

# Conveyor Belt Misalignment Switch Type MRS 001



Device Identification No.: 91.055 301.001



## OPERATING INSTRUCTIONS






## **CE** 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.



## Table of Contents

	<b>1</b>	<b>For your own Safety.....</b>	<b>5</b>
	1.1	Intended Application .....	5
	1.2	Symbols.....	5
	<b>2</b>	<b>Transport, Packing, Storage, and Disposal.....</b>	<b>6</b>
	2.1	Transport and Packing .....	6
	2.2	Storage.....	6
	2.3	Disposal.....	6
	<b>3</b>	<b>Design and Function.....</b>	<b>7</b>
	<b>4</b>	<b>Technical Data.....</b>	<b>8</b>
	4.1	General Technical Data.....	8
	4.2	Dimensions.....	9
	<b>5</b>	<b>Mounting and Dismounting.....</b>	<b>10</b>
	5.1	Scope of Delivery .....	10
	5.2	Mounting.....	10
	5.2.1	Mechanical Mounting .....	10
	5.2.2	Electrical Connection.....	12
	5.3	Dismounting .....	13



**6 Maintenance and Repair ..... 14**



**7 Ordering Devices ..... 14**



# 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-track 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  $10^\circ$  an early warning is generated. If the roller lever (3) is deflected about  $25^\circ$ , the misalignment switch actuates a final shutdown of the conveying plant.

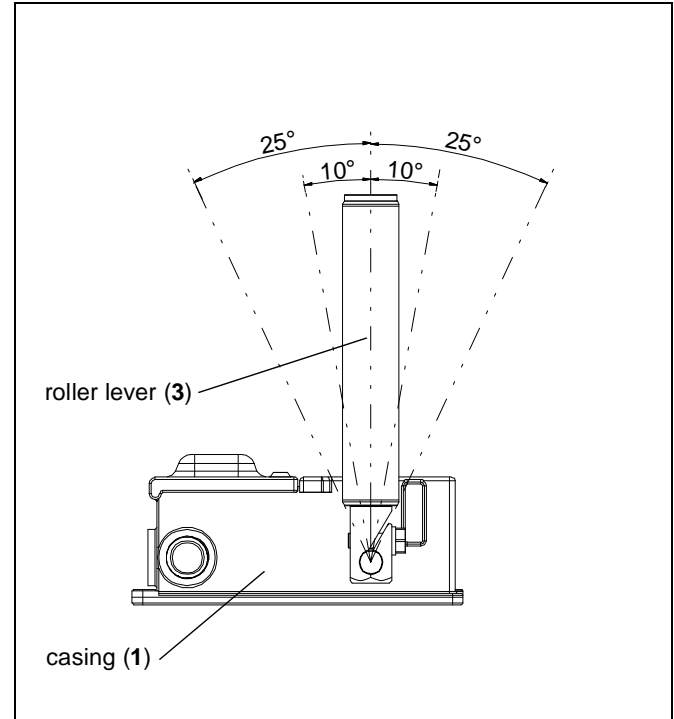


Fig. 3-1: Misalignment switch type MRS 001



## 4 Technical Data

### 4.1 General Technical Data

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



## 4.2 Dimensions

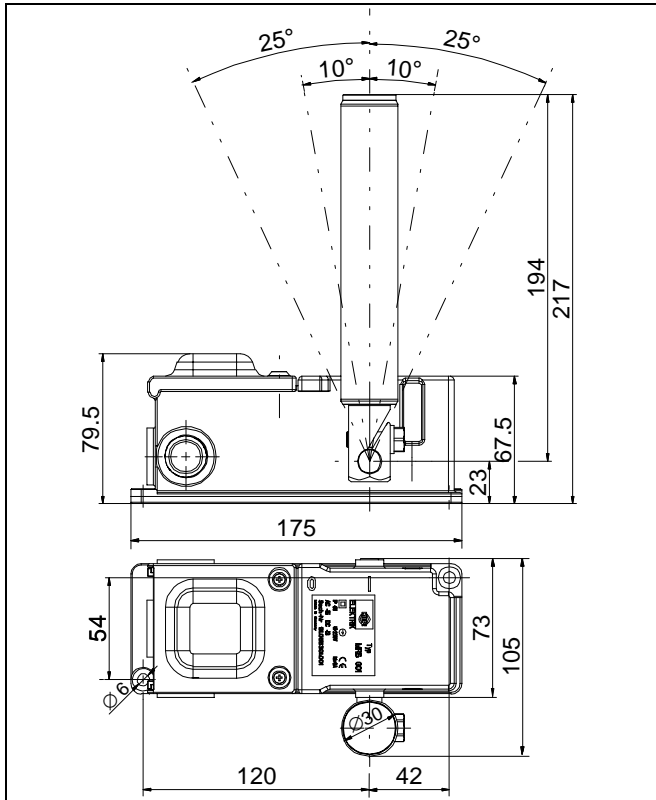


Fig. 4-1: Dimensions MRS 001



## 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).

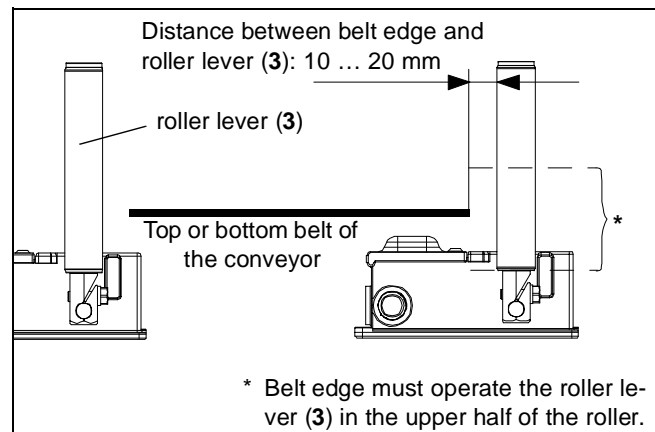


Fig. 5-1: Mounting the misalignment switch on the conveyor belt in pairs

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).

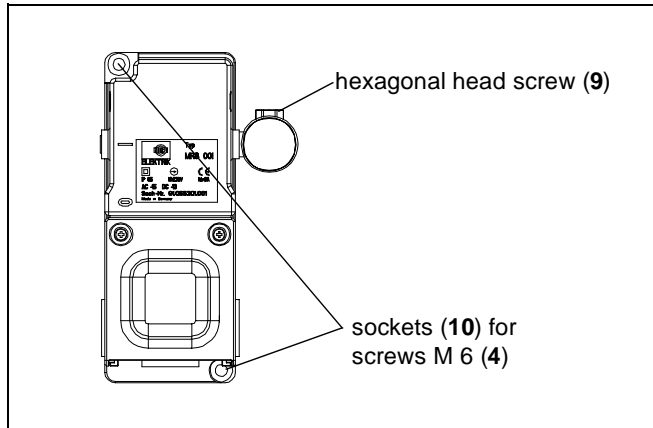


Fig. 5-2: Mounting the misalignment switches on the belt conveyor

### 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.

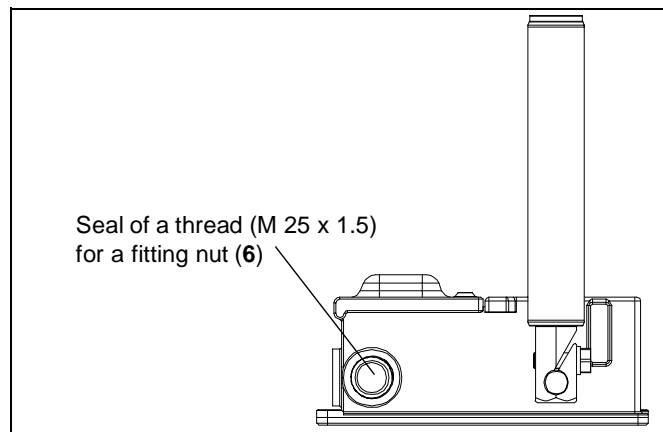


Fig. 5-3: Breaking off the seal of a thread

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).

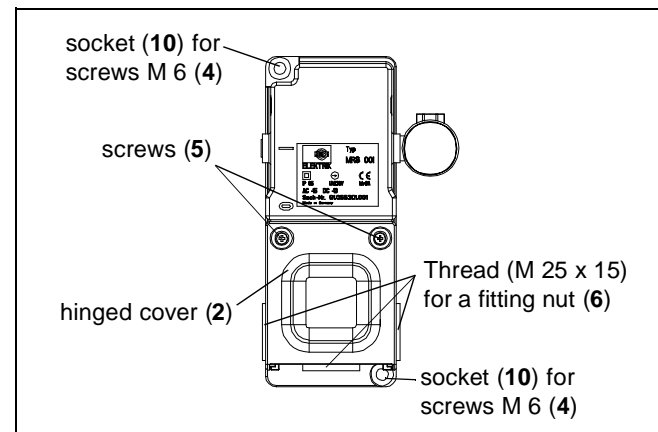


Fig. 5-4: Mounting and dismounting

### 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).

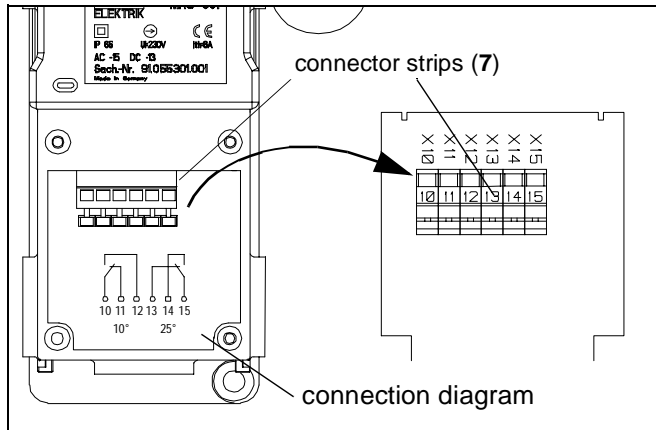


Fig. 5-5: Connecting the misalignment switch



## 6 Maintenance and Repair

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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

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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



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