

# Electropneumatic Controller EPR 01



**NAMUR interface**  
**Controlled via timing valve**  
**For neutral gaseous fluids**

Catalog Register  
**A 16, P 16**

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**OBSOLETE  
DOCUMENT**

**Technical  
Reference  
Only**

## Description

### General

The EPR 01 microprocessor-controlled electropneumatic controller is suited to straightforward installation and operation of pneumatic swivel drives to VDI/VDE 3845 (NAMUR recommendations).

### Function

The angle of rotation of a swivel drive is set by supply of a specified angle signal (command variable  $w$ ). The electronic circuitry processes this signal and actuates a number of 2/2 directional control valves by pulse length modulation in order to produce the final control pressure (final control variable  $y$ , max. 8 bar). The final control pressure effects rotation of the swivel drive.

The actual figure for the angle of rotation (control variable  $x$ ) is measured by an integrated angular position sensor and regulated by the electronic circuitry.



## Application

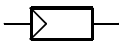
- Positioning of single and double-action pneumatic swivel drives to NAMUR specifications.
- Allocation of direction of movement and action to positioning elements and their safety-associated rest positions.

## Features

- Standardised mounting interface
- For single and double-action swivel drives
- Easy to install
- Problem-free commissioning
- Reproducible parameter setting
- Safety-associated zero positions
- Angle of rotation adjustable from 0 to 150° or 0 to 300°
- Reversible direction of action
- Variable split range operation
- Limitation of angle of rotation
- End position cut-out
- Electrical position feedback
- Functional check
- Live zero or standard signal
- No constant air consumption

## Parameters

### General parameters

|                          |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|
| Designation              | Electropneumatic controller                                                       |
| Symbol                   |  |
| Connection               | G 1/4                                                                             |
| Mounting position        | Optional                                                                          |
| Ambient temperature [°C] | -10 ... +60                                                                       |
| Storage temperature [°C] | -10 ... +80                                                                       |
| Weight [kg]              | 1.8                                                                               |
| Degree of protection     | IP 65                                                                             |

### Adjustable parameters

|                   |                       |             |
|-------------------|-----------------------|-------------|
| Turning range     | AC                    | AB          |
| Angle of rotation | min. 20°<br>max. 300° | 10°<br>150° |

### Pneumatic parameters

|                          |                                          |
|--------------------------|------------------------------------------|
| Fluid                    | Filtered, lubricated, non-lubricated air |
| Fluid temperature [°C]   | -10 ... +40                              |
| Operating pressure [bar] | 0 ... 10                                 |
| Filtration [μ]           | 70                                       |

### Option

|                         |                                      |
|-------------------------|--------------------------------------|
| Booster solenoid 1 [mA] | 400 <sup>1)</sup> (100 % duty cycle) |
| Booster solenoid 2 [mA] | 400 <sup>1)</sup> (100 % duty cycle) |

### External actual value

|                    |                               |
|--------------------|-------------------------------|
| Inputs             | [V] 0 ... 10<br>[mA] 0 ... 20 |
| Output             |                               |
| Ref. voltage [V]   | +10.00 <sup>4)</sup>          |
| Supply voltage [V] | 22 ... 28 DC <sup>5)</sup>    |

## Electrical parameters

### Supply

|                                       |              |
|---------------------------------------|--------------|
| Voltage supply U <sub>B</sub> [V]     | 22 ... 28 DC |
| Current consumption I <sub>max.</sub> |              |
| Electronic system [mA]                | 100          |
| Valves [mA]                           | 640          |

### Inputs

|                       |              |
|-----------------------|--------------|
| Voltage signal [V]    | 0 ... 10     |
| Input resistance [kΩ] | 330          |
| Current signal [mA]   | 0 (4) ... 20 |
| Load [Ω]              | 330          |

Split-range with 10 % range referred to final value

### Outputs

|                                   |                            |
|-----------------------------------|----------------------------|
| Voltage [V]                       | 0 ... 10                   |
| Current [mA]                      | 0 (4) ... 20               |
| Release/Collector resistance [kΩ] | U <sub>B</sub> -1.4<br>3.6 |

### Adjustable parameters

|                                                                  |                        |                          |
|------------------------------------------------------------------|------------------------|--------------------------|
| Turning ranges                                                   | AC                     | AB                       |
| Position tolerance – incrementation                              | 0.5° ... 3.5°<br>0.5°  | 0.25° ... 1.75°<br>0.25° |
| Disconnection at final position (on both sides) – incrementation | 0 ... 10.8°<br>1.8°    | 0 ... 5.4°<br>0.9°       |
| Limitation of angle of rot. – incrementation <sup>2)</sup>       | 20° ... 300°<br>0.25°  | 10° ... 150°<br>0.25°    |
| Gain – incrementation                                            | 0.25 ... 4.0°<br>0.25° | 0.25 ... 4.0°<br>0.25°   |
| Booster valve threshold <sup>3)</sup> – incrementation           | 100% ... 40%<br>10 %   |                          |

<sup>1)</sup> Outputs short-circuit proof

<sup>2)</sup> Incrementation is 1/15 of the mechanical angle of rotation of respective pivot drive

<sup>3)</sup> Booster threshold = 100 % setpoint change x gain – incrementation of booster threshold

<sup>4)</sup> Reference voltage for external actual value potentiometer ≥ 1 kΩ

<sup>5)</sup> Dependent on supply voltage U<sub>B</sub>

## Type survey (standard units)

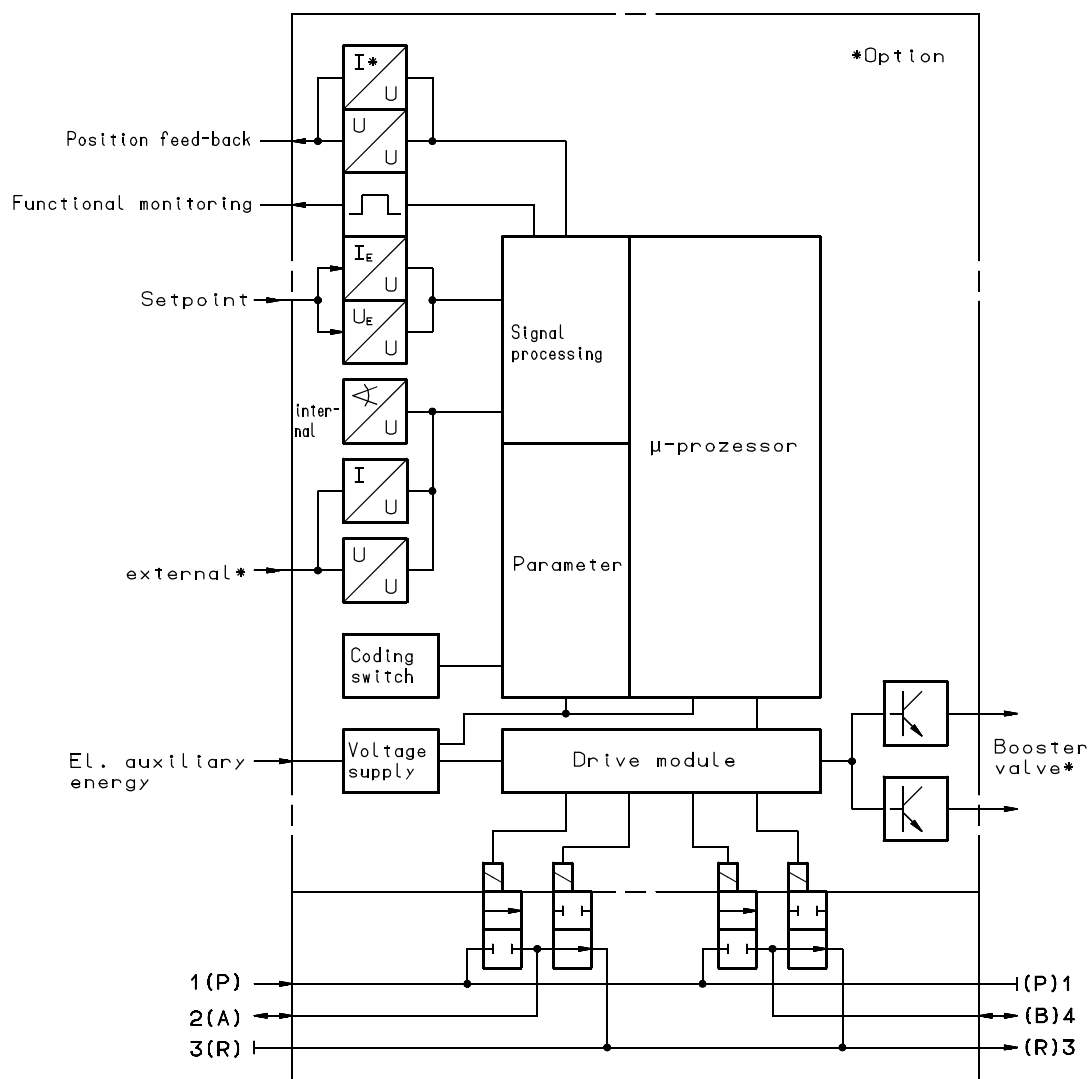
| Pressure connection | Pressure range [bar] | Qn <sup>2)</sup> (l/h) | El. connection           | Input signal (freely selectable) | Feed-back signal | Option                    | Cat. No.       |
|---------------------|----------------------|------------------------|--------------------------|----------------------------------|------------------|---------------------------|----------------|
| G 1/4               | 0 ... 10             | 3300                   | PG 13.5                  | 0 ... 10 V                       | 0 ... 10 V       | –                         | <b>5980021</b> |
| G 1/4               | 0 ... 10             | 3300                   | PG 13.5                  | or                               | 0 (4) ... 20 mA  | –                         | upon request   |
| G 1/4               | 0 ... 10             | 3300                   | PG 13.5/11 <sup>1)</sup> | 0 (4) ... 20 mA                  | 0 ... 10 V       | BVA3)                     | upon request   |
| G 1/4               | 0 ... 10             | 3300                   | PG 13.5/11 <sup>1)</sup> |                                  | 0 (4) ... 20 mA  | BVA3)                     | <b>5980025</b> |
| G 1/4               | 0 ... 10             | 3300                   | PG 13.5/11               |                                  | 0 ... 10 V       | Ext. actual value         | <b>5900100</b> |
| G 1/4               | 0 ... 10             | 3300                   | PG 13.5/11 <sup>1)</sup> |                                  | 0(4) ... 20 mA   | Ext. actual value + BVA3) | <b>5900130</b> |

<sup>1)</sup> Individual connection of booster valve (Pg 11)

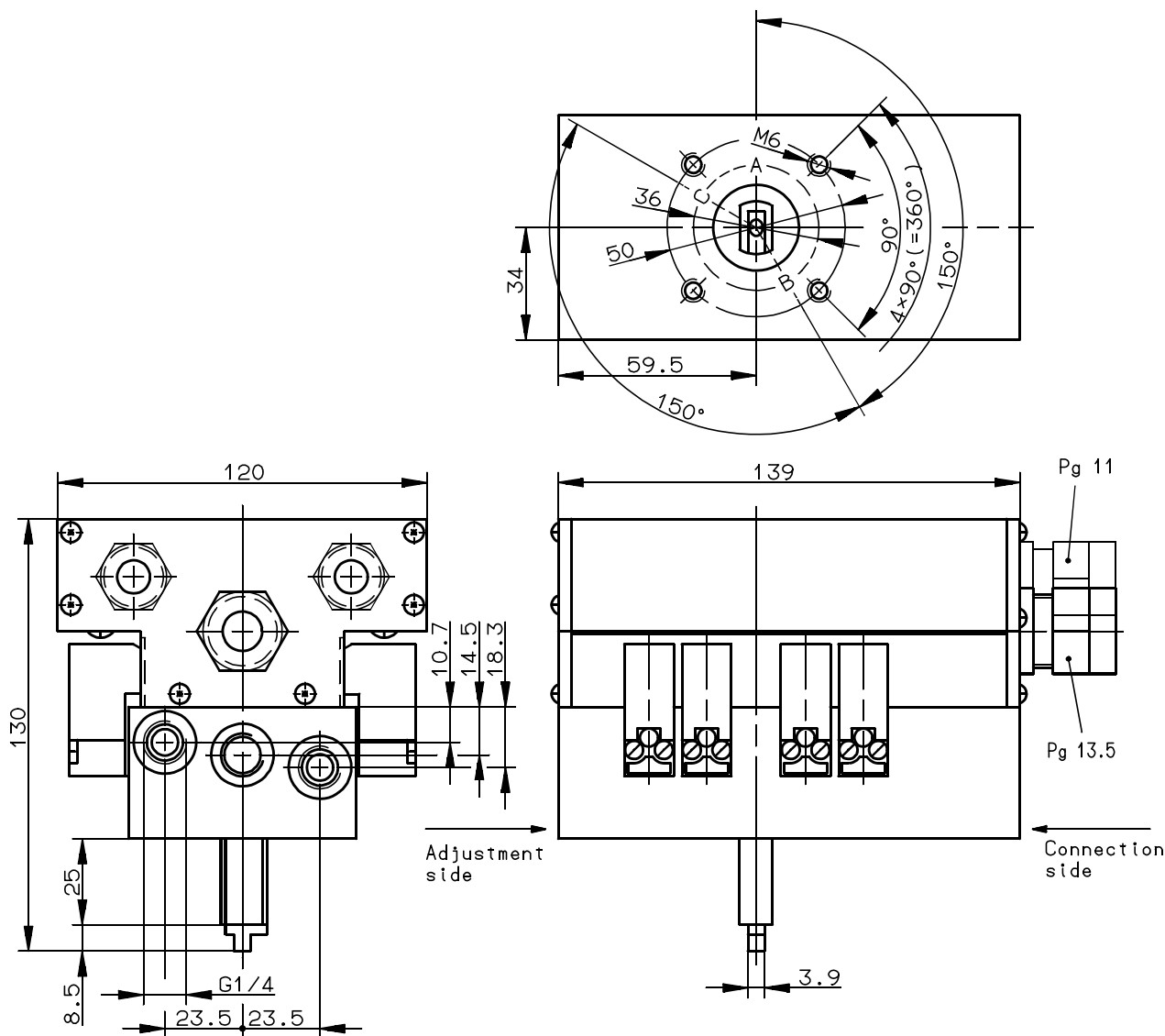
<sup>2)</sup> Measured at 6 bar and  $\Delta p$  1 bar

<sup>3)</sup> BVA = Booster valve control

## Block diagram



## Dimensional drawing



## Accessories

| Designation                                                                                                                                                                                                   | Cat. No.            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| <b>Preparation of compressed air</b><br>Filter cartridge for threads G 1/4 and 1/4-18 NPT                                                                                                                     | <b>0681173</b>      |
| <b>Booster valve assly.</b><br>consisting of:<br><br>5/3 directional control valve, port size G 1/4, flanged, solenoid pilot operated,<br>operating pressure 3 ... 10 bar, $k_v$ -value 0.9 (= $C_v$ US 1.08) | <b>2636447.0240</b> |
| Base assly., port size G 1/4, flanged, with mounting bolts, O-rings, coding stud and seal                                                                                                                     | <b>0540109</b>      |
| Double distributor<br>for solenoid valves with connector to DIN 43650 A                                                                                                                                       | <b>0587538</b>      |
| <b>Add-on unit</b><br>for linear drives to IEC 534-6 (NAMUR)                                                                                                                                                  | <b>0728931</b>      |
| for linear drives to IEC 534      Size I                                                                                                                                                                      | <b>0681251</b>      |
| Size II                                                                                                                                                                                                       | <b>0681252</b>      |
| Size III                                                                                                                                                                                                      | <b>0681253</b>      |
| Size IV                                                                                                                                                                                                       | <b>0681254</b>      |