Product Information

Universal gripper PGN–plus 240
Universal gripper PGN–plus

Universal 2-finger parallel gripper with a high gripping force and high maximum moments due to the use of a multi-tooth guidance.

Field of application
Optimal standard solution for many fields of application. For universal use in clean to slightly dirty environments. Special versions available for dirty environments.

Advantages – Your benefits
Robust multi-tooth guidance for precise handling
High maximum moments possible suitable for using long gripper fingers
Drive concept oval piston for maximum gripping forces
Mounting from two sides in three screw directions for universal and flexible gripper assembly
Air supply via hose-free direct connection or screw connections for universal and flexible gripper assembly
Comprehensive sensor accessory program for versatile querying possibilities and stroke position monitoring
Compact dimensions for minimal interfering contours in handling
Manifold options for special optimization for your specific case of application (dust-tight, high-temperature, corrosion-protected, and much more)

Sizes
Quantity: 11

Weight
0.08 .. 39.5 kg

Gripping force
123 .. 21150 N

Stroke per jaw
2 .. 45 mm

Workpiece weight
0.62 .. 80.5 kg
**Functional description**

The oval piston is moved up or down by compressed air. The angled active surfaces of the wedge-hook produce a synchronized, parallel jaw motion.

1. **Multi-tooth guidance**
   - Highly loadable, nearly backlash-free base jaw guidance for long finger lengths

2. **Base Jaw**
   - For the connection of workpiece-specific gripper fingers

3. **Sensor system**
   - Brackets for proximity switches and adjustable control cams in the housing

4. **Housing**
   - Is weight-optimized due to the use of high-strength aluminum alloy

5. **Centering and mounting possibilities**
   - For universal assembly of the gripper

6. **Wedge-hook design**
   - For high force transmission and centric gripping
General notes about the series

Operating principle: Wedge gear with surface power transmission

Housing material: Aluminum

Base jaw material: Steel

Actuation: pneumatic, with filtered compressed air as per ISO 8573–1:2010 [7:4:4].

Warranty: 36 months

Longlife: 30 years functional warranty (details can be found online)

Scope of delivery: Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

Gripping force maintenance: possible by using the version with mechanical gripping force maintenance or pressure maintenance valve SDV-P

Gripping force: is the arithmetic sum of the individual force applied to each jaw at distance P (see illustration).

Finger length: is measured from the reference surface as the distance P in direction to the main axis. The maximum permissible finger length applies until the nominal operating pressure is achieved. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

Repeat accuracy: is defined as a distribution of the end position for 100 consecutive strokes.

Workpiece weight: is calculated for force–fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form–fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.

Cleanroom class ISO 14644–1: 5

Application example

Handling gantry with multiple grippers for simultaneous removal of several workpieces

1. 2-finger parallel gripper PGN-plus
2. Linear module CLM
3. Universal linear module LDN
4. Universal linear module Beta
SCHUNK offers more ...

The following components make the product PGN-plus even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.

- Linear module
- Quick change system
- Universal swivel unit
- Compensation unit
- Jaw quick-change system
- Universal intermediate jaw
- Pressure maintenance valve
- Manual change system
- Finger blank
- Flexible position sensor
- Magnetic switches
- Inductive proximity switches

For more information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

Options and special information

Gripping force maintenance version AS/IS: The mechanical gripping force maintenance version ensures minimum gripping force even in the event of a pressure drop. In the AS/IS version this acts as a closing force, in the IS version as an opening force.

Anti-corrosion version K: for use in corrosion-inducing atmospheres
High-temperature version VIHT: for use in hot environments
Force intensified version KVZ: if higher gripping forces are required
Precision version P: for the highest accuracy
ATEX version EX: for explosive environments
Dust-tight version SD: absolutely dust-tight, increased degree of protection against ingress of materials.
Additional versions: Various options can be combined with each other.
SCHUNK gripper PGN-plus

Overview Accessories
1. **PGN-plus**
   Universal 2-finger parallel gripper with a high gripping force and high maximum moments due to the use of a multi-tooth guidance

**Sensor system**

2. **IN ...**
   Inductive proximity switch with molded cable and straight cable outlet

3. **IN ...-SA**
   Inductive proximity switch with molded cable and lateral cable outlet

4. **IN-C 80**
   Inductive proximity switch, directly pluggable

5. **FPS**
   Flexible position sensor for monitoring up to five different, freely selectable positions

6. **APS-Z80**
   Inductive position sensor for precise position detection of the gripper jaws with analog output

7. **APS-MIS**
   Mechanical measuring system for precise position detection of the gripper jaw with analog output

8. **RMS 80**
   Reed switch in round version

9. **MMS 22**
   Magnetic switch with straight cable outlet for monitoring a position

10. **MMS 22-PI1**
    Magnetic switch with straight cable outlet for monitoring a freely programmable position

11. **MMS 22-PI2**
    Magnetic switch with straight cable outlet for monitoring two freely programmable positions

12. **MMS 22-PI1-HD**
    MMS 22-PI1 in robust design

13. **MMS 22-PI2-HD**
    MMS 22-PI2 in robust design

14. **MMS 22-5A**
    Magnetic switch with lateral cable outlet for monitoring a position

15. **MMS 22-PI1-5A**
    Magnetic switch with side cable outlet for monitoring a freely programmable position

16. **MMS-P**
    Magnetic switch with straight cable outlet for monitoring two freely programmable positions

17. **MMS 22-A**
    Analog magnetic switch with straight cable outlet for measuring the gripper jaw position with analog output and teach function

**Complementary products**

18. **RMS 22**
    Reed switch for direct assembly in the C-slot

**Sensor system**

19. **CW5**
    Manual change system with integrated air feed-through for simple exchange of the handling components

20. **TCU**
    Tolerance compensation unit for compensating small tolerances in the plane

21. **SDV-P-E-P**
    Pressure maintenance valve for temporary force and position maintenance

22. **AGE**
    Compensation unit for compensation of large tolerances along the X and Y axes

23. **ASG**
    Adapter plate for combining various automation components in the modular system

24. **CLM**
    Linear module with pneumatic drive and scope-free pre-loaded junction rollers

25. **HUE**
    Sleeve for protection against dirt

**Fingerzubehör**

26. **UZB**
    The universal intermediate jaw allows fast tool-free and reliable plugging and shifting of top jaws at the gripper.

27. **BSWS-AR**
    Adapter coupling of jaw quick-change system for fast, manual change of top jaws

28. **BSWS-B**
    Locking mechanism of the jaw quick-change system for fast, manual exchange of top jaws

29. **BSWS-A**
    Adapter coupling of the jaw quick-change system for adaptation to the customized finger

30. **Customized fingers**

31. **BSWS-ABR**
    Finger blank made of aluminum with interface to the jaw quick-change system

32. **BSWS-SBR**
    Finger blank made of steel with interface to the jaw quick-change system

33. **BSWS-UR**
    Locking mechanism for the integration of the jaw quick-change system into customized fingers

34. **ABR/SBR**
    Finger blanks made of steel or aluminum with standardized screw connection diagram

35. **ZBA**
    Intermediate jaws for reorientation of the mounting surface
Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>PGN-plus 240-1</th>
<th>PGN-plus 240-2</th>
<th>PGN-plus 240-1-AS</th>
<th>PGN-plus 240-2-AS</th>
<th>PGN-plus 240-1-IS</th>
<th>PGN-plus 240-2-IS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>03711108</td>
<td>03711158</td>
<td>0371408</td>
<td>0371458</td>
<td>0371468</td>
<td>0371478</td>
</tr>
<tr>
<td>Stroke per jaw [mm]</td>
<td>30</td>
<td>17</td>
<td>30</td>
<td>17</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td>Closing/opening force [N]</td>
<td>4200/4440</td>
<td>6500/6870</td>
<td>5300/-</td>
<td>8340/-</td>
<td>-5550/-</td>
<td>-18710/-</td>
</tr>
<tr>
<td>Min. spring force [N]</td>
<td>1100</td>
<td>1840</td>
<td>1840</td>
<td>1840</td>
<td>1840</td>
<td>1840</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td>8.5</td>
<td>8.5</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Recommended workpiece weight [kg]</td>
<td>21.5</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Fluid consumption double stroke [cm³]</td>
<td>650</td>
<td>650</td>
<td>810</td>
<td>810</td>
<td>995</td>
<td>995</td>
</tr>
<tr>
<td>Min. nom. max. operating pressure [bar]</td>
<td>2.5/6/8</td>
<td>2.5/6/8</td>
<td>4/6/6.5</td>
<td>6/6/6.5</td>
<td>6/6/6.5</td>
<td>6/6.5</td>
</tr>
<tr>
<td>Min. max. air purge pressure [bar]</td>
<td>0.5/1</td>
<td>0.5/1</td>
<td>0.5/1</td>
<td>0.5/1</td>
<td>0.5/1</td>
<td>0.5/1</td>
</tr>
<tr>
<td>Closing/opening time [s]</td>
<td>0.45/0.45</td>
<td>0.45/0.45</td>
<td>0.35/0.65</td>
<td>0.35/0.65</td>
<td>0.65/0.35</td>
<td>0.65/0.35</td>
</tr>
<tr>
<td>Closing/opening time with spring [s]</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>Max. permissible finger length [mm]</td>
<td>320</td>
<td>280</td>
<td>280</td>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Max. permissible mass per finger [kg]</td>
<td>8.5</td>
<td>8.5</td>
<td>8.5</td>
<td>8.5</td>
<td>8.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Protection class IP</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Repeat accuracy [mm]</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Dimensions X x Y x Z [mm]</td>
<td>270 x 115 x 107</td>
<td>270 x 115 x 107</td>
<td>270 x 115 x 163.5</td>
<td>270 x 115 x 163.5</td>
<td>270 x 115 x 163.5</td>
<td>270 x 115 x 163.5</td>
</tr>
</tbody>
</table>

Options and their characteristics

- Dust-tight version: 37371108 37371158 37371408 37371458 37371468 37371478
- Protection class IP: 6k 6k 6k 6k 6k 6k
- Weight [kg]: 11.4 11.4 14.4 14.4 14.4 14.4
- Anti-corrosion version: 38371108 38371158 38371408 38371458 38371468 38371478
- High-temperature version: 39371108 39371158 39371408 39371458 39371468 39371478
- Min. max. ambient temperature [°C]: 5/130 5/130 5/130 5/130 5/130 5/130
- Precision version: 03711128 03711178 0371428 0371443

It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.
Main view

The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

1. The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

Maximum permitted finger projection

The curve applies for stroke version 1. For other versions, the curve must be parallely off-set to the max. permissible finger length.
Hose-free direct connection M5

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS

The mechanical gripping force maintenance device ensures that a minimum clamping force will be applied even if there is a drop in pressure. This acts as closing force in the AS / S version, and as opening force in the IS version. Besides this, the gripping force maintenance device can be used to increase the gripping force or for single actuated gripping.

Dust-tight version

The dust cover option increases the protection against external particles. The assembly diagram shifts by the height of the intermediate jaw. The finger length is still measured from the upper edge of the gripper housing.

Precision version

The indicated tolerances just refer to the variants of precision versions shown in the chart of technical specifications. All other variants of precision versions are available on request.
SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Recommended hose diameter [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDV-P 07</td>
<td>0403131</td>
<td>8</td>
</tr>
<tr>
<td>SDV-P 07-E</td>
<td>0300121</td>
<td>8</td>
</tr>
<tr>
<td>SDV-P 10-E</td>
<td>0300109</td>
<td>10</td>
</tr>
</tbody>
</table>

BSWS jaw quick-change jaw systems

There are various jaw quick-change systems available for the gripper. For detailed information, please refer to the corresponding product.

Only systems that are listed in the table, can be used.

Fields of application

<table>
<thead>
<tr>
<th>Series</th>
<th>Size</th>
<th>Variant</th>
<th>Suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGN-plus</td>
<td>240</td>
<td>=1 (6 bar)</td>
<td>■■■■</td>
</tr>
<tr>
<td>PGN-plus</td>
<td>240</td>
<td>=1-AS / =1-IS (6 bar)</td>
<td>■■■■</td>
</tr>
<tr>
<td>PGN-plus</td>
<td>240</td>
<td>=2 (6 bar)</td>
<td>■■■■</td>
</tr>
<tr>
<td>PGN-plus</td>
<td>240</td>
<td>=2-AS / =2-IS (6 bar)</td>
<td>■■■■</td>
</tr>
</tbody>
</table>

Legend

■■■■ Can be combined without restrictions
■■■■ Use with restrictions (see loading limits)
□□□□ cannot be combined

The load limits for describing the application limits can be found in the catalog chapter of the corresponding accessories.

If the operating pressure is higher than 6 bar, suitability for use above the application limits must be checked.
PGN-plus 240
Universal gripper

ZBA-L-plus 240 intermediate jaws

The optional ZBA-L-plus intermediate jaws allow the screw connection diagram of the top jaws to be rotated by 90°. This makes it easier to design and produce top jaws (particularly for long versions) because no deep through-bores are required.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Material</th>
<th>Scope of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediate jaw</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZBA-L-plus 240</td>
<td>0311782</td>
<td>Aluminum</td>
<td>PGN-plus 240</td>
</tr>
</tbody>
</table>

Finger blanks ABR- / SBR-PGZN-plus 240

The drawing shows the finger blank which can be reworked by the customer.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Material</th>
<th>Scope of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger blank</td>
<td>0300017</td>
<td>Aluminum</td>
<td>1</td>
</tr>
<tr>
<td>SBR-PGZN-plus 240</td>
<td>0300027</td>
<td>Steel</td>
<td>1</td>
</tr>
</tbody>
</table>

Tolerance compensation unit TCU

Grippers can be directly mounted without an adapter plate. Tolerance compensation unit and gripper have an identical screw connection diagram. Therefore the tolerance compensation units can be assembled later. Please consider the additional assembly height of the tolerance compensation unit. For details please refer to our catalog robot accessories.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Locking</th>
<th>Deflection</th>
<th>Often combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compensation unit</td>
<td></td>
<td>yes</td>
<td>±1°/±1.5°/±1°</td>
<td></td>
</tr>
<tr>
<td>TCU-P-240-3-MW</td>
<td>0324730</td>
<td>yes</td>
<td>±1°/±1.5°/±1°</td>
<td></td>
</tr>
<tr>
<td>TCU-P-240-3-OV</td>
<td>0324731</td>
<td>no</td>
<td>±1°/±1.5°/±1°</td>
<td></td>
</tr>
</tbody>
</table>
## Inductive Proximity Switches

The image shows a diagram of an inductive proximity switch with labeled parts:

- **Cable outlet:** 17
- **Sensor IN..-SA:** 91

### Description

- **Inductive proximity switches**
  - IN 80-S-M12 0301578
  - IN 80-S-M8 0301478
  - INK 80-S 0301550

- **Inductive proximity switch with lateral cable outlet**
  - IN 80-S-M12-SA 0301587
  - IN 80-S-M8-SA 0301483
  - INK 80-S-SA 0301566

- **Cable extension**
  - KV BG12-SG12 3P-0030-PNP 0301999
  - KV BG12-SG12 3P-0060-PNP 0301998
  - KV BW08-SG08 3P-0030-PNP 0301495
  - KV BW08-SG08 3P-0100-PNP 0301496
  - KV BW08-SG08 3P-0200-PNP 0301497
  - KV BW12-SG12 3P-0030-PNP 0301595
  - KV BW12-SG12 3P-0100-PNP 0301596
  - KV BW12-SG12 3P-0200-PNP 0301597

- **Clip for plug/socket**
  - CLI-M12 0301464
  - CLI-M8 0301463

- **Connection cables**
  - KA BG08-L 3P-0300-PNP 0301622
  - KA BG08-L 3P-0500-PNP 0301623
  - KA BG12-L 3P-0500-PNP 30016369
  - KA BW08-L 3P-0300-PNP 0301594
  - KA BW08-L 3P-0500-PNP 0301502
  - KA BW12-L 3P-0300-PNP 0301503
  - KA BW12-L 3P-0500-PNP 0301507

- **Sensor distributor**
  - V2-M12 0301776
  - V2-M8 0301775
  - V4-M12 0301747
  - V4-M8 0301746
  - V8-M12 0301752
  - V8-M8 0301751

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Directly mounted end position monitoring.

- **Two sensors are required per unit for monitoring two positions.**
- On option, extension cables and sensor distributors are available.
- Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.
### Flexible position sensor

Flexible position monitoring of up to five positions.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment kit for FPS</td>
<td></td>
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<tr>
<td>AS-FPS-PGZN-plus 240-1</td>
<td>0301643</td>
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<tr>
<td>AS-FPS-PGZN-plus 240-2</td>
<td>0301644</td>
</tr>
<tr>
<td>Sensor</td>
<td></td>
</tr>
<tr>
<td>FPS-S M8</td>
<td>0301704</td>
</tr>
<tr>
<td>Cable extension</td>
<td></td>
</tr>
<tr>
<td>KV BG08-SG08 3P-0050</td>
<td>0301598</td>
</tr>
<tr>
<td>KV BG08-SG08 3P-0100</td>
<td>0301599</td>
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<tr>
<td>Evaluation electronics</td>
<td></td>
</tr>
<tr>
<td>FPS-F5</td>
<td>0301805</td>
</tr>
</tbody>
</table>

1. When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter "Accessories."

### Electronic magnetic switch MMS

End position monitoring for mounting in the C-slot.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Often combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic magnetic switch</td>
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<td></td>
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<tr>
<td>MMS 22-S-MB-PNP</td>
<td>0301032</td>
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<tr>
<td>MMSK 22-S-PNP</td>
<td>0301034</td>
<td></td>
</tr>
<tr>
<td>Electronic magnetic switches with lateral cable outlet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMS 22-S-MB-PNP-SA</td>
<td>0301042</td>
<td></td>
</tr>
<tr>
<td>MMSK 22-S-PNP-SA</td>
<td>0301044</td>
<td></td>
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<tr>
<td>Reed Switches</td>
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<td></td>
</tr>
<tr>
<td>RMS 22-S-MB</td>
<td>0377720</td>
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<tr>
<td>Cable extension</td>
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<td></td>
</tr>
<tr>
<td>KV BW08-SG08 3P-0030-PNP</td>
<td>0301495</td>
<td></td>
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<tr>
<td>KV BW08-SG08 3P-0100-PNP</td>
<td>0301496</td>
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<tr>
<td>KV BW08-SG08 3P-0200-PNP</td>
<td>0301497</td>
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<tr>
<td>clip for plug/socket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLI-MB</td>
<td>0301463</td>
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<tr>
<td>Connection cables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KA BG08-L 3P-0100-PNP</td>
<td>0301622</td>
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<td>KA BG08-L 3P-0500-PNP</td>
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<td>KA BW08-L 3P-0100-PNP</td>
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<tr>
<td>KA BW08-L 3P-0500-PNP</td>
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<tr>
<td>Sensor distributor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V2-MB</td>
<td>0301775</td>
<td></td>
</tr>
<tr>
<td>V4-MB</td>
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<tr>
<td>VB-MB</td>
<td>0301751</td>
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<tr>
<td>Wireless sensor system</td>
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<tr>
<td>RSS-T2</td>
<td>0377715</td>
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</tr>
<tr>
<td>RSS-T2-US/CA</td>
<td>0377717</td>
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</tr>
</tbody>
</table>

1. Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available.

Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.
Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

### Description ID Often combined

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Often combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmable magnetic switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMS 22-PI1-S-M8-PNP</td>
<td>0301160</td>
<td>●</td>
</tr>
<tr>
<td>MMSK 22-PI1-S-PNP</td>
<td>0301162</td>
<td></td>
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<tr>
<td>Programmable magnetic switch with stainless steel housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMS 22-PI1-S-M8-PNP-ND</td>
<td>0301110</td>
<td>●</td>
</tr>
<tr>
<td>MMSK 22-PI1-S-PNP-ND</td>
<td>0301112</td>
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<tr>
<td>Programmable magnetic switch with lateral cable outlet</td>
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<tr>
<td>MMS 22-PI1-S-M8-PNP-SA</td>
<td>0301166</td>
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<td>MMSK 22-PI1-S-PNP-SA</td>
<td>0301168</td>
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</table>

Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available.

Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

---

APS-Z80 analog position sensor

No-contact measuring, analog multi-position monitoring for any number of positions.

### Description ID Often combined

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Often combined</th>
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<tbody>
<tr>
<td>Mounting kit for APS-Z80</td>
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<tr>
<td>AS-APS-Z80-PGNK-plus 160-1/200-2/240-2</td>
<td>0302113</td>
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<tr>
<td>AS-APS-Z80-PGNK-plus 240-1</td>
<td>0302116</td>
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<tr>
<td>Analog position sensor</td>
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<tr>
<td>APS-Z80-K</td>
<td>0302072</td>
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<tr>
<td>APS-Z80-MB</td>
<td>0302070</td>
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</tbody>
</table>

When using an APS system, one mounting kit (AS-APS-Z80) and one APS-Z80 sensor is required per gripper. The resolution of the sensor can be lower in the peripheral areas of the gripper. You can find further information on the product in the operating manual.
When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1E) are required. An extension cable (APS-K) can be connected between the sensor and the electronics as an option. The max. cable length between the sensor and the electronics is 10 m, between the electronics and their control unit (PLC) it is max. 1 m.

End position monitoring can be mounted with an attachment kit.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment kit for proximity switch</td>
<td>0377727</td>
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<tr>
<td>Reed Switches</td>
<td>0377721</td>
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</tbody>
</table>

Two sensors (closerS) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.
Jens Lehmann, German goalkeeper legend, SCHUNK brand ambassador since 2012 for safe, precise gripping and holding.

schunk.com/Lehmann