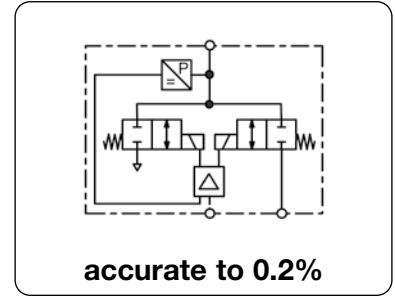


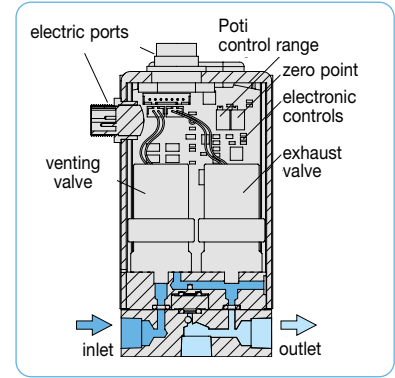
**Technical features**

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



**General technical features**

|                          |   |                             |  |
|--------------------------|---|-----------------------------|--|
| <b>Description</b>       | 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. |                             |  |
| <b>Mounting position</b> | any, immune to shock and vibration up to 25 g   |                             |  |
| <b>Protection class</b>  | IP 65 housing   |                             |  |
| <b>Temperature range</b> | -5 °C to 70 °C / 23 °F to 158 °F  |                             |  |
| <b>Material</b>          | Body: aluminium   | Elastomer: FKM              |  |
|                          | Transducer: aluminium and silicon   | Valves: nickel-plated brass |  |



**Pneumatic features**

|                        |  |
|------------------------|--|
| <b>Media</b>           | dry, un lubricated and 5 µm filtered compressed air or non-corrosive gases                                       |
| <b>Supply pressure</b> | see chart, minimum 10% above outlet pressure   |
| <b>Flow rate</b>       | 35 l/min at 7 bar supply pressure and open outlet, optionally 100 l/min<br>3 l/min at controlled outlet pressure |
| <b>Exhaust</b>         | same nominal size as on inlet valve, thus same relief capacity   |
| <b>Air consumption</b> | without constant bleed   |

**Electrical features**

|                                 |  |
|---------------------------------|--|
| <b>Supply voltage</b>           | 15 ... 24 V DC, reverse voltage protection existing  |
| <b>Power consumption</b>        | 3.6 W for regulation, 0.5 W non-regulating   |
| <b>Signal range</b>             | 0 ... 10 V, optionally 4 ... 20 mA   |
| <b>Impedance</b>                | 4.7 kΩ at voltage signal, 100 Ω at current signal<br>10 kΩ at voltage signal, 100 Ω at current signal, for external feedback |
| <b>Monitor signal impedance</b> | > 4.7 kΩ at voltage signal, < 100 Ω at current signal  |
| <b>Electrical connector</b>     | plug M16x0.75, 7-pin, with coupling socket   |
| <b>Monitor signal</b>           | 0 ... 10 V, optionally 4 ... 20 mA   |
| <b>Security</b>                 | constant outlet pressure at voltage drop   |

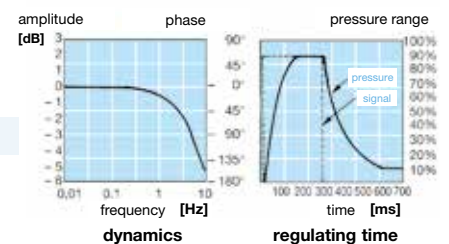
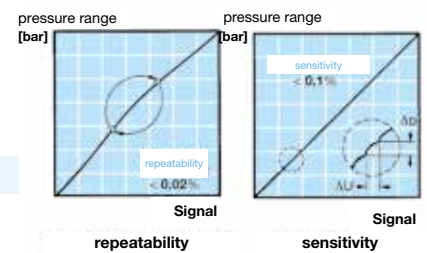
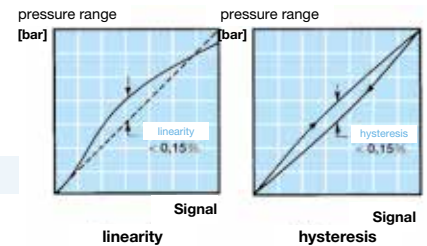
**Accuracy**

|                              |   |
|------------------------------|---|
| <b>Linearity/Hysteresis</b>  | ± 0.15% FS  |
| <b>Response sensitivity</b>  | < 0.1% FS   |
| <b>Response time</b>         | 10 to 15 ms   |
| <b>Repeatability</b>         | ± 0.02% FS  |
| <b>Temperature influence</b> | < 0.01% FS per °C/K at 0 °C to 50 °C / 32 °F to 122 °F<br>< 1.00% FS per °C/K at 50 °C to 70 °C / 122 °F to 158 °F  |
| <b>Accuracy over all</b>     | ± 0.2 % FS  |
| <b>Regulating time</b>       | < 2 s to fill 0.1 l volume to 90% of the initial pressure (or to exhaust)<br>< 40 s to fill 2 l volume to 90% of the initial pressure (< 80 s to exhaust) |

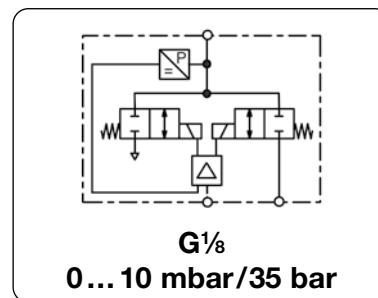
**Adjustment**

|                   |   |
|-------------------|---|
| <b>Zero point</b> | 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".                                  |
| <b>Span</b>       | 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



|                    |  |
|--------------------|--|
| <b>Description</b> | 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.   |
| <b>Single loop</b> | 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. |
| <b>Accuracy</b>    | Linearity / Hysteresis: ± 0.15% FS<br>Response sensitivity: < 0.1% FS<br>Repeatability: ± 0.02% FS<br>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       | E*           |

| 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 <sup>1</sup> / <sub>8</sub> | 0 ... 5 mbar   | <b>PQ1EE-A5</b> |
|                       |     |   |  | 20 mbar    |     |                               | 0 ... 10 mbar  | <b>PQ1EE-B1</b> |
|                       |     |   |  | 40 mbar    |     |                               | 0 ... 20 mbar  | <b>PQ1EE-B2</b> |
|                       |     |   |  | 100 mbar   |     |                               | 0 ... 50 mbar  | <b>PQ1EE-B5</b> |
|                       |     |   |  | 200 mbar   |     |                               | 0 ... 100 mbar | <b>PQ1EE-C1</b> |
|                       |     |   |  | 400 mbar   |     |                               | 0 ... 200 mbar | <b>PQ1EE-C2</b> |
|                       |     |   |  | 800 mbar   |     |                               | 0 ... 400 mbar | <b>PQ1EE-C4</b> |
|                       |     |   |  | 1 000 mbar |     |                               | 0 ... 600 mbar | <b>PQ1EE-C6</b> |
| 51                    | 106 | 8 | 35   | 2 bar      | 0.2 | G <sup>1</sup> / <sub>8</sub> | 0 ... 1 bar    | <b>PQ1EE-01</b> |
|                       |     |   |  | 3 bar      |     |                               | 0 ... 2 bar    | <b>PQ1EE-02</b> |
|                       |     |   |  | 7 bar      |     |                               | 0 ... 4 bar    | <b>PQ1EE-04</b> |
|                       |     |   |  | 7 bar      |     |                               | 0 ... 6 bar    | <b>PQ1EE-06</b> |
|                       |     |   |  | 9 bar      |     |                               | 0 ... 8 bar    | <b>PQ1EE-08</b> |
|                       |     |   |  | 15 bar     |     |                               | 0 ... 10 bar   | <b>PQ1EE-10</b> |
|                       |     |   |  | 15 bar     |     |                               | 0 ... 12 bar   | <b>PQ1EE-12</b> |
|                       |     |   |  | 24 bar     |     |                               | 0 ... 16 bar   | <b>PQ1EE-16</b> |
|                       |     |   |  | 24 bar     |     |                               | 0 ... 20 bar   | <b>PQ1EE-20</b> |
|                       |     |   |  | 38 bar     |     |                               | 0 ... 25 bar   | <b>PQ1EE-25</b> |
|                       |     |   |  | 38 bar     |     |                               | 0 ... 30 bar   | <b>PQ1EE-30</b> |
|                       |     |   |  | 38 bar     |     |                               | 0 ... 35 bar   | <b>PQ1EE-35</b> |
| 51                    | 106 | 8 | 35   | 0 bar      | 0.2 | G <sup>1</sup> / <sub>8</sub> | 0 ... -1 bar   | <b>PQ1EE-V0</b> |
|                       |     |   |  | 2 bar      |     |                               | -1 ... +1 bar  | <b>PQ1EE-V1</b> |



PQ1

### Special options, add the appropriate letter or number

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

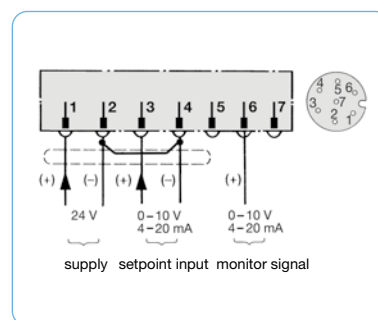
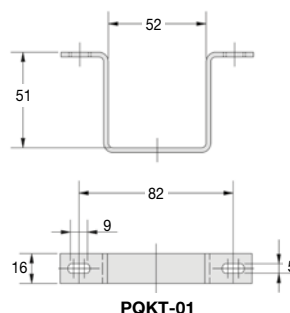
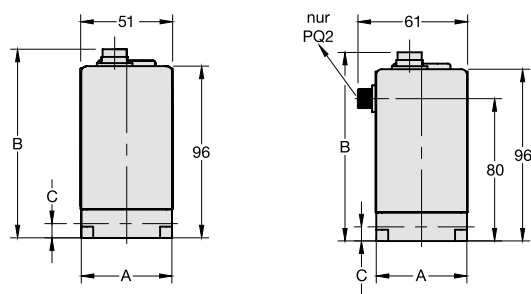
### Accessories, enclosed

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



PRK-A

PRK-C



\*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

\* Product group

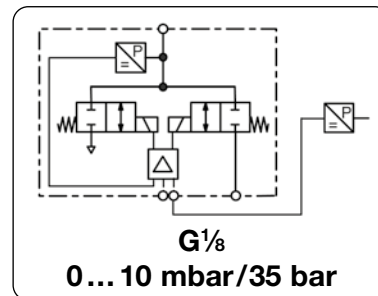
# PROPORTIONAL PRESSURE REGULATOR WITH DOUBLE LOOP, ACCURATE TO 0.2%

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       | E*           |

| 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 <sup>1/8</sup> | 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 <sup>1/8</sup> | 0 ... 1 bar    | PQ2EE-01 |
|                       |     |   |            | 3 bar  |     |                  | 0 ... 2 bar    | PQ2EE-02 |
|                       |     |   |            | 7 bar  |     |                  | 0 ... 4 bar    | PQ2EE-04 |
|                       |     |   |            | 7 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 <sup>1/8</sup> | 0 ... -1 bar   | PQ2EE-V0 |
|                       |     |   |            | 2 bar  |     |                  | -1 ... +1 bar  | PQ2EE-V1 |

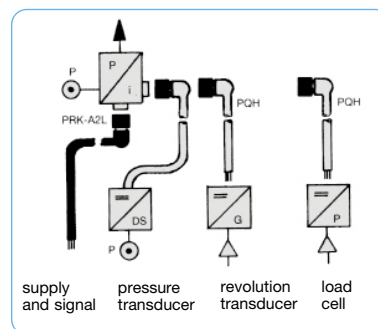
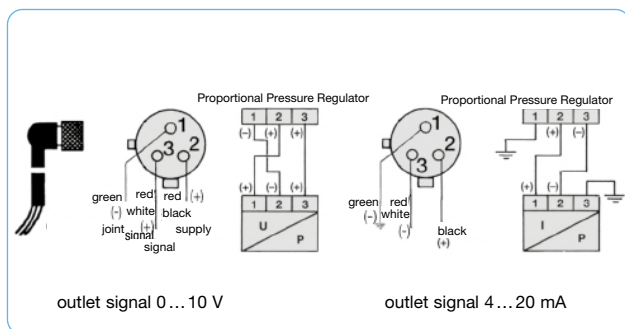


## Special options, add the appropriate letter or number

|   |                 |
|---|-----------------|
| 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 |
|                  |   | PRK-C2L |
| coupling socket  | 1/2" UNF, 3-pin with 0.9 m cable, for second loop, straight   | PQH-L1  |
|                  |   | 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  
www.aircom.net

\* Product group



Order example:  
PQ2EE-A5