The all-rounder for position monitoring on cylinders.

**Sensors for Pneumatic Cylinders**

**BMF 305**

**PNP**

<table>
<thead>
<tr>
<th>Rated operating field strength</th>
<th>Assured operating field strength</th>
<th>Hysteresis of</th>
<th>Temperature drift of turn-on point of</th>
<th>Turn-on delay</th>
<th>Turn-off delay</th>
<th>Supply voltage</th>
<th>Voltage drop</th>
<th>Rated insulation voltage</th>
<th>No-load supply current</th>
<th>Polarity reversal protected</th>
<th>Short circuit protected</th>
<th>Ambient temperature range</th>
<th>Utilization category</th>
<th>Degree of protection per IEC 60529</th>
<th>Housing material</th>
<th>Connection</th>
<th>No. of wires x cross-section</th>
<th>Approval</th>
<th>Recommended connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMF 305 without connector</td>
<td>with connector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10...30 V DC</td>
<td>10...30 V DC</td>
<td>yes</td>
<td>yes</td>
<td>–25...+85 °C</td>
<td>DC 13</td>
<td>IP 67</td>
<td>LCP</td>
<td>0.3 m cable (PUR) with connector</td>
<td>cULus</td>
<td>BKS- 48</td>
<td></td>
</tr>
<tr>
<td>BMF 305K-PS-C-2-SA2-SA4-00,3</td>
<td>BMF 305K-PS-C-2-SA2-SA4-00,3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10...30 V DC</td>
<td>10...30 V DC</td>
<td>yes</td>
<td>yes</td>
<td>–25...+85 °C</td>
<td>DC 13</td>
<td>IP 67</td>
<td>LCP</td>
<td>0.2 m cable (PUR) with connector</td>
<td>cULus</td>
<td>BKS- 49</td>
<td></td>
</tr>
<tr>
<td>BMF 305K-PO-C-2-SA2-SA4-00,3</td>
<td>BMF 305K-PO-C-2-SA2-SA4-00,3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75 V DC</td>
<td>75 V DC</td>
<td>yes</td>
<td>yes</td>
<td>–25...+85 °C</td>
<td>DC 13</td>
<td>IP 67</td>
<td>LCP</td>
<td>2 m Cable PUR</td>
<td>cULus</td>
<td>BKS- 19</td>
<td></td>
</tr>
</tbody>
</table>

*Temperature load curve see page 3.0.6

Other cable lengths on request.

**Connector orientation**

**Wiring diagrams**

**NO**

**PNP/cable**

**PNP/connector**

**NPN/cable**

**NPN/connector**

**NC**

**PNP/cable**

**PNP/connector**

**NPN/cable**

**NPN/connector**

**3.1.8 BALLUFF**
The series BMF 305M/315M/32M-...W... is suitable for extreme conditions of use. The housings are metal, making them resistant to weld splatter. Conditions including weld currents of over 25 kA do not affect the function ability of the sensor. The output state of the sensor is stored during AC welding.
Mounting brackets, selection guide, installation for BMF 305

Advantages

- Can be inserted in slot from above. Anytime! Also afterwards! Fast! Saves time!

- Switchpoint can be adjusted in seconds! Turn screw one revolution, adjust position, tighten.

- Switchpoint cannot be lost. Even if you replace the sensor, the adjusted switchpoint is determined by the mounting bracket, not the sensor.

### Ordering code

<table>
<thead>
<tr>
<th>BMF 305-HW-17</th>
<th>Advantages</th>
<th>Cylinder type</th>
<th>Mounting brackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMF 305-HW-20</td>
<td></td>
<td>T-slot</td>
<td></td>
</tr>
<tr>
<td>BMF 305-HW-22</td>
<td></td>
<td>T-slot</td>
<td></td>
</tr>
<tr>
<td>BMF 305-HW-23</td>
<td></td>
<td>T-slot</td>
<td></td>
</tr>
<tr>
<td>BMF 305-HW-24</td>
<td></td>
<td>T-slot</td>
<td></td>
</tr>
<tr>
<td>BMF 305-HW-25</td>
<td></td>
<td>T-slot</td>
<td></td>
</tr>
</tbody>
</table>

### Cylinder type

- T-slot: e.g. Festo, SMC
- T-slot: e.g. Festo, Bosch
- T-slot: e.g. Festo, SMC
- T-slot: e.g. Festo, SMC

### Mounting brackets

- BMF 305-HW-17
- BMF 305-HW-20
- BMF 305-HW-22
- BMF 305-HW-23
- BMF 305-HW-24

### Sensors for Pneumatic Cylinders

- BMF Hex Key

Please order accessories separately see page 5.74

Hex Key Set

BMF Hex Key

Please order accessories separately see page 5.74
Installation notes

1. Insert mounting bracket in slot from front side
2. Insert sensor from above and tighten
3. Position sensor, bolt together mounting bracket

1. Insert mounting bracket into slot from head end
2. Insert sensor from above, position and tighten mounting bracket
3. Bolt together sensor with mounting bracket

1. Insert mounting bracket from above into slot Rotate 90°
2. Insert sensor from above and tighten
3. Position sensor, bolt together mounting bracket

1. Attach mounting bracket to sensor with 1 to 2 turns
2. Insert sensor and mounting bracket from above and tighten (mounting bracket turns also 90°)

1. Place tube cuff on loosely
2. Attach sensor with mounting bracket to tube cuff
3. Position and tighten

Included

Set screw DIN 916 M3×5-A2
Screw DIN 7984 M3×10-A2
Mounting bracket

Set screw DIN 916 M3×4-A2
Screw ISO 1207 M3×6-A2
Mounting bracket also: Screw DIN 7984 M3×6-A2

Screw DIN 912 M3×4-A2
Screw DIN 7984 M3×8-A2
Mounting bracket also: Screw ISO 1207 M3×4-A2
Screw ISO 1207 M3×8-A2

Screw DIN 7984-KL M3×10-A2
Mounting bracket also: Screw ISO 1207-KL M3×10-A2

Screw DIN 7984 M3×8-A2
Mounting bracket

For hose clamp matrix see page 3.8.10
(please order separately)
Mounting brackets, selection guide, installation for BMF 305

Advantages

- Can be installed in the slot from above. Anytime!
- Also afterwards!
- Fast!
- Saves time!

Switchpoint can be adjusted in seconds! Turn screw one revolution, adjust position, tighten.

Switchpoint cannot be lost. Even if you replace the sensor, the adjusted switchpoint is determined by the mounting bracket, not the sensor.

Ordering code | Advantages | Cylinder type | Mounting brackets
--- | --- | --- | ---
BMF 305-HW-25 | | Trapezoidal slot 60°/90° | e.g. Festo, Bosch, Numatics, Hoerbiger-Origa, Norgren-Martonair
BMF 305-HW-26 | T-slot A | e.g. SMC
BMF 305-HW-27 | Trapezoidal guide | e.g. Bosch
BMF 305-HW-32 | C-slot | e.g. Norgren
BMF 305-HW-64 | | e.g. Bosch
BMF 305-HW-21 and BMF 21-HW-8 | | for tie rod cylinders
BMF 305-HW-21 and BMF 21-HW-10 | | for tie rod cylinders (profile shape)

Hex Key Set

Please order accessories separately see page 5.74
### Included

<table>
<thead>
<tr>
<th>Set screw DIN 916 M3×4-A2</th>
<th>Screw DIN 7984 M3×6-A2</th>
<th>Mounting bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese head screw ISO 1207 M3×5 A2</td>
<td>Cheese head screw ISO 1207 M3×14 A2</td>
<td>Mounting bracket</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screws DIN 7984 M3×5-A2</th>
<th>Mounting bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw DIN 912 M3×4-A2</td>
<td>Screw DIN 7984 M3×10-A2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screws DIN 7984 M3×5-A2</th>
<th>Mounting bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMF 305-HW-21 used with BMF 21-HW-8 for attaching to a tie rod cylinder</td>
<td>BMF 305-HW-21 used with BMF 21-HW-10 for attaching to a profile cylinder</td>
</tr>
</tbody>
</table>

### Installation notes

1. Insert mounting bracket from above and rotate 90°
2. Insert sensor, position, tighten mounting bracket
3. Screw sensor to mounting bracket

**T-slot A:** insert mounting bracket, insert sensor from above, position and tighten both screws.

**T-slot B:** insert mounting bracket from above and rotate 90°. Insert sensor from above, position and tighten both screws.

1. Insert mounting bracket from above
2. Insert sensor from above and tighten
3. Position sensor, tighten mounting bracket

1. Insert mounting bracket from above and rotate 90°
2. Insert sensor, position, tighten mounting bracket
3. Screw sensor to mounting bracket

1. Mounting bracket in slot from above
2. Insert sensor from above, position and tighten mounting bracket
3. Bolt together sensor with mounting bracket

1. Mounting bracket in slot from above
2. Insert sensor from above, position and tighten mounting bracket
3. Bolt together sensor with mounting bracket

1. Mounting bracket in slot from above
2. Insert sensor from above, position and tighten mounting bracket
3. Bolt together sensor with mounting bracket

1. Mounting bracket in slot from above
2. Insert sensor from above, position and tighten mounting bracket
3. Bolt together sensor with mounting bracket

**BMF 305-HW-21** used with **BMF 21-HW-8** for attaching to a tie rod cylinder

**BMF 305-HW-21** used with **BMF 21-HW-10** for attaching to a profile cylinder

**PT-Screw KBL 30x8-A2** Mounting bracket

**BMF 305-HW-21** used with **BMF 21-HW-8** for attaching to a tie rod cylinder

**BMF 305-HW-21** used with **BMF 21-HW-10** for attaching to a profile cylinder

**PT-Screw KBL 30x8-A2** Mounting bracket

**PT-Screw KBL 30x8-A2** Mounting bracket
**Sensors for Pneumatic Cylinders**

**BMF 305**
**Reed switches**

<table>
<thead>
<tr>
<th>Series</th>
<th>BMF 305</th>
<th>BMF 305</th>
<th>BMF 305</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DC**  NO, PNP

<table>
<thead>
<tr>
<th>BMF 305K-R-PS-F-3-S49-002</th>
<th>BMF 305K-R-PS-F-3-03</th>
<th>BMF 305K-R-US-L-3-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic field</td>
<td>Magnetic field</td>
<td>Magnetic field</td>
</tr>
<tr>
<td>≤ 0.7 ms</td>
<td>≤ 0.7 ms</td>
<td>≤ 0.7 ms</td>
</tr>
<tr>
<td>≤ 0.2 ms</td>
<td>≤ 0.2 ms</td>
<td>≤ 0.2 ms</td>
</tr>
<tr>
<td>10...30 V DC</td>
<td>10...30 V DC</td>
<td>6...240 V AC/DC</td>
</tr>
<tr>
<td>500 mA</td>
<td>500 mA</td>
<td>10 W</td>
</tr>
<tr>
<td>128 mA at 24 V AC/DC</td>
<td>86 mA at 115 V AC/DC</td>
<td>43 mA at 230 V AC/DC</td>
</tr>
<tr>
<td>–20...+70 °C</td>
<td>–20...+70 °C</td>
<td>–20...+70 °C</td>
</tr>
<tr>
<td>DC 13</td>
<td>DC 13</td>
<td>AC 12/DC 12</td>
</tr>
<tr>
<td>IP 65</td>
<td>IP 65</td>
<td>IP 65</td>
</tr>
<tr>
<td>LCP</td>
<td>LCP</td>
<td>LCP</td>
</tr>
<tr>
<td>0.2 m cable (PUR) with connector</td>
<td>3 m cable, PVC</td>
<td>3 m cable, PVC</td>
</tr>
<tr>
<td>3×0.14 mm²</td>
<td>2×0.18 mm²</td>
<td>cULus</td>
</tr>
</tbody>
</table>

**AC**  NO, DC  NO polarized

<table>
<thead>
<tr>
<th>BMF 305K-R-PS-F-3-S49-002</th>
<th>BMF 305K-R-PS-F-3-03</th>
<th>BMF 305K-R-US-L-3-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic field</td>
<td>Magnetic field</td>
<td>Magnetic field</td>
</tr>
<tr>
<td>≤ 0.7 ms</td>
<td>≤ 0.7 ms</td>
<td>≤ 0.7 ms</td>
</tr>
<tr>
<td>≤ 0.2 ms</td>
<td>≤ 0.2 ms</td>
<td>≤ 0.2 ms</td>
</tr>
<tr>
<td>10...30 V DC</td>
<td>10...30 V DC</td>
<td>6...240 V AC/DC</td>
</tr>
<tr>
<td>500 mA</td>
<td>500 mA</td>
<td>10 W</td>
</tr>
<tr>
<td>128 mA at 24 V AC/DC</td>
<td>86 mA at 115 V AC/DC</td>
<td>43 mA at 230 V AC/DC</td>
</tr>
<tr>
<td>–20...+70 °C</td>
<td>–20...+70 °C</td>
<td>–20...+70 °C</td>
</tr>
<tr>
<td>DC 13</td>
<td>DC 13</td>
<td>AC 12/DC 12</td>
</tr>
<tr>
<td>IP 65</td>
<td>IP 65</td>
<td>IP 65</td>
</tr>
<tr>
<td>LCP</td>
<td>LCP</td>
<td>LCP</td>
</tr>
<tr>
<td>0.2 m cable (PUR) with connector</td>
<td>3 m cable, PVC</td>
<td>3 m cable, PVC</td>
</tr>
<tr>
<td>3×0.14 mm²</td>
<td>2×0.18 mm²</td>
<td>cULus</td>
</tr>
</tbody>
</table>

**Wiring diagrams**

- **DC cable**
- **AC/DC cable**
- **DC connector**

The **reed switches BMF 305K-R-...** have an LED for function indication and as a setup aid. The recovery diode for switching an inductive load is already integrated. For sensing the piston position in pneumatic cylinders you can choose between electronic and mechanical cylinder switches. Select whichever one fits your application.

We’ll be glad to help you.

- Fast and easy to install
- Fits any standard cylinder size using available mounting brackets
- No loss of the switchpoint when replacing a switch

When using reed switches you should verify functionality on the pneumatic cylinder by means of pre-testing.