Conveyor Belt Misalignment Switch
Type MRS 001

Device Identification No.: 91.055 301.001

OPERATING INSTRUCTIONS
CE-Sign and Conformity

The device meets the requirements of the valid European and national regulations. Conformity has been proved, and the corresponding declarations and documents are deposited at the manufacturer.
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1 For your own Safety

1.1 Intended Application

Conveyor belt misalignment switches of type MRS 001 are installed in conveying systems for monitoring the off-track running of continuously running belt conveyors. They serve to protect the belts from damage or destruction in case of an off-track running.

Applications other than specified and unauthorized modifications to the device or its components may lead to injury to persons and damage to the device for which the manufacturer is not liable.

„Intended Application“ particularly means that any work performed with the device or on the device must be carried out in accordance with these operating instructions. Only qualified personnel that are familiar with the regulations for the prevention of accidents as well as the standard safety rules, are allowed to work on the device.

This will ensure that you protect yourself and prevent damage to the device!

1.2 Symbols

Please pay special attention to the text passages that are marked with the following symbols:

Danger!
Information that must be observed under all circumstances in order to prevent the operator from being injured.

Attention!
Information that must be observed in order to prevent damage to the device.

Helpful additional information.
2 Transport, Packing, Storage, and Disposal

2.1 Transport and Packing
Choose a suitable packing in order to prevent damage to the device during transport or when sending devices or components to KIEPE ELEKTRIK for repair. Take great care that the device is protected against shocks and humidity. Thus, damage due to transport is prevented, for which the manufacturer is not liable.

2.2 Storage
Avoid significant variations in temperature that may cause the formation of condensation water, because this might damage the device.
The permissible storage temperature is between -40°C to +80°C.

⚠️ Attention!
Keep the device clean and dry.

2.3 Disposal
If possible, reuse the packing material or dispose of it in an environmentally friendly way.
Send defective devices and components to KIEPE ELEKTRIK for correct recycling or disposal (for company address see rear cover).
3 Design and Function

Conveyor belt misalignment switches of type MRS 001 are installed in conveying systems for monitoring the off-track running of continuously running belt conveyors. They serve to protect the belts from damage or destruction in case of an off-track running. In order to avoid material surcharges or operational malfunctions, feeding plants can be promptly switched off.

Conveyor belt misalignment switches of type MRS 001 are installed in pairs at the top belt in front of the driving cylinder, at the bottom belt in front of the deflection cylinder, and additionally at critical locations of plants with wide axle spacing or at transfer stations. The casing (1), consisting of glass-fibre reinforced polyamide and stainless steel, is especially suitable for the application of the off-truck running switches in hazardous areas, as for example in potassium and salt mines, seaports, as well as in carbamide, recycling and compost plants.

Conveyor belt misalignment switches type MRS 001 are provided with two switching points each for both deflection directions of the roller lever (3) (s. fig. 3-1). If the roller lever (3) is deflected about 10° an early warning is generated. If the roller lever (3) is deflected about 25°, the misalignment switch actuates a final shutdown of the conveying plant.

Fig. 3-1: Misalignment switch type MRS 001
## 4.1 General Technical Data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 60947-5-1 VDE 0110 – Contamination coefficient 4</td>
<td>Low-voltage switching devices, control devices and switch elements</td>
</tr>
<tr>
<td>Suitable for</td>
<td>Insulation coordination for power plants with a nominal voltage of up to 1,000 V</td>
</tr>
<tr>
<td>Casing</td>
<td>Controls and plants according to EN 60204: Machine safety, electrical equipment of machines</td>
</tr>
<tr>
<td>Fastening</td>
<td>Ultramid A3EG5 (Polyamide, glass-fibre reinforced), UV and ozone resistant</td>
</tr>
<tr>
<td>Permissible ambient temperature</td>
<td>2 screws M 6</td>
</tr>
<tr>
<td>Switching system</td>
<td>– 40 °C … + 80 °C</td>
</tr>
<tr>
<td>Switching points</td>
<td>2 change-over contacts, self-wiping</td>
</tr>
<tr>
<td>Switching points</td>
<td>10° and 25°</td>
</tr>
<tr>
<td>Permissible insulation voltage $U_i$</td>
<td>230 V</td>
</tr>
<tr>
<td>Permissible operating voltage $U_{op}$</td>
<td>230 V</td>
</tr>
<tr>
<td>Conventional thermal current $I_{th}$</td>
<td>6 A</td>
</tr>
<tr>
<td>Switching capacity (1 switch element)</td>
<td>AC 230 V / 1.5 A</td>
</tr>
<tr>
<td>AC-15</td>
<td>DC 60 V / 0.5 A</td>
</tr>
<tr>
<td>DC-13</td>
<td>IP 65 according to DIN VDE 470, part 1 (EN 60529)</td>
</tr>
<tr>
<td>Protection class</td>
<td>3 threads (M 25 x 1.5) for fitting nut</td>
</tr>
<tr>
<td>Supply line inlet</td>
<td>max. 2.5 mm²</td>
</tr>
<tr>
<td>Cross section for connection</td>
<td>820 g</td>
</tr>
</tbody>
</table>

MRS 001 Operating Instructions
4.2 Dimensions

Fig. 4-1: Dimensions MRS 001
5 Mounting and Dismounting

5.1 Scope of Delivery
The conveyor belt misalignment switches type MRS 001 are delivered ready for operation. The screws M 6 (4) for the mechanical fastening are not included in the scope of delivery (s. fig. 5-2).

5.2 Mounting

Danger!
Before mounting, disconnect the belt conveyor system from the voltage supply, and prevent it being switched on again.

Attention!
The conveyor belt misalignment switches may only be integrated into control circuits.

5.2.1 Mechanical Mounting

Attention!
Mount the misalignment switch in such a way, that the edge of the off-track running belt operates the roller lever (3) in the lower half of the roller. This prevents the belt from sliding over the roller lever (3) (s. fig. 5-1).

![Diagram](image_url)

Fig. 5-1: Mounting the misalignment switch on the conveyor belt in pairs

Distance between belt edge and roller lever (3): 10 … 20 mm

* Belt edge must operate the roller lever (3) in the upper half of the roller.
The misalignment switches type MRS 001 are installed in pairs on the top belt in front of the driving cylinder, on the bottom belt in front of the deflection cylinder, and additionally at critical locations of plants with wide axle spacing or at transfer stations (s. fig. 5-1).

1. Before starting the mounting, disconnect the belt conveyor system from the voltage supply, and prevent it being switched on again.

2. Fasten the misalignment switches on the belt conveyor system by means of two screws M 6 (4) through the sockets (10) (s. fig. 5-2).

3. Loosen the hexagonal head screw (9) by means of an open end wrench SW 13 (s. fig. 5-2).

In order to prevent a fast wear and tear of the roller lever (3), the roller lever (3) should be aligned approx. 10 to 20 mm in front of the belt edge (s. fig. 5-1 and 5-2).

4. Turn the roller lever (3) into the required position, and retighten the hexagonal head screw (9).

**Fig. 5-2:** Mounting the misalignment switches on the belt conveyor

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MRS 001 Operating Instructions
5.2.2 Electrical Connection

1. Before starting the mounting, disconnect the belt conveyor system from the voltage supply, and prevent it being switched on again.

2. Carefully break off one of the three seals of the threads for a fitting nut (6), and smooth the edge by means of a knife or a file (s. fig. 5-3).

3. Screw in a fitting nut (6) into the thread (M 25 x 1.5) of the misalignment switch.

4. Open the hinged cover (2) of the misalignment switch by loosening the two screws (5) (s. fig. 5-4).

5. Put the connection cable through the fitting nut (6) (s. fig. 5-4).

6. Connect the cable to the connector strips (7) according to the connection diagram (s. fig. 5-5).

7. Close the hinged cover (2) of the misalignment switch and retighten the two screws (5) (s. fig. 5-4).

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**Fig. 5-3:** Breaking off the seal of a thread

**Fig. 5-4:** Mounting and dismounting
5.3 Dismounting

**Danger!**
Before dismounting, disconnect the belt conveyor system from the voltage supply, and prevent it being switched on again.

1. Open the hinged cover (2) by loosening the two screws (5) (s. fig. 5-4).
2. Loosen all electrical connections from the connector strips (7) (s. fig. 5-5).
3. Unscrew the fitting nut (6) and pull the connection cable out of the misalignment switch (s. fig. 5-4).
4. Loosen the two screws M 6 (4), and remove the misalignment switch (s. fig. 5-4).

*Fig. 5-5: Connecting the misalignment switch*
6 Maintenance and Repair

The conveyor belt misalignment switches type MRS 001 are maintenance-free. Defective devices can be sent to KIEPE ELEKTRIK for disposal (company address see rear cover).

7 Ordering Devices

With every purchase order, please quote (company address see rear cover):

1. **Type designation of the misalignment switch** (s. rating plate on the casing lid): MRS 001
2. **Device identification number** (s. rating plate on the casing lid): 91.055 301.001