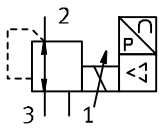


# Proportional pressure regulators MPPES



# Proportional pressure regulators MPPES

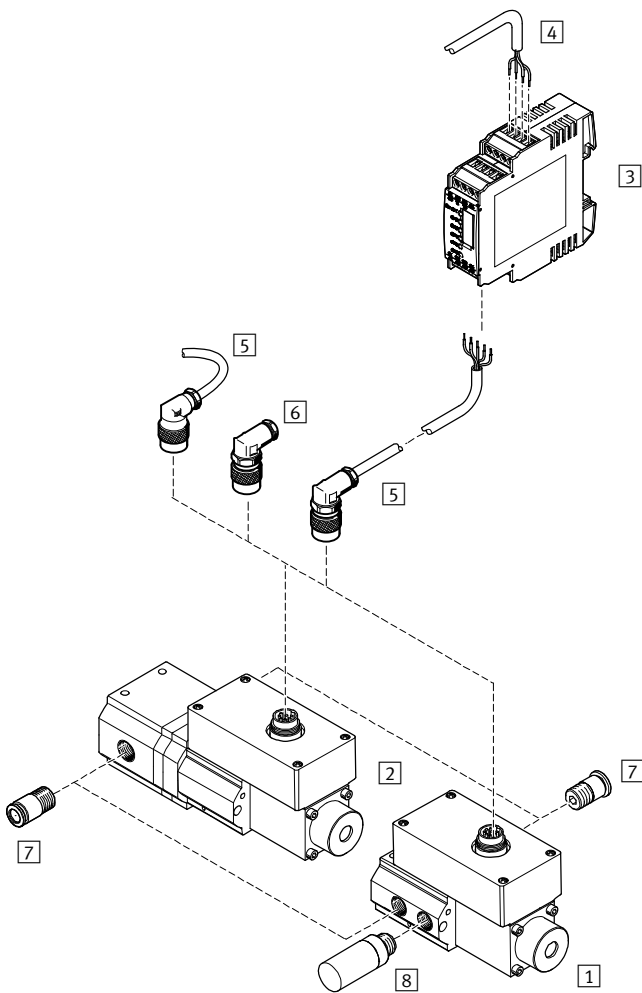
Product range overview

| Function                         | Type                       | Circuit symbol  | Design                  | Pneumatic connection 1 | Nominal size<br>pressurise/<br>exhaust<br>[mm] | Pressure regulation range <sup>1)</sup><br>[bar] | Setpoint input             |                             | → Page/<br>Internet |
|----------------------------------|----------------------------|---|-------------------------|------------------------|--|--|----------------------------|-----------------------------|---------------------|
|                                  |                            |   |                         |                        |  |  | Voltage type<br>0 ... 10 V | Current type<br>4 ... 20 mA |                     |
| Proportional pressure regulators | With proportional solenoid |   |                         |                        |  |  |                            |                             |                     |
|                                  | MPPES                      |  | Directly actuated valve | G1/8                   | 3/2  | 0 ... 2<br>0 ... 6<br>0 ... 10                   | ■                          | ■                           | 5                   |
|                                  |                            |   | Pilot-actuated valve    | G1/4                   | 7/7  |  | ■                          | ■                           |                     |
|                                  |                            |   |                         | G1/2                   | 11/12  |  | ■                          | ■                           |                     |

1) Pressure regulation range also by customer request

# Proportional pressure regulators MPPES

Peripherals overview



| Accessories |                                 |             |   |    |
|-------------|---------------------------------|-------------|---|----|
|             | Type                            | Description | → Page/Internet                             |    |
| 1           | Proportional pressure regulator | MPPES       | Directly controlled                         | 5  |
| 2           | Proportional pressure regulator | MPPES       | Indirectly controlled                       | 5  |
| 3           | Setpoint module MPZ             | MPZ         | For generating 6+1 analogue voltage signals | 10 |
| 4           | Digital input/output            | -           | For controlling the setpoint module         | -  |
| 5           | Plug socket with cable          | KMPE-B      | -   | 10 |
| 6           | Angled socket                   | MPPE-3-B    | -   | 10 |
| 7           | Push-in fitting                 | QS          | For connecting compressed air tubing        | qs |
| 8           | Silencer                        | U           | For fitting in exhaust ports                | u  |

# Proportional pressure regulators MPPES

Type codes

## Basic version


|                                  |  |       |   |   |   |     |   |   |   |     |
|----------------------------------|--|-------|---|---|---|-----|---|---|---|-----|
|                                  |  | MPPES | - | 3 | - | 1/8 | - | 1 | - | 010 |
| <b>Type</b>                      |  |       |   |   |   |     |   |   |   |     |
| MPPES                            | Proportional pressure regulator with proportional solenoid |       |   |   |   |     |   |   |   |     |
| <b>Valve function</b>            |  |       |   |   |   |     |   |   |   |     |
| 3                                | 3-way pressure regulator                                   |       |   |   |   |     |   |   |   |     |
| <b>Pneumatic connection</b>      |  |       |   |   |   |     |   |   |   |     |
| 1/8                              | Female thread G1/8   |       |   |   |   |     |   |   |   |     |
| 1/4                              | Female thread G1/4   |       |   |   |   |     |   |   |   |     |
| 1/2                              | Female thread G1/2   |       |   |   |   |     |   |   |   |     |
| <b>Pressure regulation range</b> |  |       |   |   |   |     |   |   |   |     |
| 2                                | 0 ... 2 bar  |       |   |   |   |     |   |   |   |     |
| 6                                | 0 ... 6 bar  |       |   |   |   |     |   |   |   |     |
| 10                               | 0 ... 10 bar   |       |   |   |   |     |   |   |   |     |
| <b>Analogue setpoint input</b>   |  |       |   |   |   |     |   |   |   |     |
| 010                              | 0 ... 10 V   |       |   |   |   |     |   |   |   |     |
| 420                              | 4 ... 20 mA  |       |   |   |   |     |   |   |   |     |


## Special pressure regulation range by customer request


|   |  |       |   |   |   |     |   |   |   |   |   |     |
|---|--|-------|---|---|---|-----|---|---|---|---|---|-----|
|   |  | MPPES | - | 3 | - | 1/8 | - | 2 | - | 4 | - | 010 |
| <b>Type</b>                                     |  |       |   |   |   |     |   |   |   |   |   |     |
| MPPES   | Proportional pressure regulator with proportional solenoid |       |   |   |   |     |   |   |   |   |   |     |
| <b>Valve function</b>                           |  |       |   |   |   |     |   |   |   |   |   |     |
| 3   | 3-way pressure regulator                                   |       |   |   |   |     |   |   |   |   |   |     |
| <b>Pneumatic connection</b>                     |  |       |   |   |   |     |   |   |   |   |   |     |
| 1/8   | Female thread G1/8   |       |   |   |   |     |   |   |   |   |   |     |
| 1/4   | Female thread G1/4   |       |   |   |   |     |   |   |   |   |   |     |
| 1/2   | Female thread G1/2   |       |   |   |   |     |   |   |   |   |   |     |
| <b>Required pressure at 0 V or 4 mA [bar]</b>   |  |       |   |   |   |     |   |   |   |   |   |     |
| <b>Required pressure at 10 V or 20 mA [bar]</b> |  |       |   |   |   |     |   |   |   |   |   |     |
| <b>Analogue setpoint input</b>                  |  |       |   |   |   |     |   |   |   |   |   |     |
| 010   | 0 ... 10 V   |       |   |   |   |     |   |   |   |   |   |     |
| 420   | 4 ... 20 mA  |       |   |   |   |     |   |   |   |   |   |     |

# Proportional pressure regulators MPPES

## Technical data

-  Flow rate  
230 ... 8500 l/min

-  Voltage  
18 ... 30 V DC

-  Pressure regulation range  
0 ... 2 bar  
0 ... 6 bar  
0 ... 10 bar

### Variants

- Setpoint input as analogue voltage signal 0 ... 10 V
- Setpoint input as analogue current signal 4 ... 20 mA

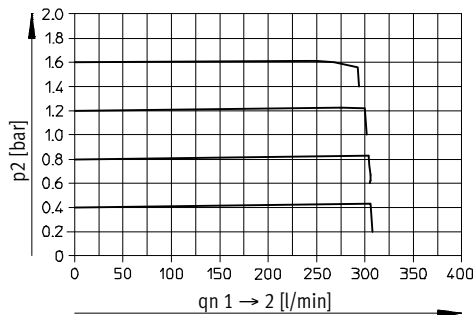


| General technical data     |                |                                    |                                 |      |      |
|----------------------------|----------------|------------------------------------|---------------------------------|------|------|
| Pneumatic connection       |                | G1/8                               | G1/4                            | G1/2 |      |
| Design                     |                | Directly actuated piston regulator | Pilot-actuated piston regulator |      |      |
| Sealing principle          |                | Soft                               |                                 |      |      |
| Actuation type             |                | Electrical                         |                                 |      |      |
| Type of mounting           |                | Via through-hole                   |                                 |      |      |
| Mounting position          |                | Any                                |                                 |      |      |
| Nominal size               | Pressurisation | [mm]                               | 3                               | 7    | 11   |
|                            | Exhaust        | [mm]                               | 2                               | 7    | 12   |
| Standard nominal flow rate |                | [l/min]                            | → Graphs                        |      |      |
| Product weight             |                | [g]                                | 915                             | 1310 | 2670 |

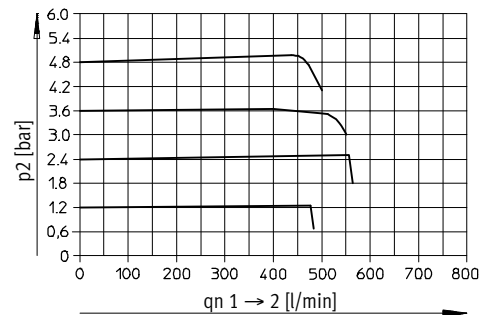
### Flow rate $q_n$ as a function of output pressure $p_2$

Pneumatic connection G1/8

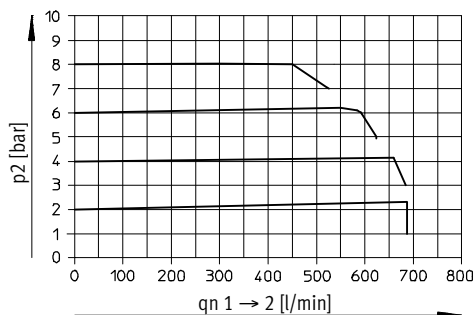
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



# Proportional pressure regulators MPPES

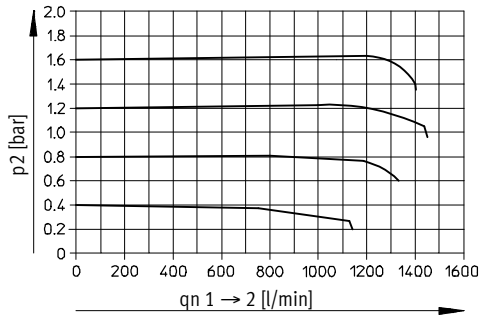
Technical data

FESTO

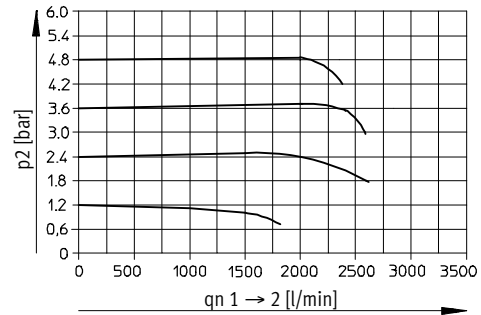
## Flow rate $q_n$ as a function of output pressure $p_2$

Pneumatic connection G1/4

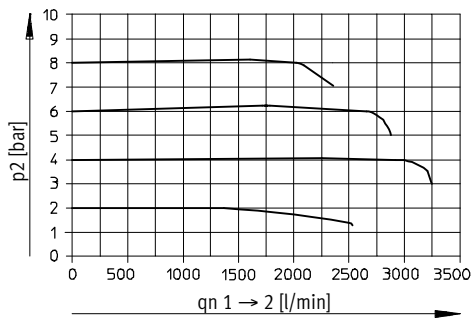
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar

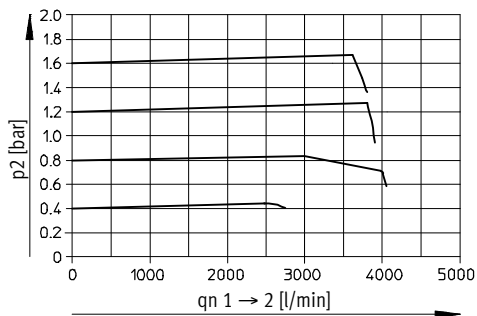


Pressure regulation range 0 ... 10 bar

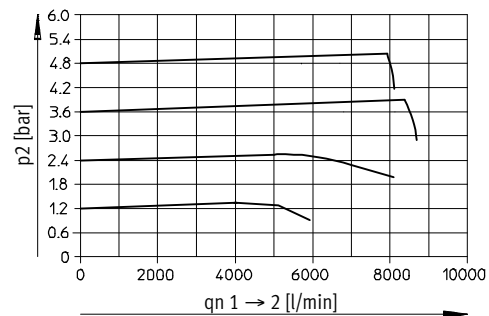


Pneumatic connection G1/2

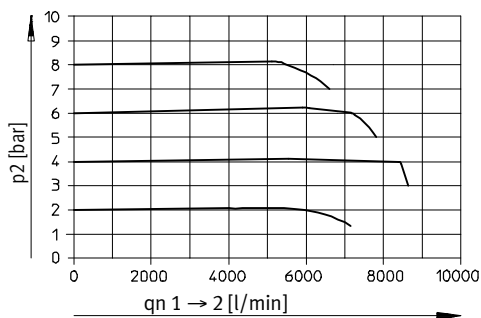
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



# Proportional pressure regulators MPPES

Technical data


| Operating and environmental conditions |       |  |         |           |
|--|-------|--|---------|-----------|
| Pressure regulation range              | [bar] | 0 ... 2  | 0 ... 6 | 0 ... 10  |
| Operating medium                       |       | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]<br>Inert gases                               |         |           |
| Note on operating/pilot medium         |       | Operation with lubricated medium possible (in which case lubricated operation will always be required) |         |           |
| Supply pressure 1                      | [bar] | 3 ... 4  | 7 ... 8 | 11 ... 12 |
| Max. pressure hysteresis               | 1/8"  | [mbar]   | 10      |           |
|  | 1/4"  | [mbar]   | 50      |           |
|  | 1/2"  | [mbar]   | 50      |           |
| Ambient temperature                    | [°C]  | 0 ... 50   |         |           |
| Temperature of medium                  | [°C]  | 0 ... 60   |         |           |
| Corrosion resistance class CRC         |       | 2 <sup>1)</sup>  |         |           |
| Certification                          |       | C-Tick   |         |           |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

| Electrical data                  |  |   |  |          |
|----------------------------------|--|---|--|----------|
| Pressure regulation range        | [bar]                                      | 0 ... 2   | 0 ... 6  | 0 ... 10 |
| Electrical connection            |  | Plug, round design to DIN 45 326, M16 x 0.75, 8-pin |  |          |
| Operating voltage range          | U <sub>B</sub>                             | [V DC]  | 18 ... 30  |          |
| Residual ripple                  |  |   | 10%  |          |
| Power consumption                | P <sub>max.</sub>                          | [W]   | 20 (at 30 V DC)  |          |
| Setpoint input signal            | Voltage                                    | V <sub>w</sub>                                      | [V DC]   | 0 ... 10 |
|                                  | Current                                    | I <sub>w</sub>                                      | [mA]   | 4 ... 20 |
| Actual value output signal       | Voltage                                    | V <sub>x</sub>                                      | [V DC]   | 0 ... 10 |
|                                  | Current                                    | I <sub>x</sub>                                      | [mA]   | 4 ... 20 |
| Protection class to DIN 60 529   |  |   | IP65 (with connection socket)  |          |
| Safety note                      |  |   | Output pressure is not maintained if the power supply cable is interrupted |          |
| Reverse polarity protection      | Setpoint input, voltage signal 0 ... 10 V  |   | For all electrical connections   |          |
|                                  | Setpoint input, current signal 4 ... 20 mA |   | For operating voltage  |          |
| Protection against short circuit |  |   | Yes, for the types with voltage signal as setpoint input                   |          |

| Materials         |                         |
|-------------------|-------------------------|
| Housing           | Wrought aluminium alloy |
| Seals             | NBR                     |
| Note on materials | RoHS-compliant          |

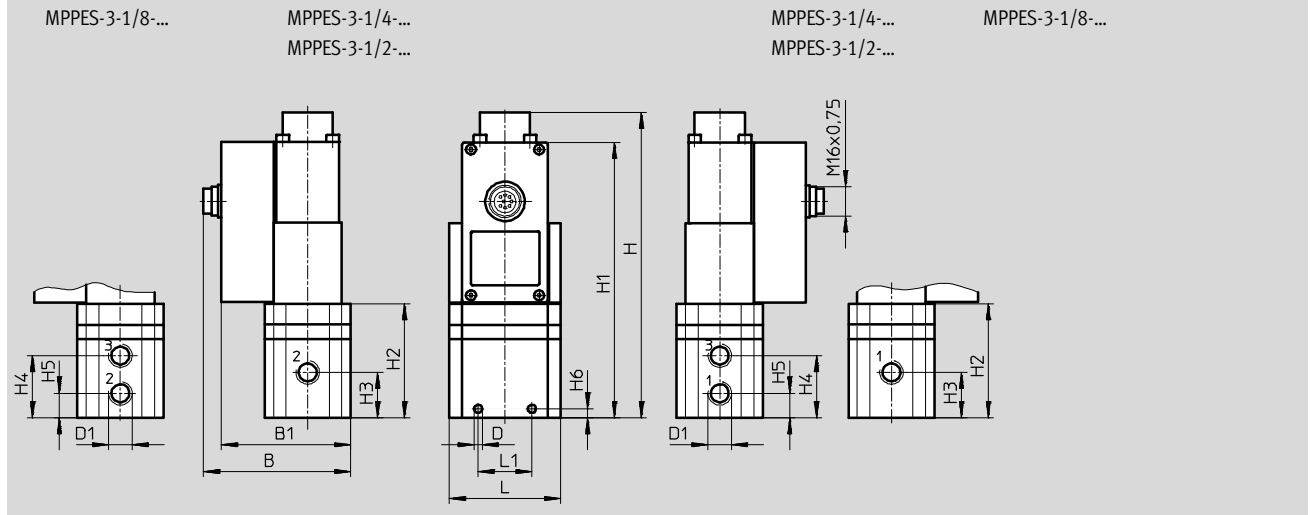
 Note  
The working line is vented if the power supply cable is interrupted.

# Proportional pressure regulators MPPES

Technical data

FESTO

Dimensions Download CAD data → [www.festo.com](http://www.festo.com)

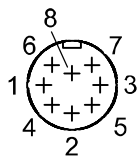


| Connection D1 | B    | B1   | ∅D  | H     | H1    | H2    | H3   | H4   | H5   | H6 | L  | L1 |
|---------------|------|------|-----|-------|-------|-------|------|------|------|----|----|----|
| G1/8          | 77.1 | 67.1 | 4.4 | 116.5 | 100   | 55    | 34   | 45   | 23   | 4  | 62 | 34 |
| G1/4          | 82.1 | 72.1 | 4.5 | 170.2 | 153.7 | 63.7  | 25.3 | 34.8 | 13.8 | 5  | 62 | 30 |
| G1/2          | 96.1 | 86.1 | 7   | 227.1 | 210.6 | 120.6 | 53   | 74   | 32   | 18 | 86 | 50 |

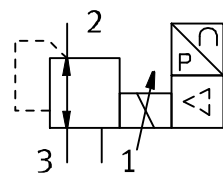
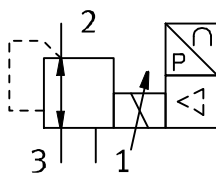
Connections Switching function

Pin allocation

MPPES-3-1/8... MPPES-3-1/4-.../MPPES-3-1/2-...



- 1 WH n.c.
- 2 BN GND
- 3 GN GND
- 4 YE  $W_{in}$  (setpoint input)
- 5 GY n.c.
- 6 PK  $X_{out}$  (actual value output)
- 7 RD 24 V DC (supply voltage)
- 8 BU GND





# Proportional pressure regulators MPPES



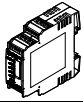
Technical data

| Ordering data                               |                                 |                         |                              |                          |                              |
|---|---------------------------------|-------------------------|------------------------------|--------------------------|------------------------------|
| Pneumatic connection                        | Pressure regulation range [bar] | Voltage type 0 ... 10 V |                              | Current type 4 ... 20 mA |                              |
|   |                                 | Part No.                | Type                         | Part No.                 | Type                         |
| <b>Basic version</b>                        |                                 |                         |                              |                          |                              |
| G1/8  | 0 ... 2                         | <b>187350</b>           | <b>MPPES-3-1/8-2-010</b>     | <b>187351</b>            | <b>MPPES-3-1/8-2-420</b>     |
|   | 0 ... 6                         | <b>187352</b>           | <b>MPPES-3-1/8-6-010</b>     | <b>187353</b>            | <b>MPPES-3-1/8-6-420</b>     |
|   | 0 ... 10                        | <b>187348</b>           | <b>MPPES-3-1/8-10-010</b>    | <b>187349</b>            | <b>MPPES-3-1/8-10-420</b>    |
| G1/4  | 0 ... 2                         | <b>187335</b>           | <b>MPPES-3-1/4-2-010</b>     | <b>187336</b>            | <b>MPPES-3-1/4-2-420</b>     |
|   | 0 ... 6                         | <b>187337</b>           | <b>MPPES-3-1/4-6-010</b>     | <b>187338</b>            | <b>MPPES-3-1/4-6-420</b>     |
|   | 0 ... 10                        | <b>187333</b>           | <b>MPPES-3-1/4-10-010</b>    | <b>187334</b>            | <b>MPPES-3-1/4-10-420</b>    |
| G1/2  | 0 ... 2                         | <b>187328</b>           | <b>MPPES-3-1/2-2-010</b>     | <b>187329</b>            | <b>MPPES-3-1/2-2-420</b>     |
|   | 0 ... 6                         | <b>187330</b>           | <b>MPPES-3-1/2-6-010</b>     | <b>187331</b>            | <b>MPPES-3-1/2-6-420</b>     |
|   | 0 ... 10                        | <b>187326</b>           | <b>MPPES-3-1/2-10-010</b>    | <b>187327</b>            | <b>MPPES-3-1/2-10-420</b>    |
| <b>Special adaptation type<sup>1)</sup></b> |                                 |                         |                              |                          |                              |
| G1/8  | 0 ... 10                        | <b>187347</b>           | <b>MPPES-3-1/8-PU-PO-010</b> | <b>187762</b>            | <b>MPPES-3-1/8-PU-PO-420</b> |
| G1/4  | 0 ... 10                        | <b>187339</b>           | <b>MPPES-3-1/4-PU-PO-010</b> | <b>187744</b>            | <b>MPPES-3-1/4-PU-PO-420</b> |
| G1/2  | 0 ... 10                        | <b>187332</b>           | <b>MPPES-3-1/2-PU-PO-010</b> | <b>187735</b>            | <b>MPPES-3-1/2-PU-PO-420</b> |

1) The special adaptation type allows a lower pressure PU to be assigned to the setpoint 0 V or 4 mA and an upper pressure PO to be assigned to the setpoint 10 V or 20 mA. PU and PO by customer request.

# Proportional pressure regulators MPPES

Accessories

| Ordering data  |  |                  |               |                            |
|--|--|------------------|---------------|----------------------------|
|  | Description  | Cable length [m] | Part No.      | Type                       |
| Plug socket with cable <span style="float: right;">Technical data → Internet: kmppe-b</span> |  |                  |               |                            |
|             | <ul style="list-style-type: none"> <li>Angled socket, M16x0.75, 8-pin</li> <li>Open end, 8-wire</li> </ul>           | 2.5              | <b>161879</b> | <b>KMPPE-B-2,5</b>         |
|  |  | 5                | <b>161878</b> | <b>KMPPE-B-5</b>           |
| Angled socket <span style="float: right;">Technical data → Internet: mppe</span>             |  |                  |               |                            |
|             | <ul style="list-style-type: none"> <li>Angled socket, M16x0.75, 8-pin</li> <li>Soldered connection, 8-pin</li> </ul> | –                | <b>161839</b> | <b>MPPE-3-B</b>            |
| Setpoint module <span style="float: right;">Technical data → Internet: mpz</span>            |  |                  |               |                            |
|             | Setpoint module for generating 6 + 1 analogue voltage signals  | –                | <b>546224</b> | <b>MPZ-1-24DC-SGH-6-SW</b> |