

PROPORTIONAL PRESSURE REGULATORS

| PRINCIPLE | DESCRIPTION | ACCURACY max. | PRESSURE RANGE bar | CONNECTION thread | DEVICE | PAGE |
|---|-----------------------------|------------------|-----------------------|---|-----------|--------------|
| CONTROL VALVE high accuracy | on PCB | ± 0.2 % | 0 ... 0.005/ 10 | G $\frac{1}{8}$ | PM | 10.02 |
| | falling characteristic | ± 0.2 % | 0 ... 0.005/ 35 | G $\frac{1}{8}$ | PQ1 | 10.04 |
| | with double loop | ± 0.2 % | 0 ... 0.005/ 35 | G $\frac{1}{8}$ | PQ2 | 10.05 |
| | up to 2000 l/min | ± 0.25 % | 0 ... 0.1 / 35 | $\frac{1}{4}$ "NPT - $\frac{3}{4}$ "NPT | PQ3...PQ6 | 10.07 |
| PROPORT. MAGNET very robust | proven, many options | ± 0.5 % | 0 ... 0.5 / 1 | G $\frac{1}{8}$ - G1 | PR | 10.09 |
| | for flow applications | ± 0.5 % | 0 ... 6 / 50 | G $\frac{3}{8}$ | PF | 10.11 |
| | digital control, also SST | ± 0.5 % | 0 ... 0.1 / 50 | G $\frac{1}{8}$ - G1 | PP | 10.13 |
| | programmable | ± 0.5 % | 0 ... 1 / 12 | G $\frac{1}{8}$ - G $\frac{3}{8}$ | PD | 10.15 |
| FLAPPER/NOZZLE highly sensitive | integrated booster, Atex | ± 0.5 % | 0,2... 1 / 8 | $\frac{1}{4}$ "NPT | PT6 | 10.18 |
| PIEZO-OPERATED very fast | high accurate, Atex | ± 0.25 % | 0,2... 1 / 8 | $\frac{1}{4}$ "NPT | PT7 | 10.19 |
| | minimal power consumption | ± 0.2 % | 0 ... 0.1 / 16 | G $\frac{1}{8}$ and G $\frac{1}{4}$ | PRE | 10.21 |
| MOTORISED REGUL. | failfreeze | ± 1 % | 0,14... 1.8 / 8 | $\frac{1}{4}$ "NPT | P180 | 10.22 |
| HIGH PRESSURE | proportional magnet | ± 0.5 % | 0 ... 30 / 50 | G $\frac{1}{4}$ | PP0 | 10.13 |
| | control valves | ± 0.5 % | 0 ... 40 / 70 | G $\frac{1}{8}$ | PQH | 10.17 |
| ATEX | control valves | ± 1 % | 0 ... 2 / 6 | G $\frac{1}{8}$ | PCEX | 10.16 |
| | flapper nozzle | ± 0.5 % | 0,2... 1 / 8 | $\frac{1}{4}$ "NPT | PT6 | 10.18 |
| | piezo-operated | ± 0.25 % | 0,2... 1 / 8 | $\frac{1}{4}$ "NPT | PT7 | 10.19 |
| VACUUM | on PCB | ± 0.2 % | -1 ... 0 / + 1 | G $\frac{1}{8}$ | PM | 10.02 |
| | control valves | ± 0.2 % | -1 ... 0 / + 1 | G $\frac{1}{8}$ | PQ1 | 10.04 |
| | with double loop | ± 0.2 % | -1 ... 0 / + 1 | G $\frac{1}{8}$ | PQ2 | 10.05 |
| | proportional magnet | ± 0.5 % | -1 ... 0 / + 1 | G $\frac{1}{8}$ - G1 | PR | 10.09 |
| | digital control | ± 0.5 % | -1 ... 0 | G $\frac{1}{8}$ - G1 | PP | 10.13 |
| | piezo-operated | ± 0.2 % | -1 ... 1 / +10 | G $\frac{1}{8}$ and G $\frac{1}{4}$ | PRE | 10.21 |
| SETPOINT | with 10-speed-potentiometer | | | | PPB | 10.23 |

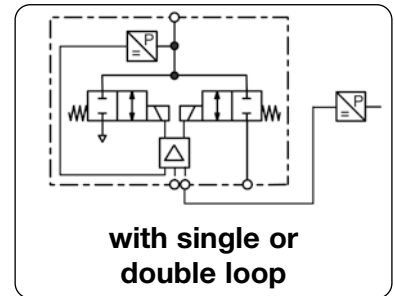


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PROPORTIONAL PRESSURE REGULATOR ON PCB, ACCURATE TO 0.2%

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. dry, lubricated or unlubricated and 5 µm filtered compressed air or non-corrosive gases | |
| Media | constant outlet pressure at voltage drop | |
| Fail freeze | 0 ... 10 V, impedance 4.7 kΩ, | ratio of internal to external relationship is 10% to 90% |
| Second loop | 15 ... 24 V DC, residual ripple < 10%, with reverse voltage protection | jumper selectable command |
| Supply voltage | 0 ... 10 V / 4.7 kΩ, 4 ... 20 mA / 100 Ω, | |
| Impedance | 0 ... 10 V at max. 10 mA | |
| Monitor signal | terminal strip for 2.5 mm ² | |
| Electrical connection | 3.6 W regulating, 0.5 W non-regulating | Air consumption without constant bleed |
| Power consumption | < 0.15% FS | Repeatability < 0.02 FS |
| Linearity / Hysteresis | < 1% FS at 0 °C to 50 °C / 32 °F to 122 °F | Adjustment zero point and span |
| Temperature influence | 0 °C to 70 °C / 32 °F to 158 °F | Mounting position any, vibration-resistant |
| Temperature range | Ports: brass | Elastomer: FKM |
| Material | Transducer: aluminium and silicon | Valves: nickel-plated brass |



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

| 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 | G $\frac{1}{8}$ | 0 ... 5 mbar | PM1DE-A5 | | |
| | | | | 20 mbar | | | 0 ... 10 mbar | PM1DE-B1 | | |
| | | | | 200 mbar | | | 0 ... 100 mbar | PM1DE-C1 | | |
| | | | | 1 000 mbar | | | 0 ... 600 mbar | PM1DE-C6 | | |
| 56 | 78 | 54 | 35 | 2 bar | 0.2 | G $\frac{1}{8}$ | 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 | G $\frac{1}{8}$ | 0 ... -1 bar | PM1DE-V0 | | |
| | | | | 2 bar | | | -1 ... +1 bar | PM1DE-V1 | | |



PM . D
DIN rail mounting



PM . P
panel mounting



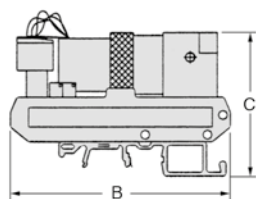
PM . M
mounting on manifold block

Special options, add the appropriate letter

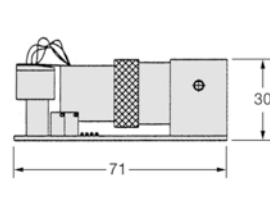
| | | |
|-------------------------------|--|--------------------|
| double loop | second loop feedback 0 ...10 V | PM2 |
| 4-20 mA | supply signal, jumper selectable command | PM I . . . |
| flow 100 l/min | increased flow rate | PM HF |
| panel mounting | on plane level | PM . P . . . |
| mounting for manifolds | connections downwards | PM . M . . . |

Accessories, enclosed

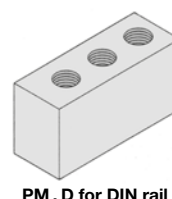
manifold block for 2 to 7 valves number of valves added to order number **SBM-**



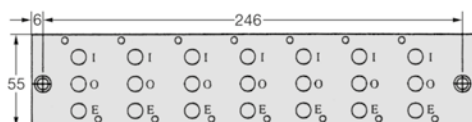
PM . D for DIN rail



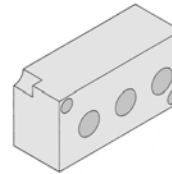
PM . P for panel mounting



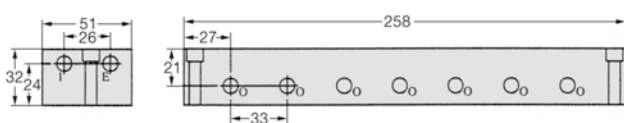
PM . D for DIN rail



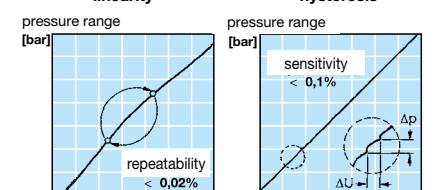
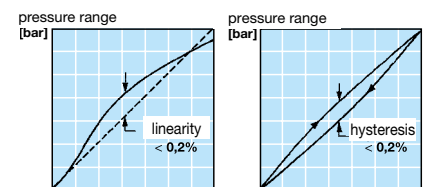
PM . M for manifold block



PM . P for panel mounting



manifold block for 2 to 7 valves



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

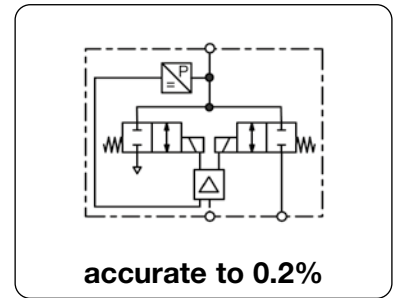
For further details about double loop see PQ2

PDF CAD
www.aircom.net

Order example:
PM1DE-A5

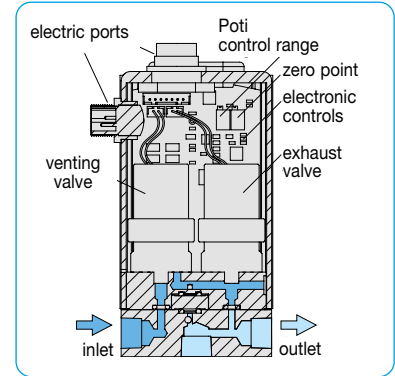
Technical features

| | | | |
|-------------------------|--|-------------------------------|------------------------|
| • 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 |



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 | |
| | Transducer: aluminium and silicon | Valves: nickel-plated brass | |



Pneumatic features

| | |
|------------------------|--|
| Media | dry, un lubricated 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 |

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 |

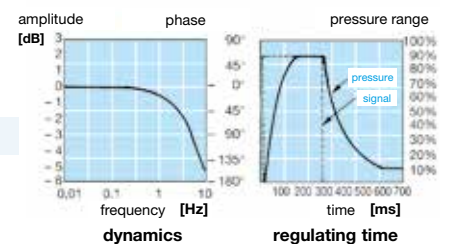
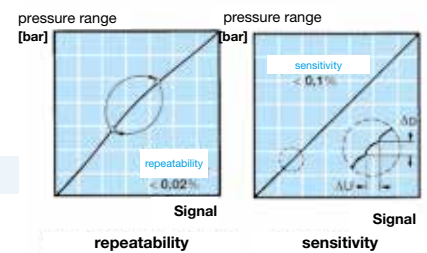
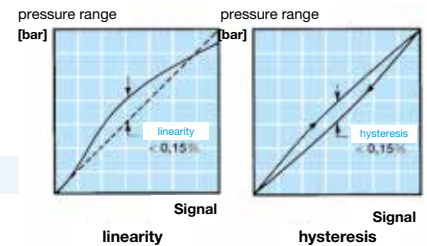
Accuracy

| | |
|------------------------------|---|
| 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) |

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 potentiometer S "span". |

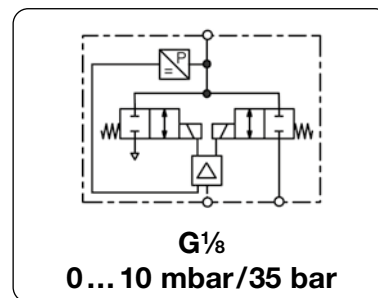
*1 at 7 bar supply pressure and 3 bar outlet pressure



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



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



PQ1

| 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 | on request | 10 mbar | 0.2 | G ¹ / ₈ | 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 |
| | | | | 1 000 mbar | | | 0 ... 600 mbar | PQ1EE-C6 |
| 51 | 106 | 8 | 35 | 2 bar | 0.2 | G ¹ / ₈ | 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 | G ¹ / ₈ | 0 ... -1 bar | PQ1EE-V0 |
| | | | | 2 bar | | | -1 ... +1 bar | PQ1EE-V1 |

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 | PQ1HF |
| continuous regulation improved characteristic curve through proportional inlet valve, max. 10 bar | PQ1X58 |
| declining curve inverted outlet | PQ1X59 |

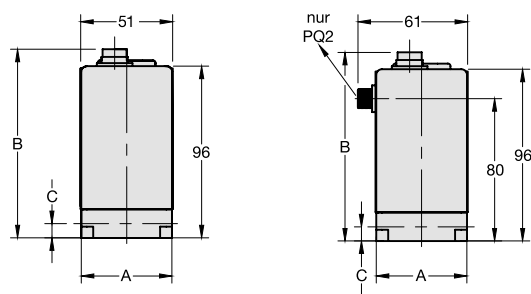
Accessories, enclosed

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

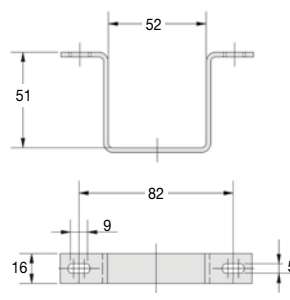


PRK-A

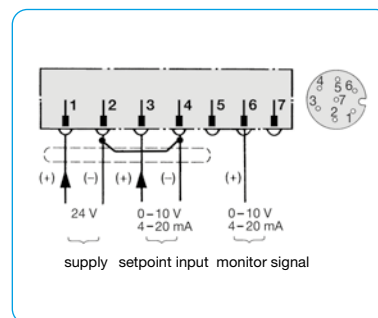
PRK-C



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

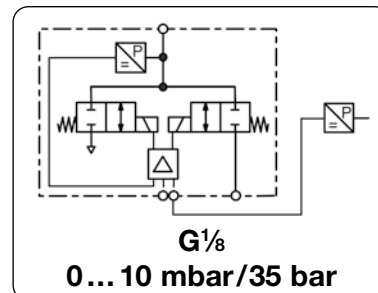
PDF CAD
www.aircom.net

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. |



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

| 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 | on request | 10 mbar | 0.2 | G ¹ / ₈ | 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 | G ¹ / ₈ | 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 | G ¹ / ₈ | 0 ... -1 bar | PQ2EE-V0 |
| | | | | 2 bar | | | -1 ... +1 bar | PQ2EE-V1 |

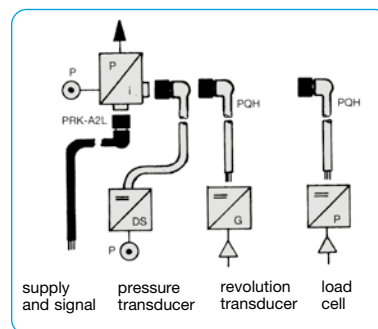
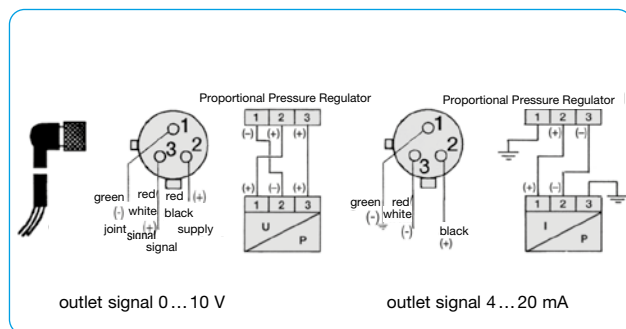


Special options, add the appropriate letter or number

| | | |
|-----------------------|---|-----------------|
| 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, enclosed

| | | | | | |
|------------------|---------------|-------------------------|--------------------|----------|---------|
| coupling socket | M16x0.75, | 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 |



*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

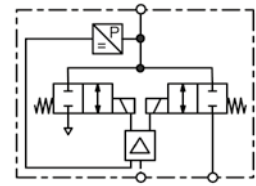
PDF CAD
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Order example:
PQ2EE-A5

PROPORTIONAL PRESSURE REGULATOR WITH HIGH ACCURACY AND HIGH FLOW PQ3...PQ6

Technical features

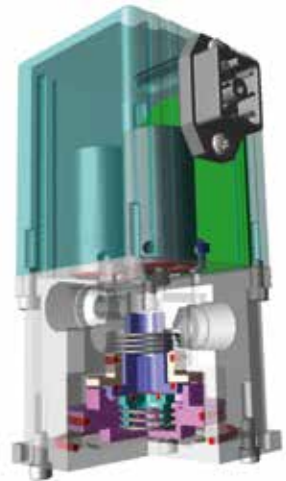
| | | | |
|----------------------------|-----------------|----------------------------|------------------------------|
| • Pressure range | -1... 35 bar | • Accuracy | ± 0.4% |
| • Input signal | 0-10 V; 4-20 mA | • Mounting position | any |
| • Protection class | IP65 | • Adjustment | zero point, span, 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 | |

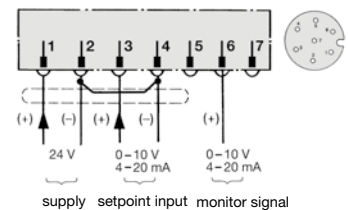


Pneumatic features

| | | | |
|------------------------|--|---|--|
| 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 | | |



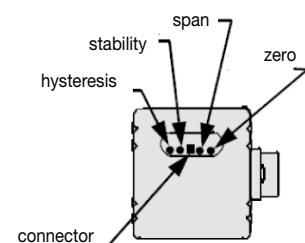
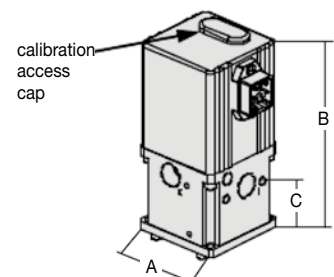
connection diagram for supply and signal

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". |



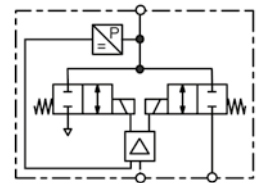
PROPORTIONAL PRESSURE REGULATOR WITH HIGH ACCURACY AND HIGH FLOW PQ3...PQ6

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

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 | 1/4" 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 | | | 3/8" 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 | 1/2" 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 | 3/4" 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 . IC- . . |
| M12 connector | 5-pin (coupling socket not included) | PQ M12 |

Accessories, enclosed

| | | | |
|------------------|---------------------------------------|-------------|-----------|
| 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

PDF CAD
www.aircom.net



Order example:
PQ3EE-C1

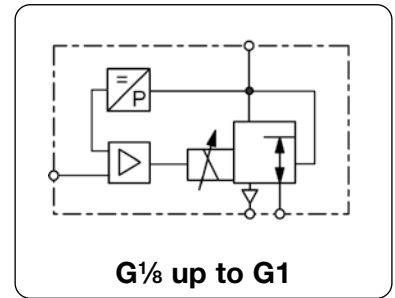
Description The pneumatic proportional valve controls the outlet pressure in proportion to an electrical command input signal. It comprises a complete closed loop servo system in a compact monoblock assembly with proportional solenoid valve, electronic regulator and internal pressure transducer.

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.



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

Shock resistance 3G

Temperature range 0 °C up to 50 °C / 32 °F to 122 °F, high temperature version on request

Material Body: brass (G¹/₈) and aluminium (G¹/₄, G¹/₂ u. G1) Inner valve: brass and SST
Seals: NBR/Buna-N, on request EPDM or FKM FKM for 50 bar version

Pneumatic features

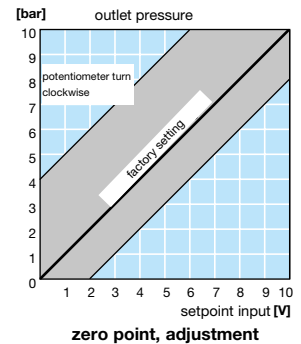
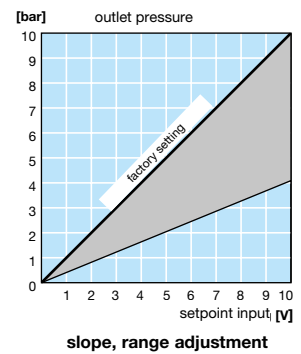
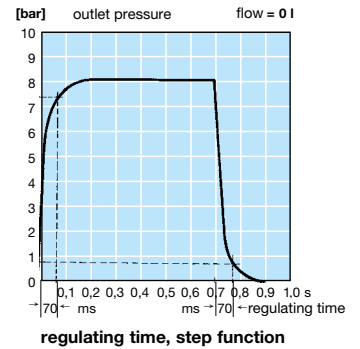
Media dry, lubricated, unlubricated and 50 µm filtered compressed air or non-corrosive gases

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 G¹/₈, 22 W at G¹/₄, 30 W at G¹/₂, 44 W at G1

Current consumption 0.5A at G¹/₈, 1.0A at G¹/₄, 1.25A at G¹/₂, 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%

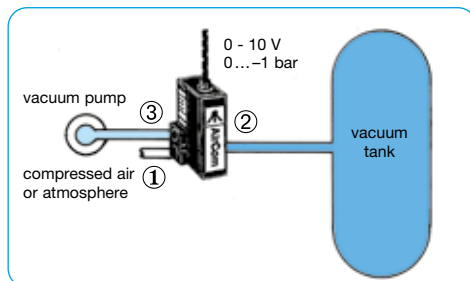
Regulating time < 1 s over the range, 70 ms at 10 to 90% or 90 to 10% of the range

Adjustment

Zero point calibration ± 10% FS via potentiometer P2

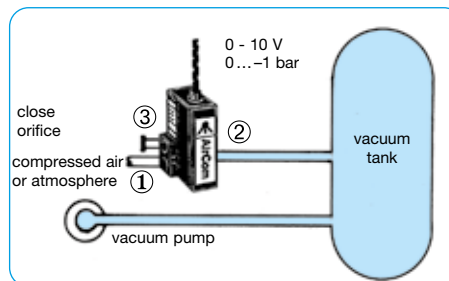
Range calibration + 5% FS or -10% FS via potentiometer P1

Amplification calibration 1:1 up to 1:10 via potentiometer P7



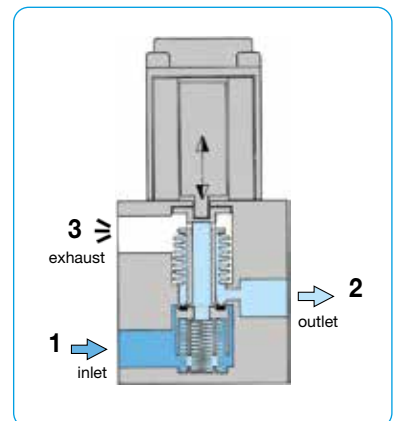
Downstream regulation (V1)

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.



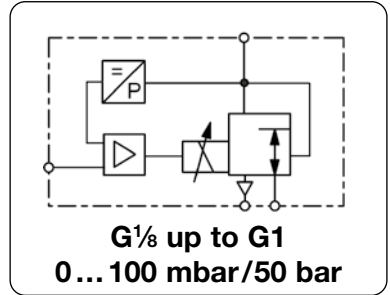
Upstream regulation (V2)

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



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 |



| Dimensions | | | Nominal size | K _v -value | Flow rate | Supply max. | Connection thread | Pressure range | Order number |
|------------|----|----|--------------|-----------------------|-----------|-------------|-------------------|----------------|--------------|
| A | B | C | DN | (m ³ /h) | l/min*1 | bar | G | bar | |
| mm | mm | mm | | | | | | | |

| 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 | G ¹ / ₈ | 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 | G ¹ / ₄ | 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 | G ¹ / ₂ | 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 | | |



Special options, add the appropriate letter or number

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



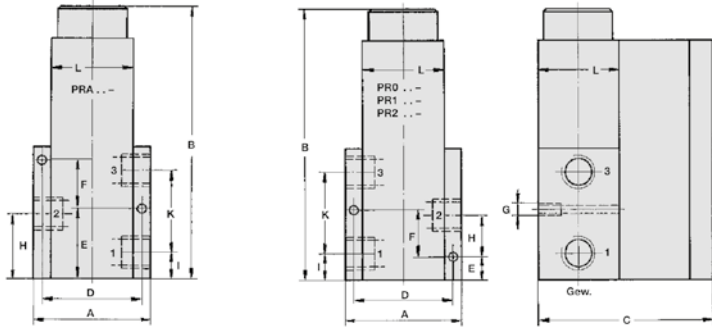
Accessories, enclosed

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



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

DIMENSIONS AND CONNECTION DIAGRAM "AIRTRONIC"®



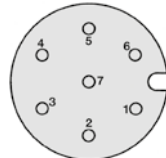
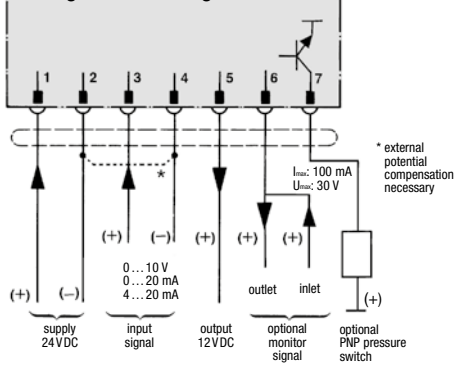
| Proport. regulator | thread | A | B | C | D | E |
|--------------------|--------|----|-----|-----|------|----|
| PRA ... | G 1/8 | 35 | 80 | 63 | 29 | 18 |
| PRO ... | G 1/4 | 52 | 105 | 74 | 43 | 10 |
| PR1 ... | G 1/2 | 70 | 150 | 101 | 57.5 | 12 |
| PR2 ... | G 1 | 96 | 190 | 115 | 79 | 15 |

| Proport. regulator | F | G | H | I | K | L |
|--------------------|----|-----|----|-----|------|----|
| PRA ... | 7 | M 4 | 15 | 10 | 16.6 | 25 |
| PRO ... | 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

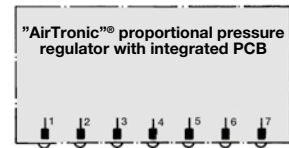
"AIRTRONIC"® PROPORTIONAL PRESSURE REGULATOR WITH INTEGRATED PCB

"AirTronic" proportional pressure regulator with integrated PCB



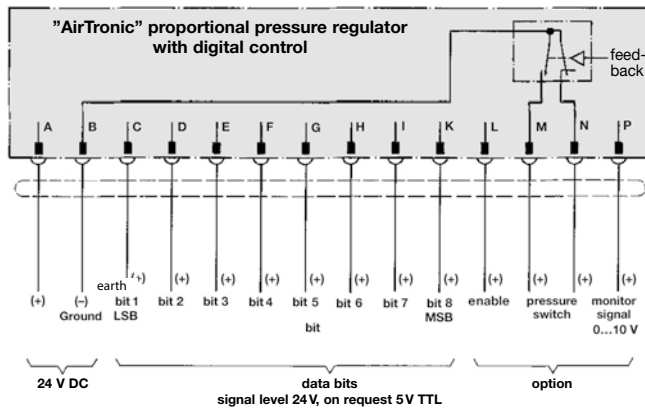
| colour of wire | | |
|----------------|--------|--------|
| pin | 4-wire | 7-wire |
| 1 | white | grey |
| 2 | brown | blue |
| 3 | yellow | yellow |
| 4 | green | green |
| 5 | - | brown |
| 6 | - | white |
| 7 | - | pink |

pin numbers seen from solder pin side



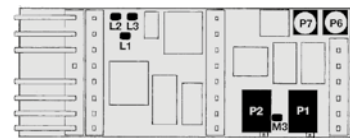
* external potential compensation necessary
potentiometer for adjusting the pressure range

"AIRTRONIC"® CONNECTION DIAGRAM



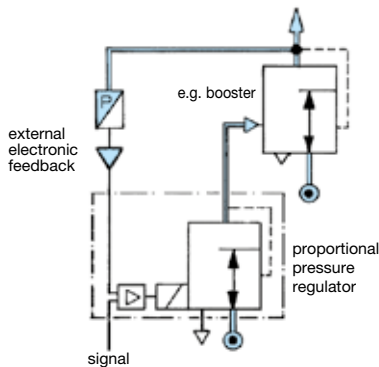
CONNECTION DIAGRAM FOR DIGITALLY CONTROLLED PROPORTIONAL PRESSURE REGULATOR

CONNECTION DIAGRAM WITH POTENTIOMETER

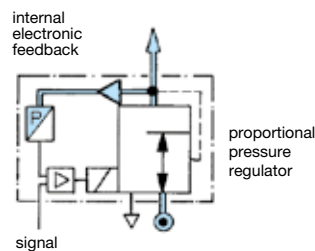


- P1 range: -10%...+5%
- P2 zero point: ± 10%
- P6 option pressure switch: 5...15%
- P7 proportional amplification: 1...11
- M3 measuring point offset zero
- L1 earth (GND)
- L2 solenoid +24 V
- L3 solenoid (pulse width modulation) PWM

ADJUSTMENT OF THE PROPORTIONAL REGULATOR



EXTERNAL ELECTRONIC FEEDBACK
0 ... 10 V or 0/4 ... 20 mA



INTERNAL ELECTRONIC FEEDBACK
as standard

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

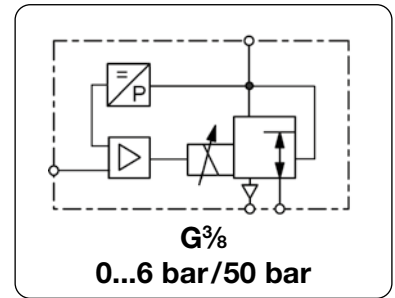
Supply voltage 24 V DC ± 10 V, residual ripple < 10% **Power consumption** 14 W (810mA current consumption)

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



| Dimensions | | | Nominal size | K _v -value | Flow rate | Supply max. | Connection thread | Pressure range | Order number |
|------------|---|---|--------------|-----------------------|-----------|-------------|-------------------|----------------|--------------|
| A | B | C | DN | (m ³ /h) | l/min*1 | bar | G | bar | |

| Proportional pressure regulator | | | | | | | | | |
|--|-----|----|---|------|------|----|-------------------------------|----------|------------|
| 0-10 V command signal, supply voltage 24 V DC, without M12 coupling socket | | | | | | | | | |
| 60 | 160 | 78 | 8 | 1,45 | 1700 | 12 | G ³ / ₈ | 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 |

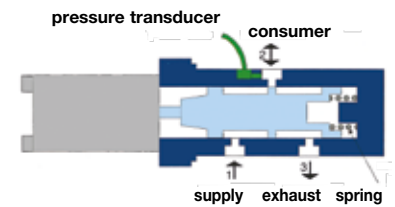


Special options, add the appropriate letter or number

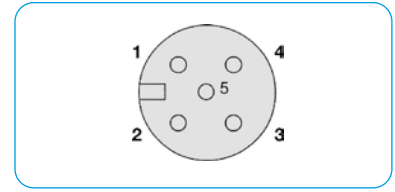
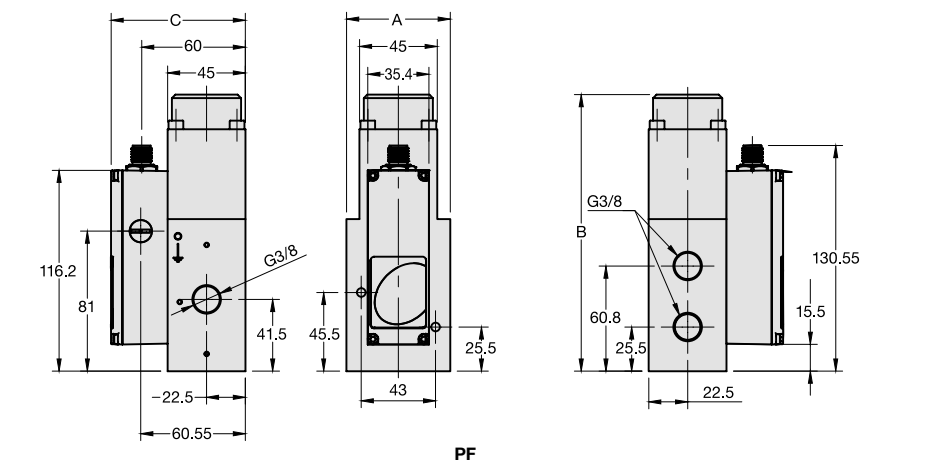
| | | |
|--|----------------------------------|------------|
| command signal | 0-20 mA | PF..1-.... |
| | 4-20 mA | PF..2-.... |
| monitor signal | 0-10 V | PF.1.-.... |
| | 4-20 mA | PF.3.-.... |
| deviant pressure range for oxygen | indicate on order | PF...-XX. |
| | specialy cleaned, FKM elastomers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

Accessories, enclosed

| | | |
|------------------------|--|--------------------------|
| RS232 module | with 9-pin D-sub plug and 2 m cable | PDRS232 |
| | with USB plug and 2 m cable | PDUSB |
| 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 |



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.

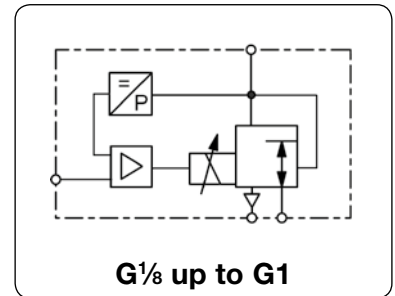


| pin | description | 5-wire cable (2m) |
|---------|--------------------------------|-------------------|
| 1 | 24 V supply voltage | brown |
| 2 | analog input signal | white |
| 3 | supply ground | blue |
| 4 | analog outlet signal | black |
| 5 | digital pressure switch signal | grey |
| housing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

connection diagram

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

| | |
|--------------------|---|
| 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 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 |



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 |
| Shock resistance | 3G |
| Temperature range | 0 °C to 60 °C / 32 °F to 140 °F, fluid / ambient temperature |
| Material | Body: brass (for G ¹ / ₈ and G ¹ / ₄) or aluminium (for G ¹ / ₂ and G1) Inner valve: brass and stainless steel Seals: NBR/Buna-N, EPDM or FKM on request, FKM for 50 bar version |

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 |

Electrical features

| | |
|------------------------------|---|
| Supply voltage | 24 V DC ±10% |
| Electrical connection | M12, 5-pin coupling socket |
| Power consumption | 12 W at G ¹ / ₈ , 24 W at G ¹ / ₄ , 34 W at G ¹ / ₂ , 44 W at G1 |
| Current consumption | 500 mA at G ¹ / ₈ , 1000 mA at G ¹ / ₄ , 1400 mA at G ¹ / ₂ , 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 |

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

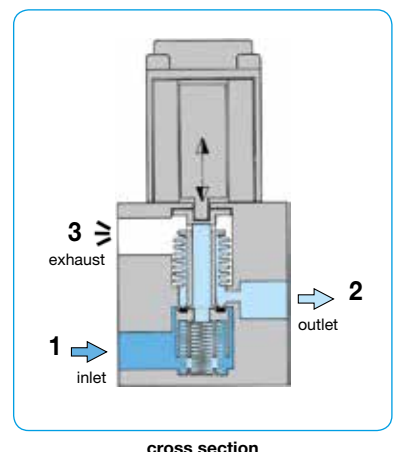
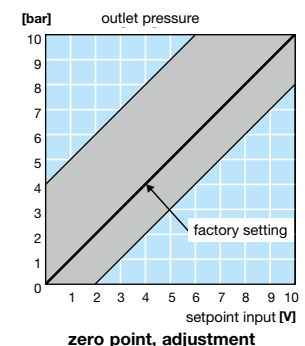
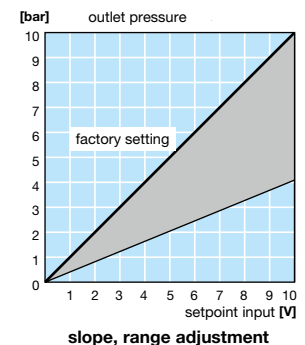
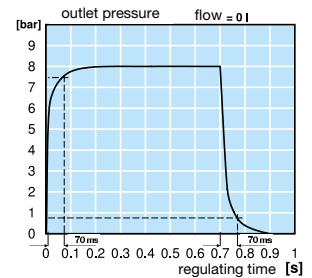
| | |
|-------------------------------------|--|
| Zero point / range | Zero point and range can be calibrated percentagewise. |
| Control mode / Amplification | Through the software different control modes may be chosen. All parameters of P/PI/PID controllers can be tuned. |
| Diagnosis | A diagnostic 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.

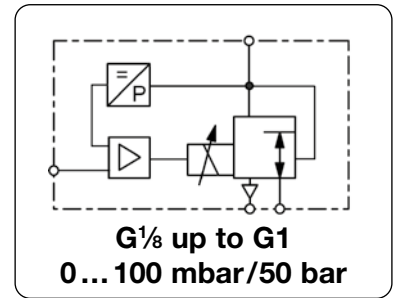
Downstream regulation for vacuum regulators (V3)

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.



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 | | |



| Dimensions | | | Nominal size | K _v -value | Flow rate | Supply max. | Connection thread | Pressure range | Order number |
|------------|---|---|--------------|-----------------------|-----------|-------------|-------------------|----------------|--------------|
| A | B | C | DN | (m ³ /h) | l/min*1 | bar | G | bar | |

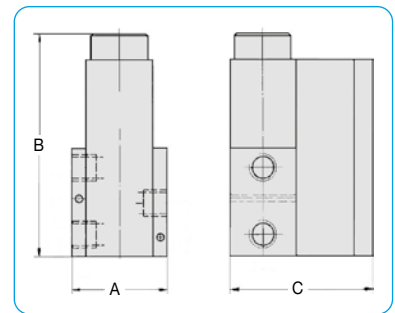
| Proportional pressure regulator | | | | | | | | | |
|---|-----|-----|----|------|------|----|-------------------------------|----------|------------|
| 0-10 V command signal, supply voltage 24 V DC, with coupling socket | | | | | | | | | |
| PP | | | | | | | | | |
| 35 | 83 | 57 | 3 | 0.18 | 210 | -1 | G ¹ / ₈ | 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 | G ¹ / ₄ | 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 | G ¹ / ₂ | 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 |



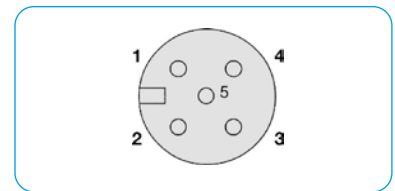
PPA



PP0



dimensions



view from solder pin side

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 for absolute pressure | indicate on order | | | | PP...-XX.. | |
| body made of stainless steel | P ₂ = max. 20 bar, body / inner parts, 1.4304, EPDM, G ¹ / ₄ and G ¹ / ₂ | | | | PP...-..0A | |
| body made of aluminium | valve body only, max. 20 bar G ¹ / ₄ only | | | | PP...-..SS | |
| for oxygen | specially cleaned, FKM elastomer | | | | PP0...-..19 | |
| cascade regulation | w/o monitor signal 2. sensor, electr. feedback 0-10 V | | | | PP...-..15 | |
| | w/o monitor signal 2. sensor, electr. feedback 4-20 mA | | | | PP...-..KU | |
| | | | | | PP...-..KI | |

Accessories, enclosed

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

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

Technical details: see previous page

PDF CAD
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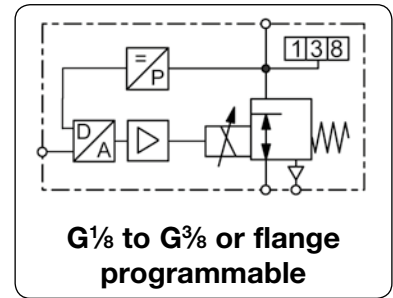


Order example:
PPA00-00V3

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

connection diagram

| | |
|--------------------|--|
| 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. |

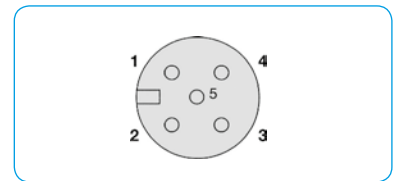


General technical features

| | |
|--------------------------|--|
| 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 |



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 |

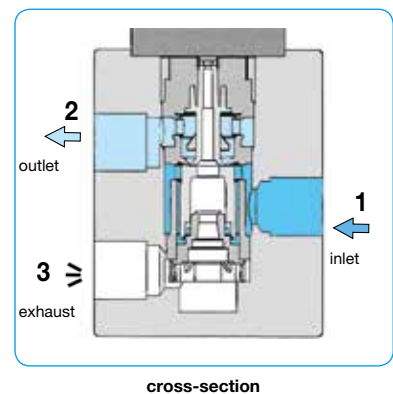
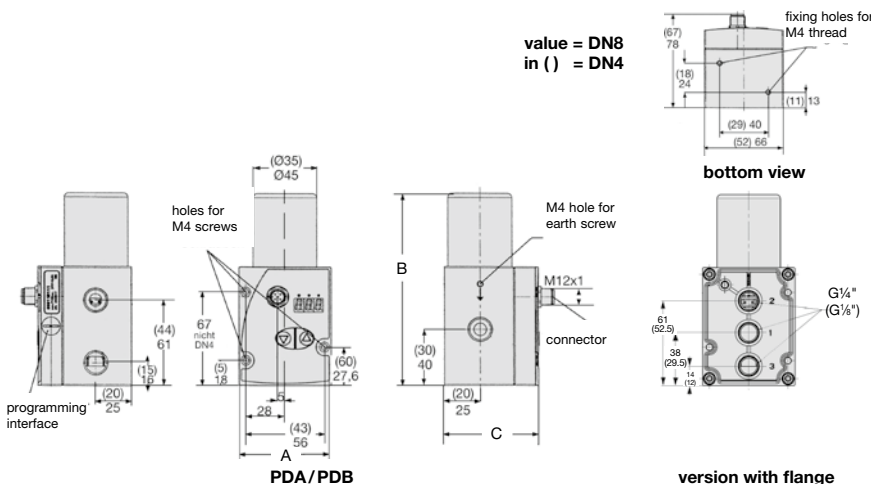
| pin | description | 5-wire cable (2m) |
|---------|--------------------------------|-------------------|
| 1 | 24 V supply voltage | brown |
| 2 | analog input signal | white |
| 3 | supply ground | blue |
| | analog ground | |
| 4 | analog outlet signal | black |
| 5 | digital pressure switch signal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

Accuracy

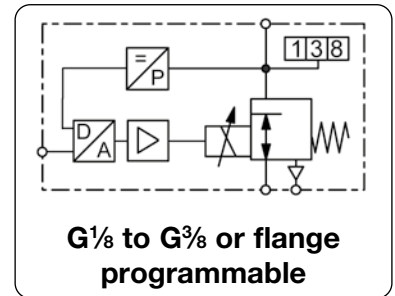
| | | | |
|--------------------------------|-----------|-----------------------------|--------------------------|
| Linearity/Hysteresis | < 1,0% FS | Response sensitivity | < 0,5% FS |
| Repeatability | < 0,5% FS | Minimum setpoint | 100 mV (0.2 mA / 4.2 mA) |
| Minimum outlet pressure | 1% FS | Over 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). |



| | | | |
|------------------------------|--|------------------------|------------------------------------|
| 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 | | |
| Mounting position | any | | |
| 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 |



G¹/₈ to G³/₈ or flange programmable

| Dimensions | | | Nominal size | Flow rate | Supply max. | Connection thread | Pressure range | Order number |
|------------|---|---|--------------|-----------|-------------|-------------------|----------------|--------------|
| A | B | C | DN | l/min*1 | bar | G | bar | |

| Proportional pressure regulator | | | | | | | 0-10 V input and outlet signal, supply 24 V DC, without display, with coupling socket | | PD |
|---------------------------------|-----|----|---|------|------|----|---|----------|-----------|
| 52 | 112 | 67 | 4 | 0.43 | 470 | 6 | G ¹ / ₈ | 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 | G ¹ / ₄ | 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 | G ¹ / ₄ | 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 | G ³ / ₈ | 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



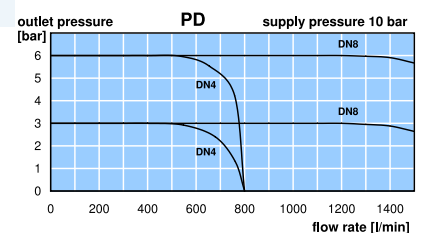
programming via PC

Special options, add the appropriate letter or number

| | | |
|---------------------------|--|------------------|
| display | 3-digit, red | PDB |
| 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 |
| flange version | | PD . . F |
| | for PDA41/82 | PD KU |
| cascade regulation | w/o monitor signal 2. sensor, electr. feedback 0-10 V | PD KI |
| | w/o monitor signal 2. sensor, electr. feedback 4-20 mA | |

Accessories, enclosed

| | | | |
|------------------------|-----------------------|-----------------------------|------------------|
| RS232 module | with D-sub plug and | 2 m cable | PDRS232 |
| | with USB plug and | 2 m cable | PDUSB |
| 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

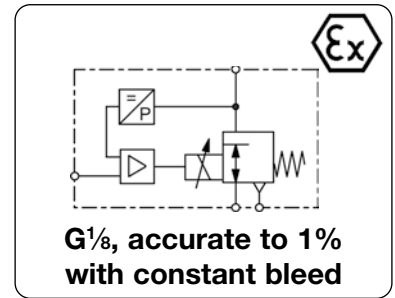
Technical details: see previous page

PDF CAD
www.aircom.net



Order example:
PDA41-010

| | | | |
|-----------------------------|--|----------------------------------|---------------------------------------|
| 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 2014/34/EU for use in potentially explosive atmosphere of group IIC, temperature classification T4. | | |
| Power consumption | < 200 mW | Ignition protection type: | II1G Ex ia IIC T4; II1D Ex D20 T135°C |
| Linearity/Hysteresis | < 1% FS | Failsafe feature | exhaust at power breakdown |
| Mounting position | any | Repeatability | < 0.5% FS |
| Air consumption | The pilot valve has an air consumption of 1.6 l/min | Protection class | IP 65 |
| 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 | | |

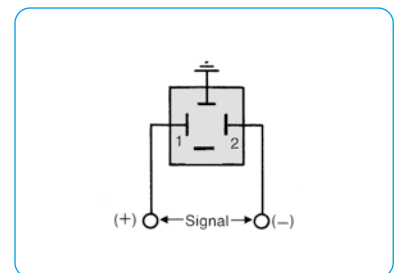
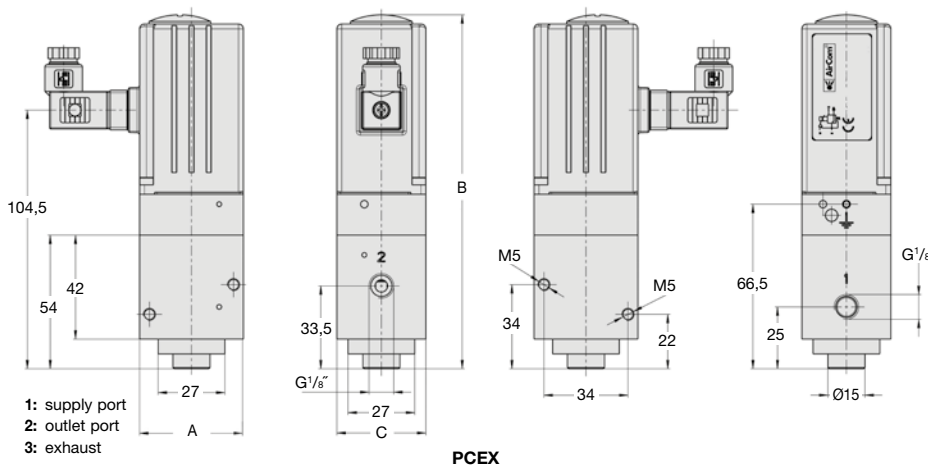
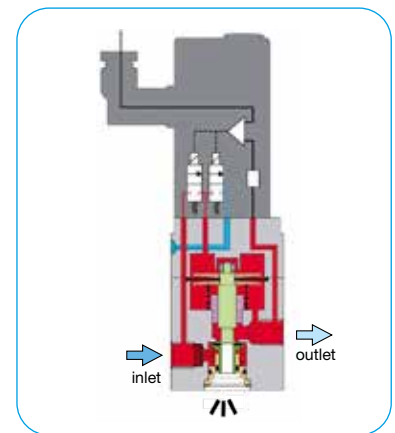


| Dimensions | | | Nominal size | K _v -value | Flow rate | Supply min./max. | Connection thread | Pressure range | Order number |
|------------|---|---|--------------|-----------------------|-----------|------------------|-------------------|----------------|--------------|
| A | B | C | DN | (m ³ /h) | l/min*1 | bar | G | bar | |

| 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 | G ¹ / ₈ | 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 |



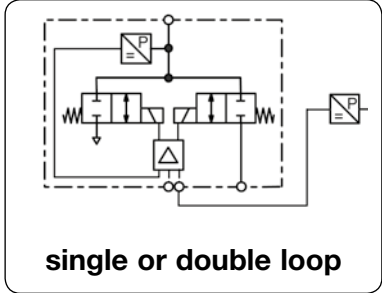
PCEX



connection diagram

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

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



| Dimensions | | | K _v -value | Flow rate | Supply pressure | Accuracy | Connection thread | Pressure range | Order number |
|------------|----|----|-----------------------|-----------|-----------------|----------|-------------------|----------------|--------------|
| A | B | C | | | | | | | |
| 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 | G $\frac{1}{8}$ | 0 ... 40 | PQH1EE-40 | |
| | | | | | | | | 0 ... 50 | PQH1EE-50 | |
| | | | | | | | | 0 ... 60 | PQH1EE-60 | |
| | | | | | | | | 0 ... 70 | PQH1EE-70 | |

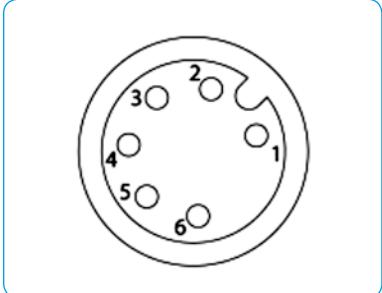
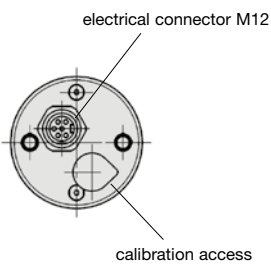
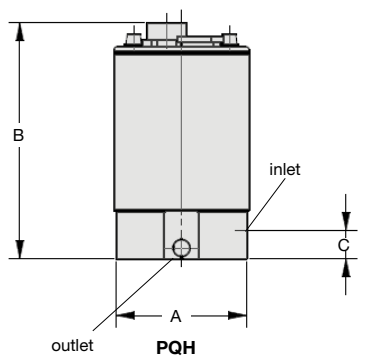
| Proportional pressure valve | | | | | | | | | | |
|---|-----|----|-------|-----|----|-----|-----------------|----------|-----------|--|
| 0-10 V input, monitor- and feedback signal, with coupling socket, supply volt. 24 V DC, double loop | | | | | | | | | | |
| | | | | | | | | | PQH2 | |
| 76 | 122 | 15 | 0.016 | 280 | 75 | 0.5 | G $\frac{1}{8}$ | 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 | | PQH15 |
| stainless steel manifold | | PQHSS |

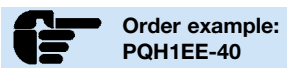


view from solder pin side

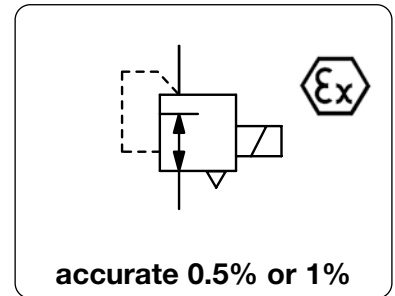
| Pin | Description |
|-----|------------------------|
| 1 | TTL output |
| 2 | set point + |
| 3 | set point ground |
| 4 | supply 24V DC |
| 5 | supply earth |
| 6 | analogue output signal |

connection plan

*1 at 70 bar supply pressure and open outlet



| | | |
|-----------------------------|--|---|
| 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 | |
| Linearity | < 0.5 % FS at 0.2...2 bar, otherwise < 1% FS | |
| Hysteresis | < 0.25% FS at 0.2...2 bar, otherwise < 1% FS | |
| Adjustment | Zero point: by 0.3 bar Range: 40% FS | |
| Temperature range | -30 °C to 65 °C / -22 °F to 149 °F | |
| Material | Body: chromated aluminium Nozzle: sapphire in nickel-plated brass plate | Response sensitivity < 0.2% FS Repeatability < 0.1% FS Vibration sensitivity < 2% FS, for 10 g and 15... 500 Hz Mounting position upright ± 15° Protection class IP 65 Elastomer: NBR/Buna-N Inner valve: stainless steel, brass, zinc-plated steel |



| Dimensions | | | Flow rate | Supply pressure | Command signal | Pressure range | Order number |
|------------|----|----|-----------|-----------------|----------------|----------------|--------------|
| A | B | C | l/min*1 | max. bar | V/mA | bar | |
| mm | mm | mm | | | | | |

| 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 0.2...2 | PT600-B100 PT600-B200 |
| 57 | 132 | 13 | 300 | 10 | 0-10 V | 0...2 0...4 0...8 | PT600-0200 PT600-0400 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 0.2...2 | PT602-B100 PT602-B200 |
| 57 | 132 | 13 | 300 | 10 | 4-20 mA | 0...2 0...4 0...8 | PT602-0200 PT602-0400 PT602-0800 |

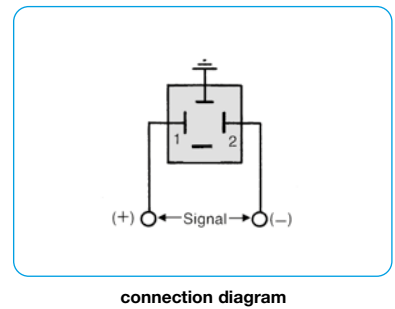
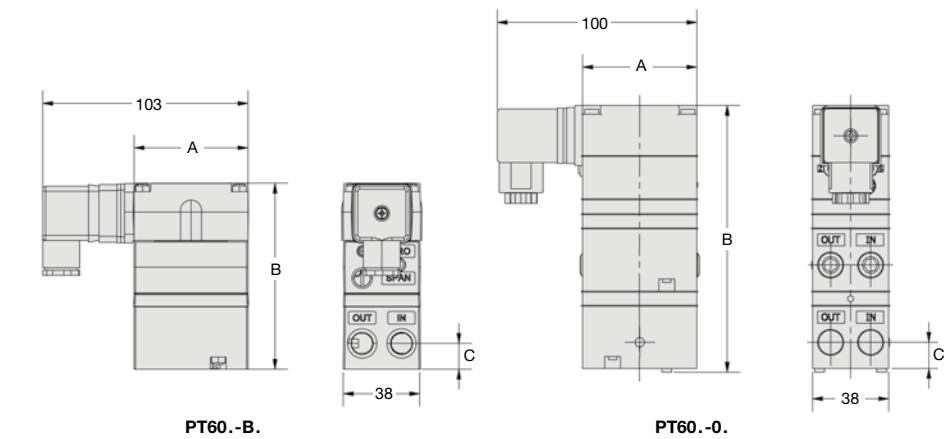
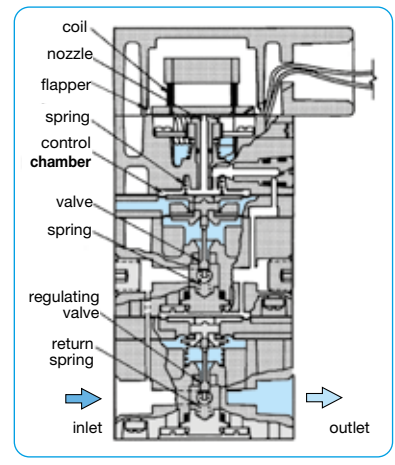


Special options, change the appropriate number

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

Accessories, enclosed

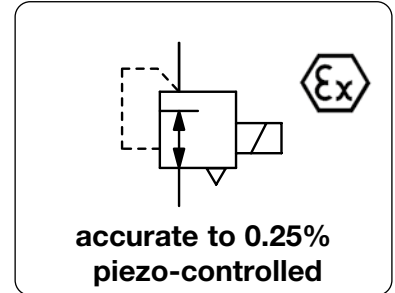
| | | |
|----------------------------|--|--------------------------------|
| mounting bracket | made of steel, for standard version made of steel, for Din rail | SA-PT1 SA-PT2 |
| isolate transmitter | Ex ia II C, E/A: 0-20 mA, 24 V DC, EX 1-32 | KFD2-CD |



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

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 | | |
| Linearity | < 0.25% FS | | |
| Hysteresis | < 0.1% FS at 0.2...0.5 bar, otherwise < 0.25% FS | | |
| Adjustment | Zero point: by 0.3 bar Range: 40% FS | | |
| Temperature range | -40 °C to 70 °C / -40 °F to 158 °F | | |
| Material | Body: chromated aluminium Nozzle: sapphire in nickel-plated brass plate Elastomer: NBR/Buna-N Inner valve: stainless steel, brass, zinc-plated steel | | |

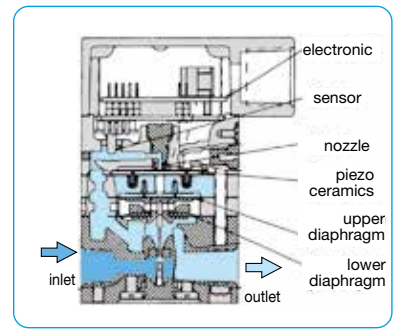


| Dimensions | | | Flow rate | Supply pressure | Command signal | Pressure range | Order number |
|------------|----|----|-----------|-----------------|----------------|----------------|--------------|
| A | B | C | l/min*1 | max. bar | V/mA | bar | |
| mm | mm | mm | | | | | |

| 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 | |

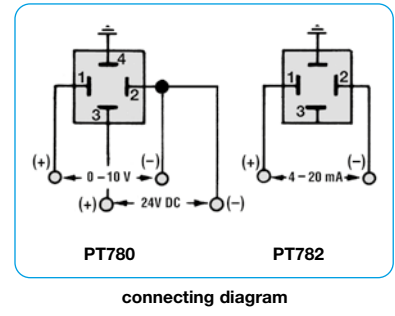
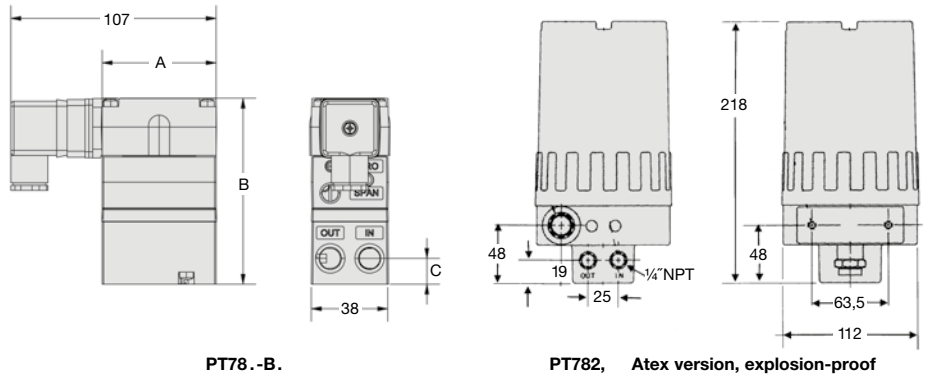
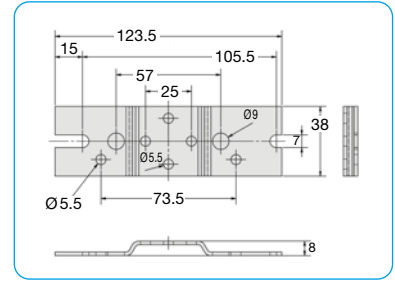


| Proportional press. regulator 4-20 mA | | | | | | | ¼" NPT, air consumption 2...8 l/min subject to pressure range | PT782 |
|---------------------------------------|-----|----|-----|----|---------|---------|---|-------|
| 57 | 95 | 13 | 250 | 8 | 4-20 mA | 0.2...1 | PT782-B100 | |
| | | | | | | 0.2...2 | PT782-B200 | |
| 57 | 133 | 13 | 300 | 10 | 4-20 mA | 0...2 | PT782-0200 | |
| | | | | | | 0...4 | PT782-0400 | |
| | | | | | | 0...8 | PT782-0800 | |



| 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, enclosed | | | | |
|----------------------------|--|--|--|----------------|
| 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 |



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

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
- almost no power consumption necessary for regulation
- extremely quick regulating operations
- low-noise regulation especially for medical and laboratory technology
- particularly suitable for portable devices in conjunction with battery operation
- ideal for limited space conditions

Piezo element

Small and light design

PRE1

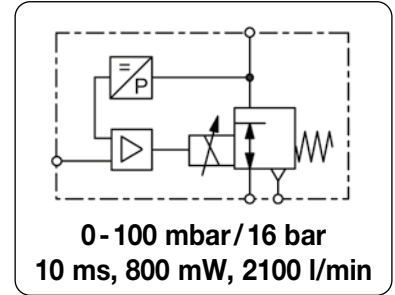
DN 2.5, 350 l/min, coupling socket M8x1, 3-pin,
monitor signal optionally 0... P_{2max} \triangleq 0...10 V,

monitor signal, 4-pin
max. 1 mA, $R_a > 1k\Omega$

PRE2

DN 6, 1600 l/min, coupling socket M12x1.5, 5-pin
monitor signal standard 0... P_{2max} \triangleq 0...10 V,

max. 1 mA, $R_a > 1k\Omega$



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 μ m filtered compressed air or non-corrosive gases |
| Supply pressure | min. 1.5 bar (at $P_2 \leq 8$ bar) or 2 bar (at $P_2 \geq 8$ 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: < 1.0 l/min independent of pressure range PRE2: < 1.0 l/min independent of pressure range |

Electrical features

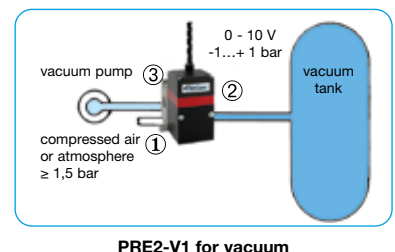
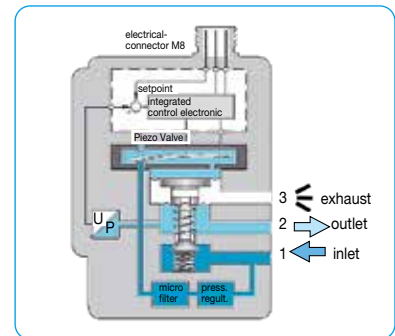
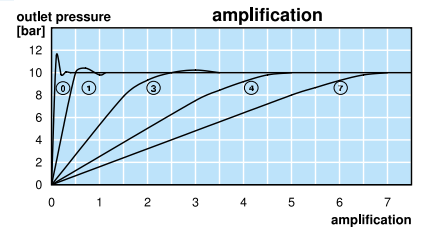
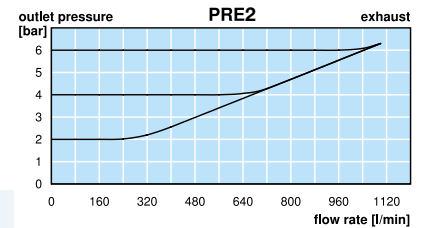
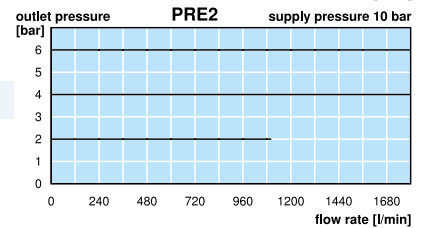
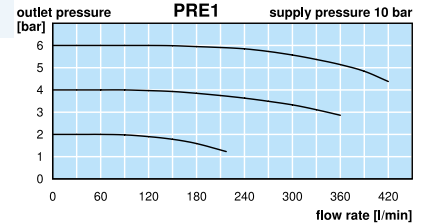
| | |
|-----------------------------|---|
| Supply voltage | PRE1: 24 V DC \pm 10%, 0.4 W, current consumption max. 15 mA PRE2: 24 V DC \pm 10%, 0.8 W, current consumption max. 30 mA |
| Command signal | 4...20 mA or 0...10 V |
| Impedance | PRE1: $\geq 66 k\Omega$ at voltage signal, $\leq 500 \Omega$ at current signal PRE2: $\geq 55 k\Omega$ at voltage signal, $\leq 500 \Omega$ 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, $R_a > 1k\Omega$ 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 DC = off, $U_N = -0.7$ V DC = on, output current < 200 mA, tolerance P_2 : \pm 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 | \pm 0.2% FS (Monitor signal \pm 1.5 % FS) |

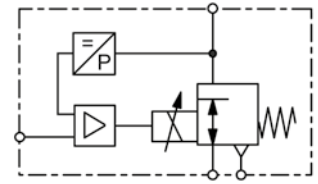
Adjustment

| | |
|-------------------|-----------------------------|
| Zero point | calibration only by factory |
| Range | calibration only by factory |



Technical features

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



0 ... 100 mbar / 16 bar
10 ms, 800 mW, 2400 l/min

| Dimensions | | | Supply pressure | Flow rate | Connection thread | Pressure range | Order number for inlet signal | |
|------------|----|----|-----------------|-----------|-------------------|----------------|-------------------------------|--------|
| A | B | C | max. bar | l/min*1 | G | bar | 4-20 mA | 0-10 V |
| mm | mm | mm | | | | | | |

| 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 | G ¹ / ₈ | 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 | 250 | 0 ... 6 | PRE1-I06 | PRE1-U06 | | |
| | | | | 350 | 0 ... 8 | PRE1-I08 | PRE1-U08 | | |
| 46 | 84 | 68 | 2.5 | 800 | G ¹ / ₄ | -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



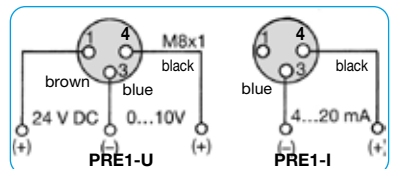
PRE2

Special options, add the appropriate letter

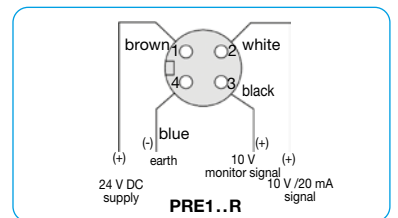
- monitor signal** 0-10 V, standard at PRE2 for PRE1 PRE1-...R
- flange connection** without manifold PRE-...F
- w/o coupling socket** and without cable PRE-...H
- mounting clips** for DIN rail PRE-...C
- deviant pressure ranges** PRE-...XX

Accessories, enclosed

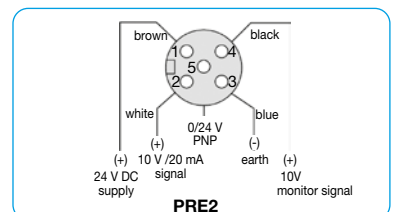
- coupling socket** with 5 m cable, angular
 - M8x1, 3-pin for PRE1 **KM08-C3-5**
 - M8x1, 4-pin for PRE1-R **KM08-C4-5**
 - M12x1.5, 5-pin for PRE2 **KM12-C5-5**



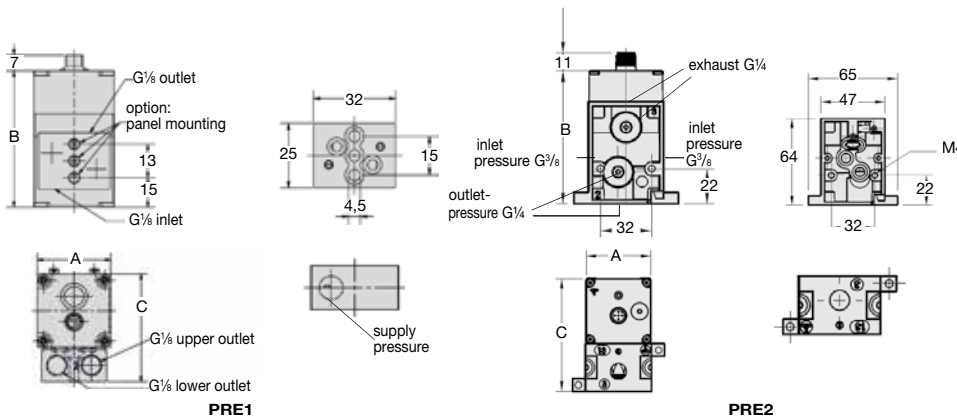
connection diagram



connection diagram



connection diagram



*1 at open outlet

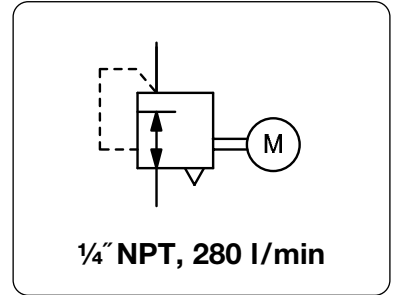
Technical details: see previous page

PDF CAD
www.aircom.net



Order example:
PRE1-IA1

| | |
|-----------------------------|---|
| 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 |
| Relief capacity | 140 l/min at 1.5 bar outlet and 0.35 bar overpressure above setpoint, any, preferably upright |
| Gauge port | 1/4" NPT on both sides of the body |
| Material | Body: zinc die-cast Inner valve: stainless steel and brass |
| | Mounting position optionally 280 l/min Temperature range -18 °C to 60 °C / 0 °F to 140 °F Elastomer: NBR/Buna-N Mounting bracket: black-coated steel |



| Dimensions | | | Power | Flow | Switching | Connection | Pressure | Order |
|------------|----|----|-------------|---------|-----------|------------|----------|--------|
| A | B | C | consumption | rate | time | thread | range | number |
| mm | mm | mm | W | l/min*1 | s | NPT | bar | |

| Motorised pressure regulator | | | | | | | | P ₁ max. 10 bar, relieving, with constant bleed, control signal 220 V AC, 6 rpm | P180 |
|------------------------------|-----|----|---|-----|----|----------|--------------|--|----------|
| 62 | 195 | 14 | 6 | 280 | 40 | 1/4" 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

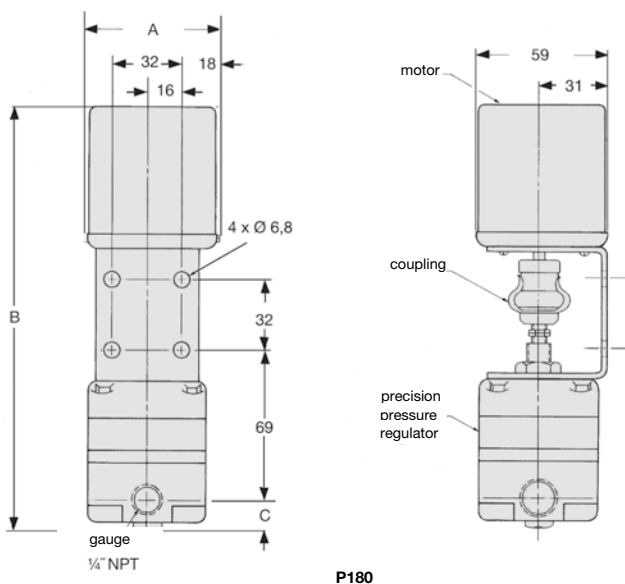
| | | | |
|----------------|-------------------------------------|--------------|-------------|
| 24 V DC | control signal | | P180-02 . V |
| 110 V AC | control signal | | P180-02 . W |
| switching time | three times greater than standard | not for 24 V | P180-02 . T |
| higher exhaust | two times greater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



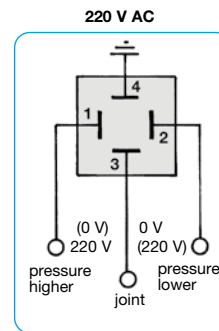
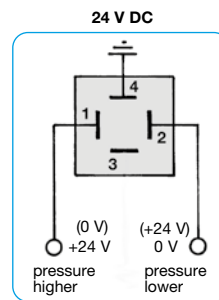
P180

Accessories, enclosed

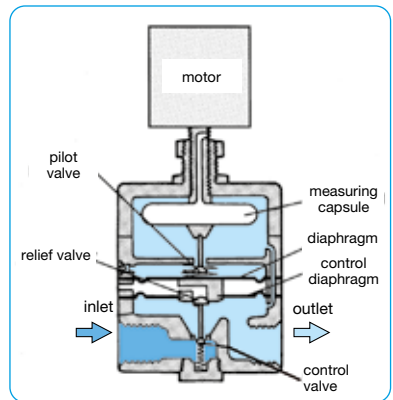
| | | |
|------------------------|---|-------------|
| pressure gauge | Ø 50 mm, 0 ... *2 bar, G1/4, connecting parts necessary | MA5002-..*2 |
| gauge connecting parts | adapter 1/4" NPT - R1/4 f | VP-0202N |



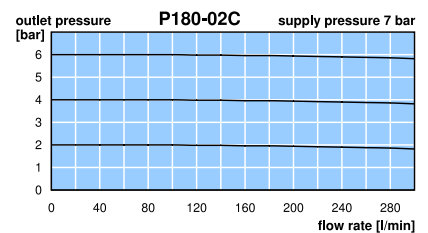
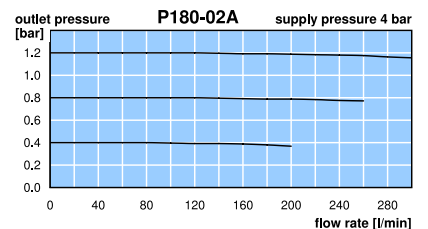
P180



connection diagram for option D with DIN plug



cross-section

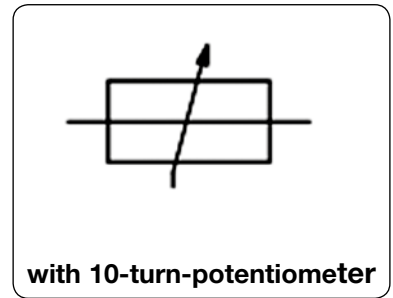


*1 at 7 bar supply pressure and 6 bar outlet pressure
*2 02 = 0 ... 2.5 bar, 06 = 0 ... 6 bar, 10 = 0 ... 10 bar

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 |



| Dimensions | | | Output signal | Order number |
|------------|----|----|---------------|--------------|
| F | H | G | V / mA | |
| mm | mm | mm | | |

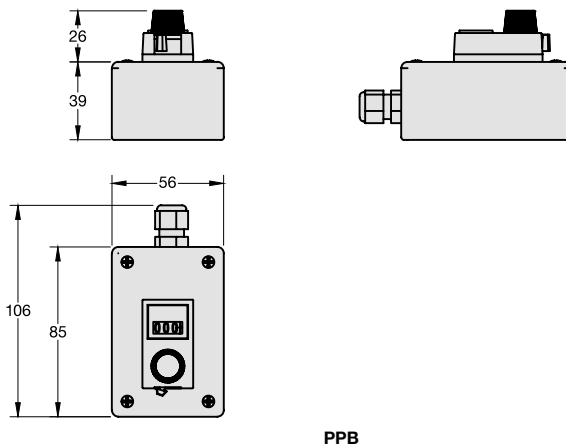
| Setpoint Potentiometer | | | supply voltage 15 - 24 V DC | PPB |
|------------------------|----|----|-----------------------------|-------|
| 85 | 55 | 40 | 0-10 V | PPB-U |
| 85 | 55 | 40 | 4-20 mA | PPB-I |



PPB-U



PPB-I



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

connecting plan



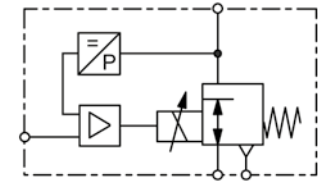
VOLUMENSTROMBOOSTER-PROPORTIONALVENTIL-KOMBINATIONEN

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.



G $\frac{1}{4}$ 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.

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

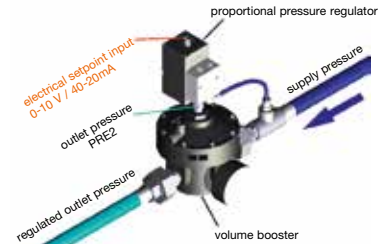
| | |
|--------------------------|---|
| Construction type | The volume booster / proportional valve combinations are delivered completely assembled and calibrated. |
| Mounting position | preferred horizontal (see figure) |
| Protection class | IP 54 with ordinary coupling socket as standard, optionally 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 |

Pneumatic features

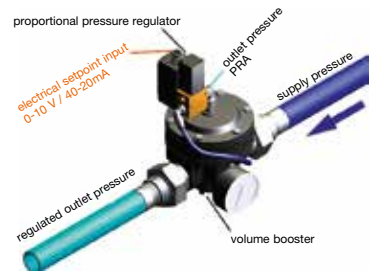
| | |
|------------------------|---|
| Command signal | The proportional valves may only be fed with dry and 5 µm filtered compressed air. The pneumatic command signal must always be air! |
| Media | Preferred dry, 5 µm filtered compressed air for supply of the proportional valves. The volume boosters 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 |

Electrical features

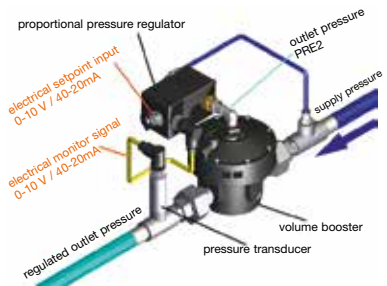
| | |
|--------------------------|--|
| Supply voltage | All valves have to be supplied with 24 V DC. |
| Power consumption | see according product information sheets |
| Setpoint input | 0-10 V as standard, optionally 4-20 mA for all valves |
| Monitor signal | A feedback signal is not reasonable for 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. |



PRE2, R450 with single loop



PRA, R119 with single loop

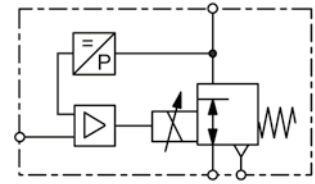


PQ2, R450 with double loop

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.



**G¹/₄ 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, P₁ max. 17 bar

| | | | | | |
|------|-------------------------------|--------|----------|----------|-------------------|
| 1000 | G ¹ / ₄ | 0... 8 | R750-02I | PRE1-U08 | BP1U750-02 |
|------|-------------------------------|--------|----------|----------|-------------------|

R450 with PRE1, for compressed air or non-corrosive gases setpoint 0-10 V, P₁ max. 17 bar

| | | | | | |
|------|-------------------------------|--------|----------|----------|-------------------|
| 4000 | G ¹ / ₂ | 0... 8 | R450-04I | PRE1-U08 | BP1U450-04 |
|------|-------------------------------|--------|----------|----------|-------------------|

R119 with PPA, for compressed air or non-corrosive gases setpoint 0-10 V, P₁ max. 21 bar

| | | | | | |
|--------|--------------------------------|---------|----------|------------|-------------------|
| 5600 | G ¹ / ₂ | 0... 10 | R119-04J | PPA00-1000 | BP1U119-04 |
| 9000 | G ³ / ₄ | 0... 10 | R119-06J | PPA00-1000 | BP1U119-06 |
| 10000 | G1 | 0... 10 | R119-08J | PPA00-1000 | BP1U119-08 |
| 12000 | G1 ¹ / ₂ | 0... 10 | R119-12J | PPA00-1000 | BP1U119-12 |
| 42000 | G2 | 0... 10 | R119-16J | PPA00-1000 | BP1U119-16 |
| 44000 | G2 ¹ / ₂ | 0... 10 | R119-20J | PPA00-1000 | BP1U119-20 |
| 110000 | G3 | 0... 10 | R119-24J | PPA00-1000 | BP1U119-24 |

RGB4 with PRE1-A2, for compressed air or gases setpoint 0-10 V, P₁ max. 4 bar

| | | | | | |
|------|--------------------------------|---------|----------|----------|-------------------|
| 700 | G ¹ / ₂ | 0...0,2 | RGB4-04J | PRE1-UA2 | BP1UGB4-04 |
| 2800 | G1 | 0...0,2 | RGB4-08J | PRE1-UA2 | BP1UGB4-08 |
| 5600 | G1 ¹ / ₂ | 0...0,2 | RGB4-12J | PRE1-UA2 | BP1UGB4-12 |

RZ1 with PRE1-.01/02, for compressed air or gases setpoint 0-10 V, P₁ max. 16 bar

| | | | | | |
|-------|--------------------------------|--------|---------|----------|-----------------|
| 2900 | G1 | 0... 1 | RZ3-08J | PRE1-U02 | BP1UZ-08 |
| 5700 | G1 ¹ / ₂ | 0... 1 | RZ3-12J | PRE1-U02 | BP1UZ-12 |
| 21000 | G2 | 0... 1 | RZ2-16J | PRE1-U02 | BP1UZ-16 |

R120 with PPA, for compressed air, gases or liquids setpoint 0-10 V, P₁ max. 50 bar

| | | | | | |
|-------|--------------------------------|---------|-----------|------------|---------------------|
| 1200 | G ¹ / ₂ | 0... 15 | R120-04J2 | PPA00-1600 | BP1U120-04 |
| 4200 | G ³ / ₄ | 0... 15 | R120-06J2 | PPA00-1600 | BP1U120-06 |
| 5000 | G1 | 0... 15 | R120-08J2 | PPA00-1600 | BP1U120-08 |
| 1200 | G ¹ / ₂ | 0... 50 | R120-04J5 | PP000-5000 | BP1U120-04J5 |
| 4200 | G ³ / ₄ | 0... 50 | R120-06J5 | PP000-5000 | BP1U120-06J5 |
| 5000 | G1 | 0... 50 | R120-08J5 | PP000-5000 | BP1U120-08J5 |
| 14000 | G1 ¹ / ₂ | 0... 50 | R120-12J5 | PP000-5000 | BP1U120-12J5 |
| 15000 | G2 | 0... 50 | R120-16J5 | PP000-5000 | BP1U120-16J5 |

Special options, add the appropriate letter

| | | |
|---------|--------------|--------------|
| 4-20 mA | input signal | BP1I...-.... |
|---------|--------------|--------------|



BP1U750-02



BP1U119-16



BP1UZ-08



BP1U120-08J5

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

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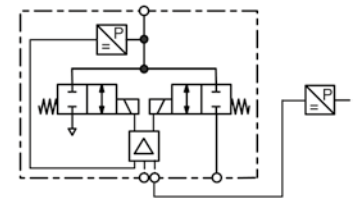


Order example:
BP1U750-02

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.



G $\frac{1}{2}$ 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 | | Order number of combination |
|--------------------|---------------------------|---------------------------|--------|-------------|------------|--------------------------------|
| | | | | Booster | Prop.valve | |

| R450 with PQ2, for compressed air or non-corrosive gases | | | | | | | setpoint 0-10 V, P ₁ max. 17 bar |
|---|-----------------|--------|---------|----------|----------|---------------------|---|
| 4 000 | G $\frac{1}{2}$ | 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 |
|---|----|--------|---------|----------|----------|---------------------|---|
| 28 000 | 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 | G $\frac{1}{2}$ | 0...0.35 | DAV-C4H | RGB4-04J | PQ2EE-C4 | BP2UGB4-04 | |
| 2 800 | G1 | 0...0.35 | DAV-C4H | RGB4-08J | PQ2EE-C4 | BP2UGB4-08 | |
| 5 600 | G $\frac{1}{2}$ | 0...0.35 | DAV-C4H | RGB4-12J | PQ2EE-C4 | BP2UGB4-12 | |



BP2UGB4-12

| RZ1 with PQ2, for compressed air or gases | | | | | | | setpoint 0-10 V, P ₁ max. 16 bar |
|--|-----------------|-------|---------|---------|----------|-----------------|---|
| 2 900 | G1 | 0...1 | DAV-01H | RZ3-08J | PQ2EE-01 | BP2UZ-08 | |
| 5 700 | G $\frac{1}{2}$ | 0...1 | DAV-01H | RZ3-12J | PQ2EE-01 | BP2UZ-12 | |
| 21 000 | G2 | 0...1 | DAV-01H | RZ2-16J | PQ2EE-01 | BP2UZ-16 | |

Special options, add the appropriate letter

4-20 mA input signal BP2I ...-....



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

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Order example:
BP2U450-0401