. bar	%	G	bar	
Proportional pressure valve 0-10 V input and monitor signal, w. coupling socket supply voltage 24 V DC, single loop									**PQH1**
76	122	15	0.016	280	75	0.5	G⅛	0…40	**PQH1EE-40**
								0…50	**PQH1EE-50**
								0…60	**PQH1EE-60**
								0…70	**PQH1EE-70**
Proportional pressure valve 0-10 V input, monitor- and feedback signal, with coupling socket, supply volt. 24 V DC, double loop									**PQH2**
76	122	15	0.016	280	75	0.5	G⅛	0…40	**PQH2EE-40**
								0…50	**PQH2EE-50**
								0…60	**PQH2EE-60**
								0…70	**PQH2EE-70**

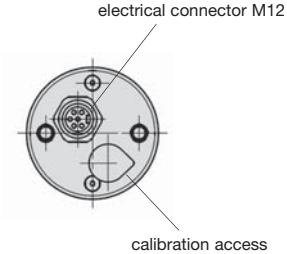
PQH1

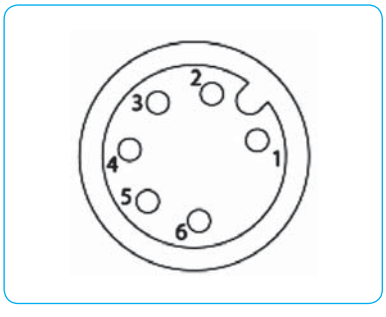
Special options, add the appropriate letter or number

4-20 mA	input and feedback signal	PQH . **IC**- . .
for oxygen		PQH . . . - . .**15**
stainless steel manifold		PQH . . . - . .**SS**



PQH





view from solder pin side

Pin	Description
1	TTL output
2	set point +
3	set point grounde
4	supply 24V DC
5	supply earth
6	analogue output signal

connection plan

*1 at 70 bar supply pressure and open outlet

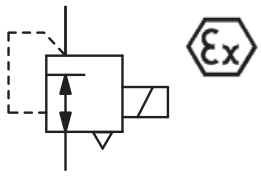
For further details about double loop see end of the chapter

PDF CAD
www.aircom.net

Order example: PQH1EE-40

Proportional Pressure Regulator with Flapper-Nozzle Control PT6

Description	The proportional pressure transducer translates a direct current or voltage input signal into a proportional pneumatic outlet signal. The valve uses proven moving coil and flapper nozzle technology with a built-in pneumatic relay with slight amplification and positive bias. Additional supply voltage is not necessary. The device has to be protected against vibration.		
Media	5 µm filtered compressed air or non-corrosive gases		
Supply voltage	not required		
Electrical connector	plug according to DIN 43650A, contact gap 18 mm, 3-pin, with coupling socket 30 x 30 mm		
Command signal	0 … 10 V / 1.1 kΩ at PT6..-B, otherwise 900 Ω	4 … 20 mA / 200 Ω at PT6..-B, otherwise 260 Ω	
Failsafe	exhaust at power breakdown	**Response sensitivity**	< 0.2% FS
Linearity	< 0.5 % FS at 0.2…2 bar, otherwise < 1% FS	**Repeatability**	< 0.1% FS
Hysteresis	< 0.25% FS at 0.2…2 bar, otherwise < 1% FS	**Vibration sensitivity**	< 2% FS, for 10 g and 15 … 500 Hz
Adjustment	Zero point: by 0.3 bar Range: 40% FS	**Mounting position**	upright ± 15°
Temperature range	-30 °C to 65 °C / -22 °F to 149 °F	**Protection class**	IP 65
Material	Body: chromated aluminium	Elastomer: NBR/Buna-N	
	Nozzle: sapphire in nickel-plated brass plate	Inner valve: stainless steel, brass, zinc-plated steel	



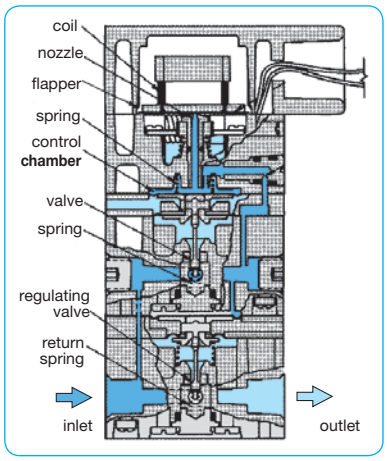
accurate 0.5% or 1%

Dimensions A mm	B mm	C mm	Flow rate l/min*1	Supply pressure max. bar	Command signal V/mA	Pressure range bar	Order number
Proportional pressure regulator 0-10 V			¼" NPT, depending on pressure range air consumption 2…8 l/min				**PT600**
57	93	13	250	8	0-10 V	0.2…1	**PT600-B100**
						0.2…2	**PT600-B200**
57	132	13	300	10	0-10 V	0…2	**PT600-0200**
						0…4	**PT600-0400**
						0…8	**PT600-0800**
Proportional press. regulator 4-20 mA			¼" NPT, depending on pressure range air consumption 2…8 l/min				**PT602**
57	93	13	250	8	4-20 mA	0.2…1	**PT602-B100**
						0.2…2	**PT602-B200**
57	132	13	300	10	4-20 mA	0…2	**PT602-0200**
						0…4	**PT602-0400**
						0…8	**PT602-0800**

PT60.-0.

Special options, change the appropriate number

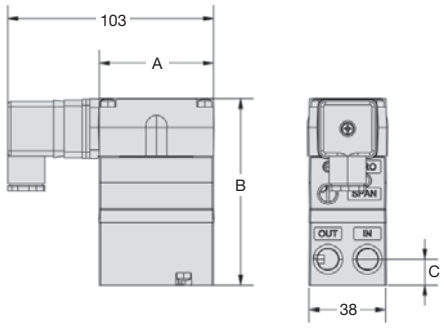
Ex-i-Atex	Atex II 1G Ex ia IIC T4	4-20 mA only	PT602-. . .**01**



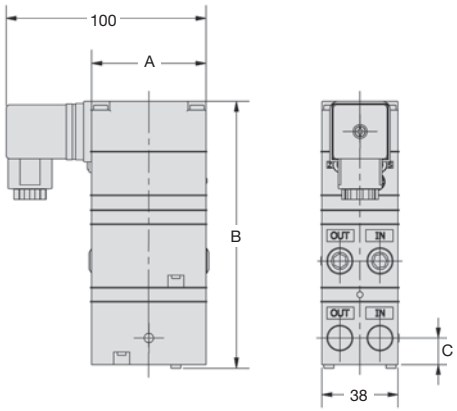
cross-section

Accessories

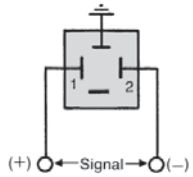
mounting bracket	made of steel, for standard version	**SA-PT1**
	made of steel, for Din rail	**SA-PT2**
isolate transmitter	Ex ia II C, E/A: 0-20 mA, 24 V DC, EX 1-32	**KFD2-CD**



PT60.-B.



PT60.-0.



connection diagram

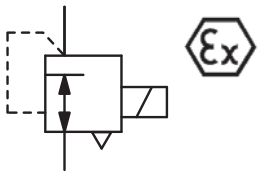
*1 at 7 bar supply pressure and 1.4 bar outlet pressure

PDF CAD
www.aircom.net

Order example: PT600-B100

Proportional Pressure Regulator with Piezo Element and Electrical Feedback PT7

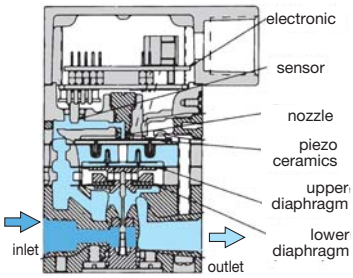
Description	The proportional valve translates a direct current or voltage signal into a linear proportional pneumatic outlet signal. With rapid response controls using low-powered piezo microelectronics, flapper nozzle and solid state control circuit. The proportional valve has internal electronic with an electrical feedback sensor and is housed in NEMA4X (IP65) enclosure with six outlet ranges, jumper selectable. Input and outlet ports on both ends of the body simplify pneumatic piping.
Media	5 µm filtered compressed air or non-corrosive gases
Supply voltage	7…30 V DC, 90 mW, required for 0…10 V setpoint input only, with reverse voltage protection
Electrical connector	plug according to DIN 43650A, contact gap 18 mm, 3-pin, with coupling socket 30 x 30 mm
Command signal	0 … 10 V / 10 kΩ, 3-pin, 24 V DC supply voltage, 4 … 20 mA / 330 Ω, two-wire, min. 7 V DC on input
Failsafe	exhaust at power breakdown
Response sensitivity	< 0.2% FS
Linearity	< 0.25% FS
Repeatability	< 0.1% FS
Hysteresis	< 0.1% FS at 0.2…0.5 bar, otherwise < 0.25% FS
Vibration sensitivity	< 1% FS, for 10 g and 15 … 500 Hz
Adjustment	Zero point: by 0.3 bar Range: 40% FS
Mounting position	any
Temperature range	-40 °C to 70 °C / -40 °F to 158 °F
Protection class	IP 65
Material	Body: chromated aluminium
	Elastomer: NBR/Buna-N
	Nozzle: sapphire in nickel-plated brass plate
	Inner valve: stainless steel, brass, zinc-plated steel



accurate to 0.25% piezo-controlled

Dimensions A mm	B mm	C mm	Flow rate l/min*1	Supply pressure max. bar	Command signal V/mA	Pressure range bar	Order number
Proportional pressure regulator 0-10 V ¼″NPT, air consumption 2…8 l/min subject to pressure range							**PT780**
57	95	13	250	8	0-10 V	0.2…1	**PT780-B100**
						0.2…2	**PT780-B200**
57	133	13	300	10	0-10 V	0…2	**PT780-0200**
						0…4	**PT780-0400**
						0…8	**PT780-0800**
Proportional press. regulator 4-20 mA ¼″NPT, air consumption 2…8 l/min subject to pressure range							**PT782**
57	95	13	250	8	4-20 mA	0.2…1	**PT782-B100**
						0.2…2	**PT782-B200**
57	133	13	300	10	4-20 mA	0…2	**PT782-0200**
						0…4	**PT782-0400**
						0…8	**PT782-0800**

PT78.-0.



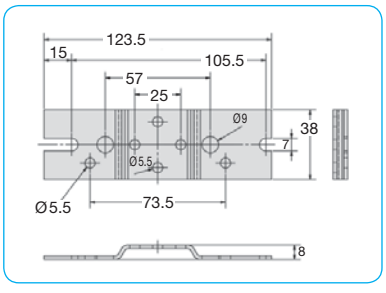
cross-section

Special options, change the appropriate number

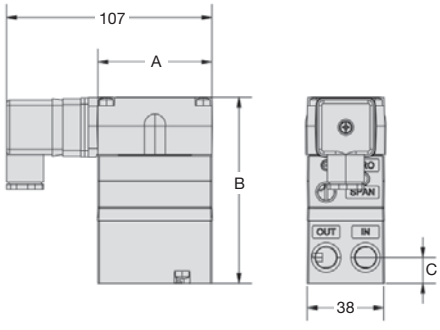
-i-Atex	Atex II 1G Ex ia IIB T4		4-20 mA only	PT782-..**01**
-d-Atex	Atex ds IIC T6	max. 2 bar	4-20 mA only	PT782-..**0E**

Accessories

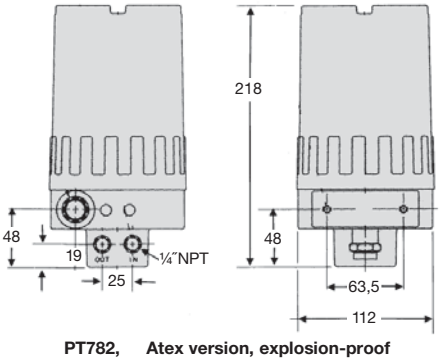
mounting bracket	made of steel, for standard version	**SA-PT1**
	made of steel, for DIN rail	**SA-PT2**
mounting clip	made of steel, Atex version, explosion-proof	**SA-PT3**
isolate transmitter	Ex ia II C E/A: 0 … 20 mA, 24 V DC, EX 1-32	**KFD2-CD**



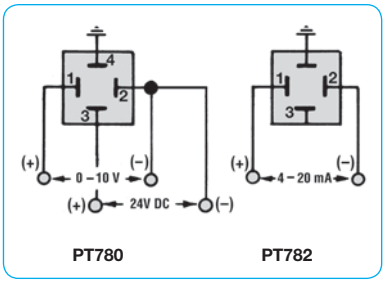
SA-PT1



PT78.-B.



PT782, Atex version, explosion-proof



connecting diagrm

*1 at 7 bar supply pressure and 1.4 bar outlet pressure

PDF CAD
www.aircom.net

Order example: PT780-B100

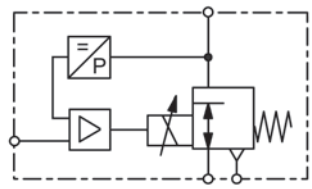
Proport. pressure
10

Piezo Proportional Pressure Regulator, Very Fast, 400 mW PRE

Description

Piezo-operated proportional pressure valve based on the principle of a piezo element which bends when voltage is applied. At the end of the piezo element is a flapper valve, which operates against a precision nozzle to create back pressure on the control diaphragm of a booster relay. A pressure transducer provides feedback of the outlet pressure compared with the setpoint value with correction by the electronic control system if necessary.

Minimal power consumption	• no self-heating, even none at pressure absence • safe battery operation over a long period	
Piezo element	• almost no power consumption necessary for regulation • extremely quick regulating operations • low-noise regulation especially for medical and laboratory technology	
Small and light design	• particularly suitable for portable devices in conjunction with battery operation • ideal for limited space conditions	
PRE1	DN 2.5, 350 l/min, coupling socket M8x1, 3-pin, monitor signal optionally 0 … P_{2max} ≙ 0 … 10 V,	monitor signal, 4-pin max. 1 mA, R_a > 1kΩ
PRE2	DN 6, 1600 l/min, coupling socket M12x1.5, 5-pin monitor signal standard 0 … P_{2max} ≙ 0 … 10 V,	max. 1 mA, R_a > 1kΩ



0 - 100 mbar / 10 bar
10 ms, 400 mW, 1600 l/min

General features

Description	Piezo-operated 3-port/2-way proportional pressure regulator with internal pressure sensor and closed loop.
Protection class	IP 30 for PRE1 according to DIN EN 60529 IP 65 for PRE2 according to DIN EN 60529 with coupling socket and tapped exhaust
Mounting position	any
Temperature range	0 °C to 50 °C / 32 °F to 122 °F
Material	Body: plastic Elastomer: NBR/Buna-N Inner valve: brass and spring steel

Pneumatic features

Media	dry, unlubricated and 5 µm filtered compressed air or non-corrosive gases
Supply pressure	min. 1.5 bar (at P_2 ≤ 8 bar) or 2 bar (at P_2 ≥ 8 bar) and additional P_1 min. 1 bar greater than P_2 max. 2.5 bar up to 17 bar, depending on pressure range according to chart
Flow rate	PRE1: max. 350 l/min at P_1 = 10 bar, P_2 = 6 bar and open outlet DN 2.5 PRE2: max. 1600 l/min at P_1 = 10 bar, P_2 = 6 bar and open outlet DN 6
Exhaust	PRE1: 180 l/min at P_2 = 6 bar, 20 l/min at P_2 = 200 mbar PRE2: 1000 l/min at P_2 = 6 bar, 400 l/min at P_2 = 2 bar
Air consumption	PRE1: < 0.4 l/min at 0...200 mbar, < 0.5 l/min at 0...2 bar, < 0.6 l/min at 0 … 8 bar PRE2: < 1.5 l/min independent of pressure range

Electrical features

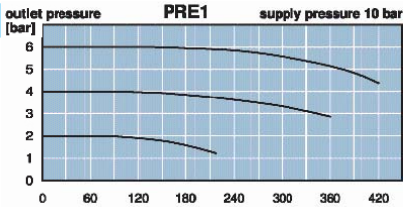
Supply voltage	PRE1: 24 V DC ± 10%, 0.4 W, current consumption max. 15 mA PRE2: 24 V DC ± 10%, 0.8 W, current consumption max. 30 mA
Command signal	4 … 20 mA or 0 … 10 V
Impedance	PRE1: 61 kΩ at voltage signal, 550 Ω at current signal PRE2: 55 kΩ at voltage signal, 500 Ω at current signal
Electrical connector	PRE1: coupling socket M8x1, 3-pin PRE1-R: coupling socket M8x1, 4-pin PRE2: coupling socket M12x1.5, 5-pin
Monitor signal	PRE1-R: as option 0 … P_{2max} / 0 … 10 V, max. 1 mA, R_a > 1kΩ PRE2: standard 0 … P_{2max} / 0 … 10 V, max. 1 mA
Electronic switch	PRE2 only, PNP, "on" when setpoint and actual value match in the tolerance range 0 V: off, 23 V = on, output current < 200 mA, tolerance P2: < 2%
Failsafe	If signal or electrical supply fails, outlet pressure falls to zero and the regulator exhausts.
Note	For long connection lines shielding is to be used. Pay attention to voltage drops. As the case may be, current signal is preferable.

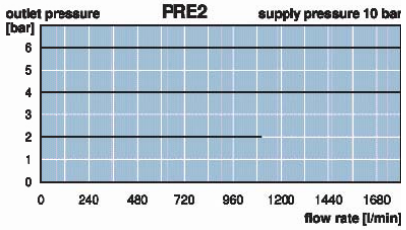
Accuracy

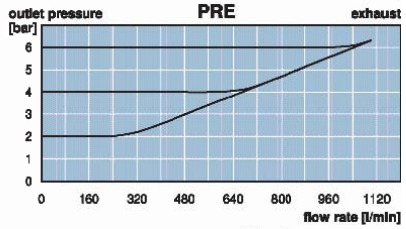
Linearity	< 0.5% FS,	at 0.1 and 0.2 bar range < 1 % FS	
Hysteresis	< 0.2% FS,	at 0.1 and 0.2 bar range < 0.5% FS	
Response sensitivity	< 0.1% FS,	at 0.1 and 0.2 bar range < 0.5% FS at PRE1	< 0.2% FS at PRE2
Repeatability	< 0.2% FS,	at 0.1 and 0.2 bar range < 0.5% FS	
Response time	10 ms		
Over all accuracy	± 0.2% FS		

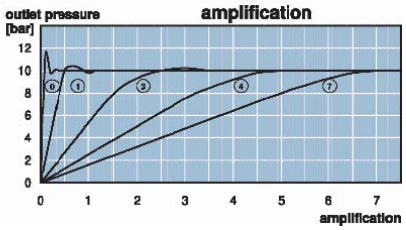
Adjustment

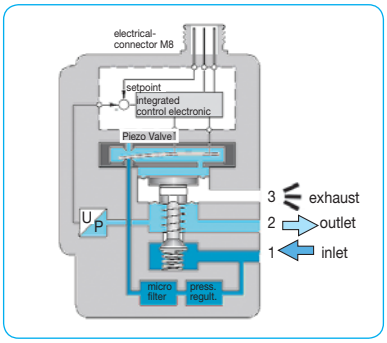
Zero point	calibration only by factory
Range	calibration only by factory



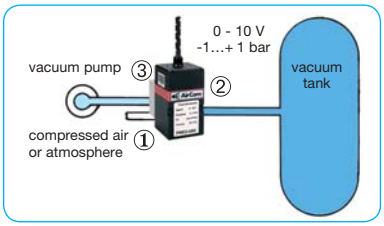








cross-section PRE1



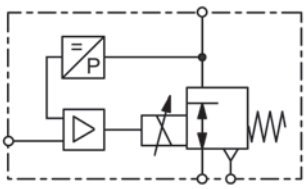
PRE2-V1 for vacuum

PDF CAD
www.aircom.net

Piezo Proportional Pressure Regulator, Very Fast, 400 mW PRE

Technical features

• **Highly dynamic**	10 ms, critical frequency 43 Hz	• **Linearity**	< 0.5% or 1% FS
• **Low power consumption**	400 mW / 800 mW nominal power	• **Hysteresis**	< 0.2% or 0.5% FS
• **No self-heating**	due to low power consumption	• **Response sensitivity**	< 0.1% or 0.5% FS
• **Battery operation**	due to low power consumption	• **Repeatability**	< 0.2% or 0.5% FS
• **For portable devices**	up to 3 bar pressure range	• **Failsafe**	exhaust at power breakdown
• **No over-oscillation**	adjustable closed loop amplification	• **Protection class**	IP 30 or IP 65
• **No resonance oscillation**	adjustable closed loop amplification	• **Two-wire system**	for signal 4 ... 20 mA



0 ... 100 mbar / 10 bar
10 ms, 400 mW, 1600 l/min

Dimensions A mm	B mm	C mm	Supply pressure max. bar	Flow rate l/min*1	Connection thread G	Pressure range bar	Order number for inlet signal 4-20 mA	0-10 V
Proportional valve				supply voltage 24 V DC, constant bleed, with straight coupling socket and 5 m cable			**PRE**	**PRE**
36	61	54	2.5	50	G⅛	0 ... 0.1	**PRE1-IA1**	**PRE1-UA1**
				100		0 ... 0.2	**PRE1-IA2**	**PRE1-UA2**
			6.0	200		0 ... 2	**PRE1-I02**	**PRE1-U02**
			10	250		0 ... 5	**PRE1-I05**	**PRE1-U05**
				280		0 ... 6	**PRE1-I06**	**PRE1-U06**
				350		0 ... 8	**PRE1-I08**	**PRE1-U08**
46	84	68	2.5	800	G¼	-1 ... 1	**PRE2-IV1**	**PRE2-UV1**
			10	1500		-1 ... 6	**PRE2-I06V1**	**PRE2-U06V1**
			12	1700		-1 ... 10	**PRE2-I10V1**	**PRE2-U10V1**
			2.5	300		-0.2 ... 0.2	**PRE2-IA2V1**	**PRE2-UA2V1**
			2.5	900		0 ... 1	**PRE2-I01**	**PRE2-U01**
			7.0	1100		0 ... 2	**PRE2-I02**	**PRE2-U02**
			10	1500		0 ... 6	**PRE2-I06**	**PRE2-U06**
			12	1700		0 ... 10	**PRE2-I10**	**PRE2-U10**
			17	2400		0 ... 16	**PRE2-I16**	**PRE2-U16**

PRE1

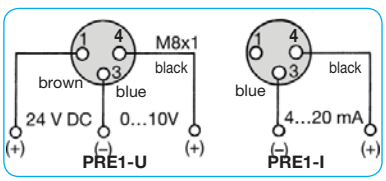
PRE2

Special options, add the appropriate letter

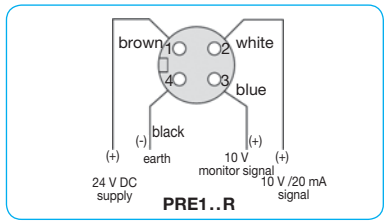
monitor signal	0-10 V, standard at PRE2	for PRE1	PRE1-. . .**R**
flange connection	without manifold		PRE.-. . .**F**
w/o coupling socket	and without cable		PRE.-. . .**H**
mounting clips	for DIN rail		PRE.-. . .**C**
deviant pressure ranges			PRE.-. **XX**

Accessories

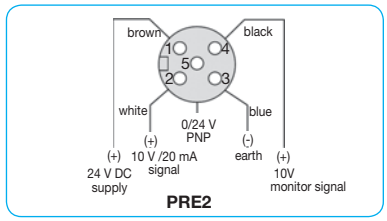
coupling socket	with 5 m cable, angular	M8x1,	3-pin	for PRE1 **KM08-C3-5**
		M8x1,	4-pin	for PRE1-R **KM08-C4-5**
		M12x1.5,	5-pin	for PRE2 **KM12-C5-5**



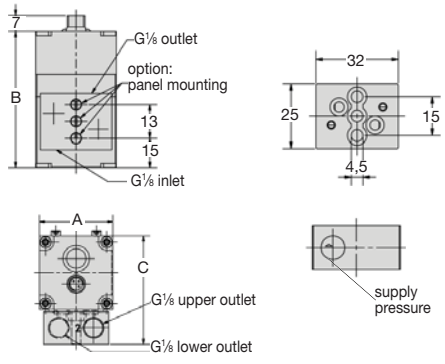
connection diagram



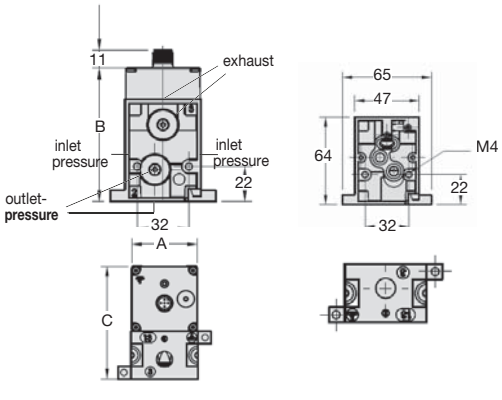
connection diagram



connection diagram



PRE1



PRE2

*1 at open outlet

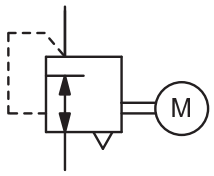
Technical details: see previous page

PDF CAD
www.aircom.net

Order example: PRE1-IA1

Motorised Pressure Regulator P180

Description	Motorised air pressure regulator designed for precise pneumatic control using an electrical signal from a remote location. A slip clutch prevents from motor damages at overload or end position limitations.
Media	dry, oil-free and 5 µm filtered compressed air or non-corrosive
Operation	With no electrical power the regulator maintains a precise setpoint despite variable supply pressure and flow rates. When power is applied to the motor the pressure outlet changes.
Power consumption	6 W for 6 rpm motor as standard, 4 W for 2 rpm motor
Control signal	220 V AC, optionally 24 V DC, 24 V AC or 110 V AC
Electrical connector	4 single wires, optionally plug according to DIN 43650A, contact gap 18 mm, 3-pin with coupling socket
Accuracy	at varying supply pressures: < 1 mbar pressure deviation
Air consumption	max. 2.3 l/min, subject to outlet pressure, < 1% of volume flow
Relieving function	relieving **Mounting position** any, preferably upright
Relief capacity	140 l/min at 1.5 bar outlet and 0.35 bar overpressure above setpoint, optionally 280 l/min
Gauge port	¼˝NPT on both sides of the body **Temperature range** -18 °C to 60 °C / 0 °F to 140 °F
Material	Body: zinc die-cast Elastomer: NBR/Buna-N Inner valve: stainless steel and brass Mounting bracket: black-coated steel



¼˝ NPT, 280 l/min

Dimensions A mm	B mm	C mm	Power consumption W	Flow rate l/min*1	Switching time s	Connection thread NPT	Pressure range bar	Order number
Motorised pressure regulator P1 max. 10 bar, relieving, with constant bleed, control signal 220 V AC, 6 rpm								**P180**
62	195	14	6	280	40	¼˝NPT	0.14…1.8	**P180-02A**
					30		0.14…4.0	**P180-02B**
					50		0.14…8.0	**P180-02C**

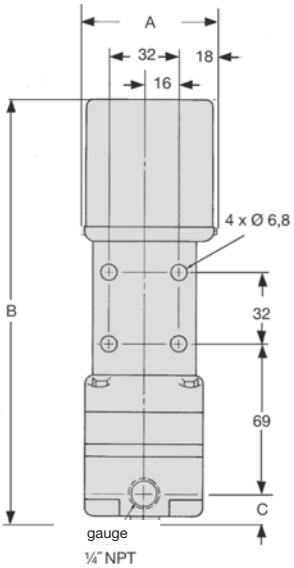
Special options, add the appropriate letter

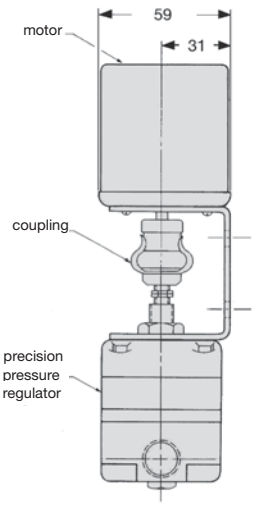
24 V DC	control signal		P180-02 . **V**
110 V AC	control signal		P180-02 . **W**
switching time	three times greater than standard	not for 24 V	P180-02 . **T**
higher exhaust	two times greater than standard		P180-02 . **H**
DIN connector	connection with DIN plug 30 x 30 mm		P180-02 . **D**

P180

Accessories

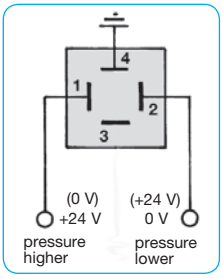
pressure gauge	Ø 50 mm, 0…*2 bar, G¼, connecting parts necessary	**MA5002-..*2**
gauge connecting parts	adapter ¼˝NPT - R¼f	**VP-0202N**



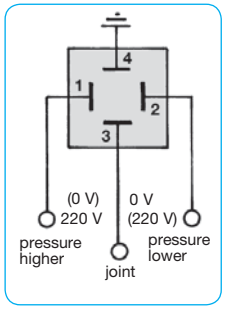


P180

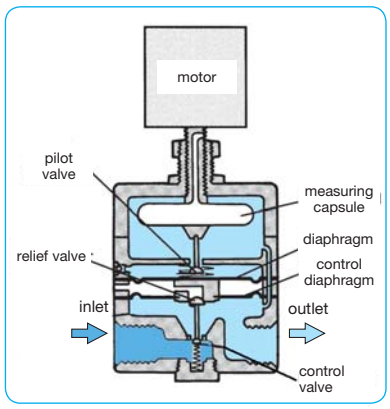
24 V DC



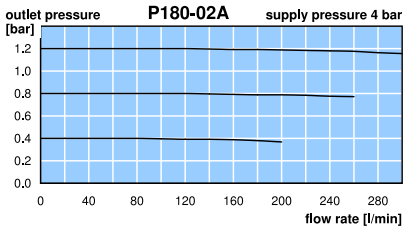
220 V AC

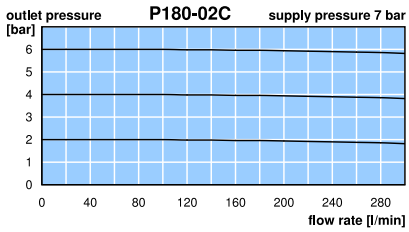


connection diagram for option D with DIN plug



cross-section





*1 bei 7 bar Eingangsdruck und 6 bar Ausgangsdruck
*2 **02** = 0…2,5 bar, **06** = 0…6 bar, **10** = 0…10 bar

PDF CAD
www.aircom.net

Order example: P180-02A

Setpoint Potentiometer PPB

Description	The series line of potentiometers are designed for use as a command signal for control valves. A 10 volt reference is used to provide excitation to the potentiometer. An op-amp measures the output on the wiper of the potentiometer and provides buffering to eliminate external components from affecting the linearity of the potentiometer. A three wire cord is provided and is attached to the pc board to make necessary power signal and common connections
Field of application	0-10 V version PPB-U is compatible with all proportional pressure regulators. 4-20 mA version PPB-I is compatible with all valves of Series PQ and PM. For all other valves, e.g Series PP, PR, PRE, a setpoint of 4.1 ... 18.5 mA is generated.

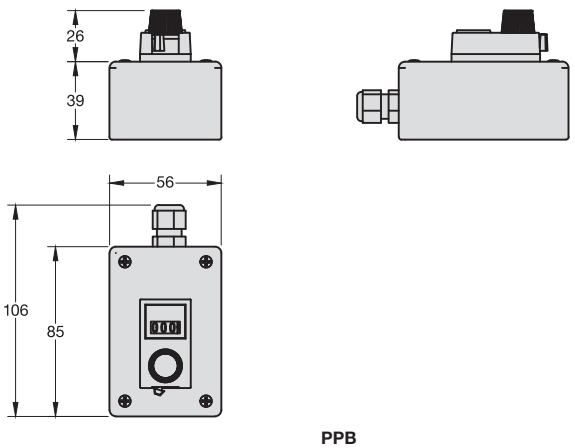
Measuring range	0 ... 999	**Supply voltage**	15 - 24 V DC
Current consumption	max. 30 mA	**Linearity/Hysteresis**	± 0.25% FS
Mounting position	any	**Temperature range**	0 °C to 70 °C / 32 °F to 158 °F

with 10-turn-potentiometer

Dimensions F mm	H mm	G mm	Output signal V / mA	Order number
Setpoint Potentiometer			supply voltage 15 - 24 V DC	**PPB**
85	55	40	0-10 V	**PPB-U**
85	55	40	4-20 mA	**PPB-I**

PPB-U

PPB-I



PPB

Pin	Description	3-pin cable
1	voltage supply 24V DC	black
2	analogue setpoint	white
3	supply earth	green

connecting plan

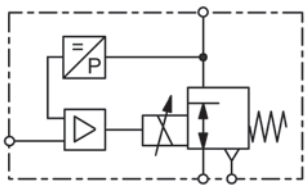
PDF CAD
www.aircom.net

Order example: PPB-U

Volume Booster / Proportional Valve Combination

What are volume booster / proportional valve combinations used for?
Combinations of volume boosters and proportional valves lend themselves for electronically regulating high volume flows. On the one hand common proportional valves are not available with connection sizes big enough, on the other hand combinations are in most cases more economic. There are two ways of regulating: Single loop systems are suitable for standard applications without high requirements for accuracy and without consideration of pressure drop at high flow. Double loop regulations on the contrary are much more accurate and also qualified for dynamic processes.

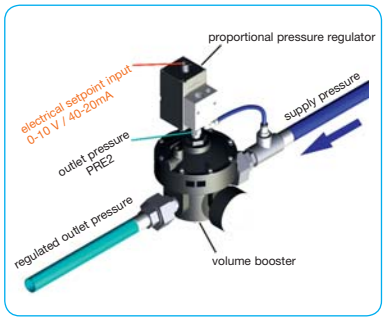
General operational description:
The volume booster and proportional valve are fed by the supply pressure. When no command signal is applied the outlet pressure behind the booster is zero. When the command signal is increased the outlet pressure rises in proportion to it. Since the transmission ratio is not exactly 1:1, a slight pressure difference occurs between the outlet pressure of the proportional valve and the booster's outlet on single loop systems. This can be balanced by a feedback signal (double loop), though.



G¼ up to G3
compressed air or liquids

Single loop

At single loop combinations the pressure difference between command signal and outlet pressure is being ignored because the proportional valve only refers to its own outlet pressure within the pilot chamber. The outlet pressure performance is dependent of the volume booster's accuracy.



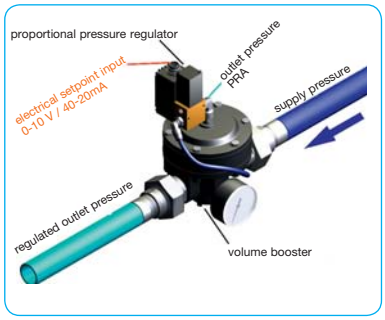
PRE2, R450 with single loop

Double loop

Combinations with a second feedback have the possibility to balance pressure differences. For this a pressure transducer is installed in the outlet line of the booster. The electrical signal of the transducer is applied as a feedback signal onto the proportional valve. The valve detects any pressure differences and compensates them automatically. In high flow applications a pressure drop at the outlet of the pilot regulator is thus minimised.

General features

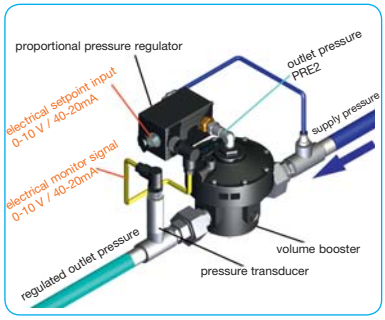
Construction type	The volume booster / proportional valve combinations are delivered completely assembled and calibrated.
Mounting position	preferred horizontal (see figure)
Protection class	IP 54 with ordinary coupling socket as standard, optionally IP 65 for some devices (see according product information sheets)
Temperature range	0 °C to 50 °C / 32 °F to 122 °F for all proportional valves, for booster ranges refer to according product sheets



PRA, R119 with single loop

Pneumatic features

Command signal	The proportional valves may only be fed with dry and 5 µm filtered compressed air. The pneumatic command signal must always be air!
Media	Preferred dry, 5 µm filtered compressed air for supply of the proportional valves. The volume boosters can operate with air or non-corrosive gases, model R120 even with liquids. The respective air consumption and the relieving function strongly have to be regarded.
Inlet pressure	dependent of the according combination (see according product information sheets)
Pressure supply	The proportional valve has to be separately supplied with compressed air with regard to the valve's maximum inlet pressure.
Exhaust	The proportional valve exhausts only the booster's pilot chamber. The booster, if in relieving version, exhausts the volume of the supply pressure line. The relief capacity is subject to the differential pressure.
Volume flow	see specifications of the according volume booster



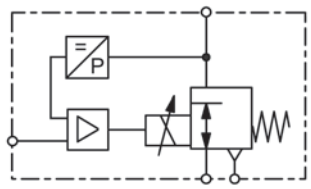
PQ2, R450 with double loop

Electrical features

Supply voltage	All valves have to be supplied with 24 V DC.
Power consumption	see according product information sheets
Setpoint input	0-10 V as standard, optionally 4-20 mA for all valves
Monitor signal	A feedback signal is not reasonable for the single loop version because here only the pressure of the booster's pilot chamber is monitored. That value does not give any information about the outlet pressure behind the booster.

General operational description:
The volume booster and proportional valve are fed by the supply pressure. When no command signal is applied the outlet pressure behind the booster is zero. When the command signal is increased the outlet pressure rises in proportion to it. Since the transmission ratio is not exactly 1:1, a slight pressure difference occurs between the outlet pressure of the proportional valve and the booster's outlet on single loop systems. This can be balanced by a feedback signal (double loop), though.

At single loop combinations the pressure difference between command signal and outlet pressure is being ignored because the proportional valve only refers to its own outlet pressure within the pilot chamber. The outlet pressure performance is dependent of the volume booster's accuracy.



G¼ up to G3
compressed air or liquids

Single loop combination examples

Flow rate l/min	Connection thread G	Outlet pressure bar	Part number Booster	Part number Prop.valve	Order number of combination
R750 with PRE1, for compressed air or non-corrosive gases — setpoint 0-10 V, P_1 max. 17 bar					
1 000	G¼	0... 8	R750-02I	PRE1-U08	**BP1U750-02**
R450 with PRE1, for compressed air or non-corrosive gases — setpoint 0-10 V, P_1 max. 17 bar					
4 000	G½	0... 8	R450-04I	PRE1-U08	**BP1U450-04**
R119 with PPA, for compressed air or non-corrosive gases — setpoint 0-10 V, P_1 max. 21 bar					
5 600	G½	0... 10	R119-04J	PPA00-1000	**BP1U119-04**
9 000	G¾	0... 10	R119-06J	PPA00-1000	**BP1U119-06**
10 000	G1	0... 10	R119-08J	PPA00-1000	**BP1U119-08**
12 000	G1½	0... 10	R119-12J	PPA00-1000	**BP1U119-12**
42 000	G2	0... 10	R119-16J	PPA00-1000	**BP1U119-16**
44 000	G2½	0... 10	R119-20J	PPA00-1000	**BP1U119-20**
110 000	G3	0... 10	R119-24J	PPA00-1000	**BP1U119-24**
RGB4 with PRE1-.A2, for compressed air or gases — setpoint 0-10 V, P_1 max. 4 bar					
700	G½	0...0,2	RGB4-04J	PRE1-UA2	**BP1UGB4-04**
2 800	G1	0...0,2	RGB4-08J	PRE1-UA2	**BP1UGB4-08**
5 600	G1½	0...0,2	RGB4-12J	PRE1-UA2	**BP1UGB4-12**
RZ1 with PRE1-.01/02, for compressed air or gases — setpoint 0-10 V, P_1 max. 16 bar					
2 900	G1	0... 1	RZ1-08J	PRE1-U02	**BP1UZ-08**
5 700	G1½	0... 1	RZ1-12J	PRE1-U02	**BP1UZ-12**
21 000	G2	0... 1	RZ1-16J	PRE1-U02	**BP1UZ-16**
R120 with PPA, for compressed air, gases or liquids — setpoint 0-10 V, P_1 max. 50 bar					
1 200	G½	0... 15	R120-04J2	PPA00-1600	**BP1U120-04**
4 200	G¾	0... 15	R120-06J2	PPA00-1600	**BP1U120-06**
5 000	G1	0... 15	R120-08J2	PPA00-1600	**BP1U120-08**
1 200	G½	0... 50	R120-04J5	PP000-5000	**BP1U120-04J5**
4 200	G¾	0... 50	R120-06J5	PP000-5000	**BP1U120-06J5**
5 000	G1	0... 50	R120-08J5	PP000-5000	**BP1U120-08J5**
14 000	G1½	0... 50	R120-12J5	PP000-5000	**BP1U120-12J5**
15 000	G2	0... 50	R120-16J5	PP000-5000	**BP1U120-16J5**

Special options, add the appropriate letter

4-20 mA	input signal	BP1**I** . . . - . . . .

BP1U450-04

BP1U119-16

BP1UZ-08

BP1U120-08J5

Gauges: see chapter for measuring devices
Further details: see chapter for single devices

PDF CAD
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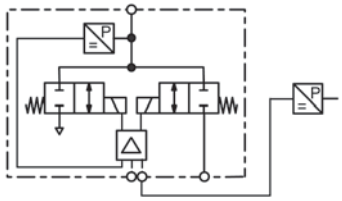
Order example:
BP1U750-02

Proport. pressure
10

General operational description:
The volume booster and proportional valve are fed by the supply pressure. When no command signal is applied the outlet pressure behind the booster is zero. When the command signal is increased the outlet pressure rises in proportion to it. Since the transmission ratio is not exactly 1:1, a slight pressure difference occurs between the outlet pressure of the proportional valve and the booster's outlet on single loop systems. This can be balanced by a feedback signal (double loop), though.

Combinations with a second feedback have the possibility to balance pressure differences. For this a pressure transducer is installed in the outlet line of the booster. The electrical signal of the transducer is applied as a feedback signal onto the proportional valve. The valve detects any pressure differences and compensates them automatically. In high flow applications a pressure drop at the outlet of the pilot regulator is thus minimised.



G½ up to G2
compressed air or non-corrosive gases

Double loop combination example

Flow rate l/min	Connection thread G	Outlet pressure bar	Sensor	Part number Booster	Prop.valve	Order number of combination

R450 with PQ2, for compressed air or non-corrosive gases

setpoint 0-10 V, P_1 max. 17 bar

4000	G½	0... 1	DAV-01H	R450-04I	PQ2EE-01	**BP2U450-0401**
		0... 6	DAV-06H	R450-04I	PQ2EE-06	**BP2U450-0406**
		0...10	DAV-10H	R450-04I	PQ2EE-10	**BP2U450-0410**

BP2U450-0406

R200 with PQ2, for compressed air or non-corrosive gases

setpoint 0-10 V, P_1 max. 17 bar

28000	G1	0... 1	DAV-01H	R200-08I	PQ2EE-01	**BP2U200-0801**
		0... 6	DAV-06H	R200-08I	PQ2EE-06	**BP2U200-0806**
		0...10	DAV-10H	R200-08I	PQ2EE-10	**BP2U200-0810**

BP2U200-0806

RGB4 with PQ2, for compressed air or gases

setpoint 0-10 V, P_1 max. 4 bar

700	G½	0...0.35	DAV-C4H	RGB4-04J	PQ2EE-C4	**BP2UGB4-04**
2800	G1	0...0.35	DAV-C4H	RGB4-08J	PQ2EE-C4	**BP2UGB4-08**
5600	G1½	0...0.35	DAV-C4H	RGB4-12J	PQ2EE-C4	**BP2UGB4-12**

RZ1 with PQ2, for compressed air or gases

setpoint 0-10 V, P_1 max. 16 bar

2900	G1	0...1	DAV-01H	RZ1-08J	PQ2EE-01	**BP2UZ-08**
5700	G1½	0...1	DAV-01H	RZ1-12J	PQ2EE-01	**BP2UZ-12**
21000	G2	0...1	DAV-01H	RZ1-16J	PQ2EE-01	**BP2UZ-16**

BP2UGB4-12

Special options, add the appropriate letter

4-20 mA	input signal	BP2**I** . . . - . . . .

Proport. pressure
10

Gauges: see chapter for measuring devices
Further details: see chapter for single devices

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Order example:
BP2U450-0401