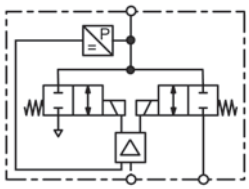
Proportional Pressure Regulator with Single or Double Loop, Accurate to 0.2% PQ

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

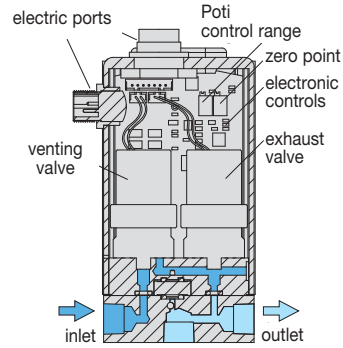
Description Two solenoid valves control the system pressure. One valve is for inlet control, the other for outlet control. A strain gauge pressure transducer measures system pressure and provides a feedback signal to the electronic controls. Any difference between command and feedback signals causes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

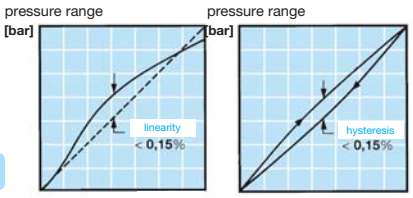
Media dry, unlubricated and 5 µm filtered compressed air or non-corrosive gases

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

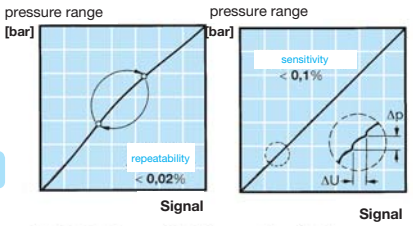
Impedance 4.7 kΩ at voltage signal, 100 Ω at current signal
10 kΩ at voltage signal, 100 Ω at current signal, for external feedback

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

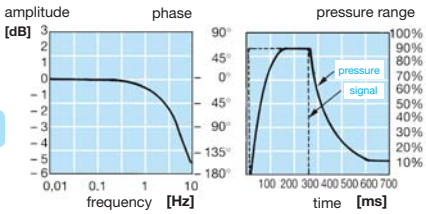
Response time 10 to 15 ms

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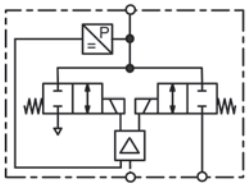
Proportional Pressure Regulator with Single Loop, Accurate to 0.2% PQ1

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

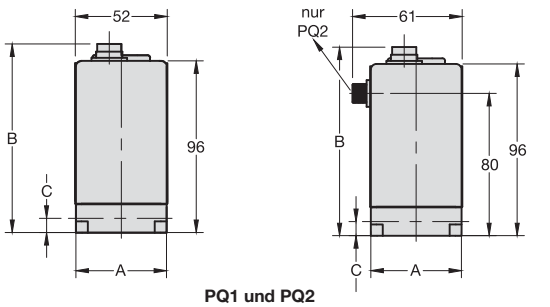
Special options, add the appropriate letter or number

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**

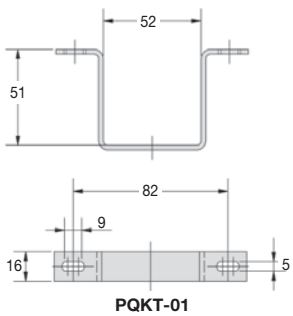
Accessories

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

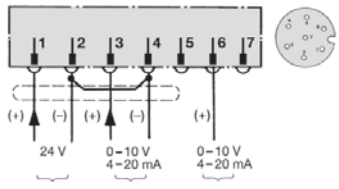
PRK-A **PRK-C**



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

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Order example: PQ1EE-A5