



**EN** Operating instructions. . . . .pages 1 to 4  
Translation of the original operating instructions

**Content**

**1 About this document**

1.1 Function . . . . . 1

1.2 Target group: authorised qualified personnel. . . . . 1

1.3 Explanation of the symbols used . . . . . 1

1.4 Appropriate use . . . . . 1

1.5 General safety instructions . . . . . 1

1.6 Warning about misuse . . . . . 1

1.7 Exclusion of liability . . . . . 2

**2 Product description**

2.1 Ordering code . . . . . 2

2.2 Special versions. . . . . 2

2.3 Destination and use . . . . . 2

2.4 Technical data . . . . . 2

2.5 Safety classification . . . . . 2

**3 Mounting**

3.1 General mounting instructions . . . . . 2

3.2 Dimensions . . . . . 3

**4 Electrical connection**

4.1 General information for electrical connection. . . . . 3

**5 Set-up and maintenance**

5.1 Functional testing. . . . . 3

5.2 Maintenance . . . . . 3

**6 Disassembly and disposal**

6.1 Disassembly. . . . . 3

6.2 Disposal . . . . . 3

**1. About this document**

**1.1 Function**

This operating instructions manual provides all the information you need for the mounting, set-up and commissioning to ensure the safe operation and disassembly of the safety switchgear. The operating instructions must be available in a legible condition and a complete version in the vicinity of the device.

**1.2 Target group: authorised qualified personnel**

All operations described in this operating instructions manual must be carried out by trained specialist personnel, authorised by the plant operator only.

Please make sure that you have read and understood these operating instructions and that you know all applicable legislations regarding occupational safety and accident prevention prior to installation and putting the component into operation.

The machine builder must carefully select the harmonised standards to be complied with as well as other technical specifications for the selection, mounting and integration of the components.

**1.3 Explanation of the symbols used**



**Information, hint, note:**

This symbol is used for identifying useful additional information.



**Caution:** Failure to comply with this warning notice could lead to failures or malfunctions.

**Warning:** Failure to comply with this warning notice could lead to physical injury and/or damage to the machine.

**1.4 Appropriate use**

The products described in these operating instructions are developed to execute safety-related functions as part of an entire plant or machine. It is the responsibility of the manufacturer of a machine or plant to ensure the correct functionality of the entire machinery or plant.

The safety switchgear must be exclusively used in accordance with the versions listed below or for the applications authorised by the manufacturer. Detailed information regarding the range of applications can be found in the chapter "Product description".

**1.5 General safety instructions**

The user must observe the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.



Further technical information can be found in the Schmersal catalogues or in the online catalogue on the Internet: [www.schmersal.net](http://www.schmersal.net).

The information contained in this operating instructions manual is provided without liability and is subject to technical modifications.

There are no residual risks, provided that the safety instructions as well as the instructions regarding mounting, commissioning, operation and maintenance are observed.

**1.6 Warning about misuse**



In case of improper use or manipulation of the safety switchgear, personal hazards or damages to machinery or plant components cannot be excluded when safety switchgear is used. The relevant requirements of the standards ISO 13855 and ISO 13857 must be observed.

**1.7 Exclusion of liability**

We shall accept no liability for damages and malfunctions resulting from defective mounting or failure to comply with this operating instructions manual. The manufacturer shall accept no liability for damages resulting from the use of unauthorised spare parts or accessories.

For safety reasons, invasive work on the device as well as arbitrary repairs, conversions and modifications to the device are strictly forbidden; the manufacturer shall accept no liability for damages resulting from such invasive work, arbitrary repairs, conversions and/or modifications to the device.

**2. Product description**

**2.1 Ordering code**

**SLB 200-①31-21**

No.	Option	Description
①	E	Transmitter
	R	Receiver

**2.2 Special versions**

For special versions, which are not listed in the order code below 2.1, these specifications apply accordingly, provided that they correspond to the standard version.

**2.3 Destination and use**

In combination with the SLB200-C04-1R safety-monitoring module, the SLB 200-E/R31-21 one-way safety light barriers are a non-contact safety guard (ESD, electro-sensitive device) for the protection of hazardous areas on power-driven work equipment.

**LED status indication**

Red LED on	Light beam interrupted
Green LED on	Light beam clear
Green-red flashing mode	Soiling, misalignment, distance between transmitter and receiver too large



The entire concept of the control system, in which the safety component is integrated, must be validated to the relevant standards.

**2.4 Technical data**

Standards:	IEC 61496-1
Enclosure:	ABS 10 % GF
Enclosure dimensions:	31 x 50.5 x 19 mm
Termination:	
- Transmitter:	10 cm cable with M8 connector, 3-pole
- Receiver:	10 cm cable with M8 connector, 4-pole
Max. cable length:	50 m
Protection class:	IP67
Response time:	30 ms, in combination with SLB 200-C04-1R safety monitoring module
Range:	4 m
Start/restart interlock:	yes, in combination with SLB 200-C04-1R safety monitoring module
Contact control:	yes, in combination with SLB 200-C04-1R safety monitoring module
Light emission wavelength:	880 nm
Rated operating voltage $U_e$ :	24 VDC $\pm$ 20%
Safety outputs:	yes, in combination with SLB 200-C04-1R safety monitoring module
Angle of radiation:	$\pm$ 4°
Min. size of object:	9 mm $\varnothing$
LED status indication:	soiling, switching condition and power on
Ambient temperature:	-10 °C ... + 55 °C
Storage and transport temperature:	- 20 °C ... + 80 °C

**2.5 Safety classification**

(in combination with SLB 200-C04-1R safety monitoring module)

Standards:	ISO 13849-1, IEC 61508, IEC 62061
PL:	d
Control Category:	2
PFH value:	$4 \times 10^{-9}/h$
SIL:	suitable for SIL 2 applications
Service life:	20 years

**3. Mounting**

**3.1 General mounting instructions**

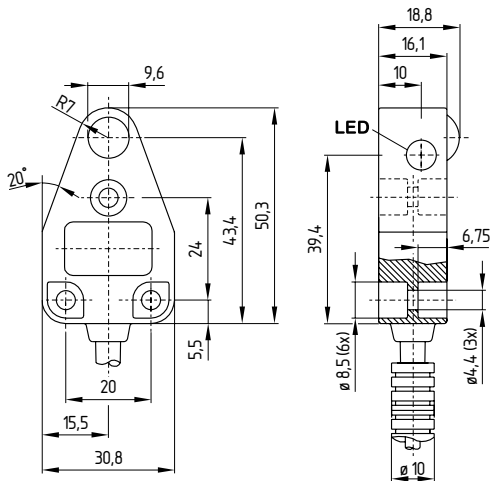
- The light barriers can be operated in any mounting position (with or without BF 31 mounting angle). The mounting possibilities are shown on the dimensional drawing.
- The transmitter and the receiver must be fitted parallel to each other and at the same mounting height.
- Turn the transmitter whilst observing the display of the receiver and fix the point at which the LED indication changes from red to green.
- Calculate the max. left and right angle of rotation. Fix the fixing screws in central position.
- Make sure that the LED indication does not flash red-green or change to red continuous signal during this process.



Please also observe the notes for the calculation of the safety distance in the operating instructions manual of the SLB 200-C04-1R safety-monitoring module.

### 3.2 Dimensions

All measurements in mm.



## 4. Electrical connection

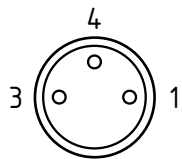
### 4.1 General information for electrical connection



The electrical connection may only be carried out by authorised personnel in a de-energised condition.

#### Transmitter

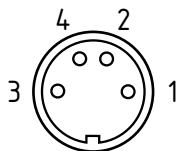
SLB 200-E31-21



PIN	Description
1	BN
3	n.c.
4	WH

#### Receiver

SLB 200-R31-21



PIN	Description
1	BN
2	WH
3	n.c.
4	n.c.



Further information about the wiring and connection of the safety light barrier to the safety-monitoring module can be found in the operating instructions manual of the SLB 200-C04-1R safety-monitoring module.

## 5. Set-up and maintenance

### 5.1 Functional testing

The safety function of the safety components must be tested. The following conditions must be previously checked and met:

1. Correct fixing of the transmitter and receiver.
2. Fitting and integrity of the power cable.
3. If one or more light barriers are interrupted, the hazardous movement is brought to standstill.

### 5.2 Maintenance

In the case of correct installation and adequate use, the safety switch-gear features maintenance-free functionality. A regular visual inspection and functional test, including the following steps, is recommended:

1. Check the correct mounting of the fixing screws on the safety light barriers.
2. Clean the optics of transmitter and receiver with a soft clean cloth. The use of aggressive, abrasive or scratching cleaning agents, which could attack the surface, is prohibited.

**Damaged or defective components must be replaced.**

## 6. Disassembly and disposal

### 6.1 Disassembly

The safety switchgear must be disassembled in a de-energised condition only.

### 6.2 Disposal

The safety switchgear must be disposed of in an appropriate manner in accordance with the national prescriptions and legislations.

**K. A. Schmersal GmbH & Co. KG**  
Möddinghofe 30, D - 42279 Wuppertal  
Postfach 24 02 63, D - 42232 Wuppertal

Phone: +49 - (0)2 02 - 64 74 - 0  
Telefax: +49 - (0)2 02 - 64 74 - 1 00  
E-Mail: [info@schmersal.com](mailto:info@schmersal.com)  
Internet: <http://www.schmersal.com>