



EN Operating Instructions pages 5 to 8
Translation of the original operating instructions

CS Aktuální verzi návodu k použití ve vašem jazyce naleznete na www.schmersal.net

DA På www.schmersal.net findes aktuelle betjeningsvejledninger på EU's officielle sprog.

ES Encontrará el manual de instrucciones actual en su idioma oficial de la UE en nuestra página de Internet www.schmersal.net.

FR Vous trouverez la version actuelle du mode d'emploi dans votre langue nationale officielle sur l'Internet, www.schmersal.net.

IT Il manuale d'istruzioni aggiornato nella vostra lingua (lingua ufficiale UE) è scaricabile in Internet all'indirizzo www.schmersal.net.

JP 日本語の取扱説明書は、インターネット (www.schmersal.net) からダウンロード出来ます。

NL U vindt de huidige versie van de gebruikshandleiding in uw officiële landstaal op het Internet, www.schmersal.net.

PL Tutaj znajdziesz aktualną wersję instrukcji obsługi w Twoim języku na stronie internetowej www.schmersal.net.

PT O manual de instruções actual, no seu idioma oficial da UE, encontra-se na nossa página de Internet www.schmersal.net.

SV På www.schmersal.net finner ni de aktuella versionerna av bruksanvisningen på EU's officiella språk.

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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.

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 standard ISO 14119 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

This operating instructions manual applies to the following types:

EX-AZ 3350-①-②-3D

No.	Option	Description
①	03-ZK 12-ZUEK	3 NC 1 NO contacts / 2 NC contacts
②	1637	Gold-plated contacts



Only if the information described in this operating instructions manual are realised correctly, the safety function and therefore the compliance with the Machinery Directive and the Explosion Protection Directive is maintained.

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

The safety switches are suitable for sliding, hinged and removable safety guards, which need to be closed in order to ensure the necessary operational safety.

The components can be used in explosion-endangered areas of Zone 22 equipment category 3D. The installation and maintenance requirements to the standard series EN 60079 must be met.



The user must evaluate and design the safety chain in accordance with the relevant standards and the required safety level.

Conditions for safe operation

Due to their specific impact energy, the components must be fitted with a protection against mechanical stresses. The specific ambient temperature range must be observed.

2.4 Technical data

Equipment category:	⊕ II 3D
Ex protection:	Ex tc IIIC T90°C Dc X
Standards:	IEC 60947-5-1, EN 60079-0, EN 60079-31, BG-GS-ET-15
Enclosure:	light-alloy diecast, paint finish
Actuator:	VA
Design:	EN 50041
Max. impact energy:	4 J
Actuating speed:	max. 1 ms
Switching frequency:	1200 / h
Protection class:	IP67 to IEC 60529
Contact material:	Silver
Contact type:	change-over with double break Zb, or 3 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1; slow action, NC contact with positive break
Connection:	screw terminals
Cable section:	min. 0.75 mm ² , max. 2.5 mm ² (including conductor ferrules)
Cable entry:	M20 x 1.5
Rated impulse withstand voltage U _{imp} :	4 kV
Rated insulation voltage U _i :	250 V
Thermal test current I _{the} :	10 A
Utilisation category:	AC-15 / DC-13
Rated operating current/voltage I _e /U _e :	4 A / 230 VAC 4 A / 24 VDC
Max. fuse rating:	6 A gG D-fuse
Positive break travel:	10.7 mm
Positive break force:	each NC contact 5 N
Ambient temperature:	- 10°C ... + 60°C
Mechanical life:	> 1 million operations
Cable cross-section of the cable glands:	min. Ø 7 mm; max. Ø 12 mm; ⊕ II 2GD
Tightening torque:	Cable gland: min. 1.0 Nm Cover screws: min. 8 Nm

2.5 Safety classification

Standards:	ISO 13849-1
B _{10d} (NC contact):	2,000,000
B _{10d} (NO contact) at 10% ohmic contact load:	1,000,000
Service life:	20 years

$$MTTF_d = \frac{B_{10d}}{0,1 \times n_{op}} \quad n_{op} = \frac{d_{op} \times h_{op} \times 3600 \text{ s/h}}{t_{cycle}}$$

(Specifications can vary depending on the application-specific parameters h_{op}, d_{op}, t_{cycle} as well as the load.)

3. Mounting

3.1 General mounting instructions



Fitting is only authorised in a de-energised condition

Four mounting holes are provided for fixing the enclosure. The use of a protective ground wire is imperative. The enclosure must not be used as an end stop. Any mounting position. The mounting position must be chosen so as to avoid the penetration of dirt in the used holes.



Please observe the recommendations regarding maximum impact energy, actuating speed and tightening torque in the technical data.

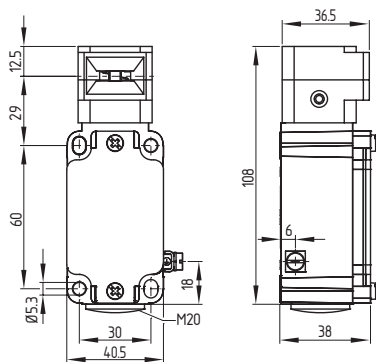
Mounting of the actuators: See mounting instructions actuators.



Please observe the remarks of the standards ISO 12100, EN 953 and ISO 14119.

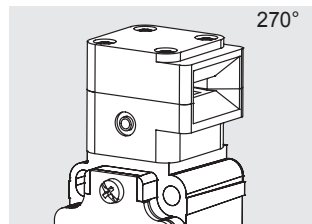
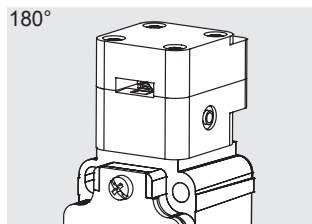
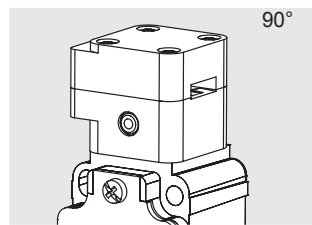
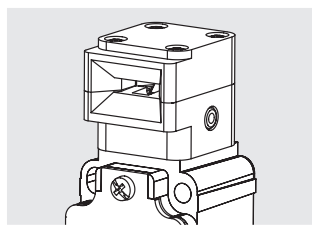
3.2 Dimensions

All measurements in mm.



Choosing the actuating planes

By turning the head in 90° steps, 4 actuating planes are possible. A Torx T15 screwdriver is required for this purpose.



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.

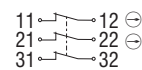
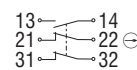
The contact labelling can be found in the wiring compartment of the switch.

Cable glands (included in delivery) are only authorised for permanent cables. The constructor must provide for the necessary strain relief. After wiring, dust and soiling must be removed from the wiring compartment.

4.2 Contact variants

Contacts are shown with safety guard closed.

1 NO contacts / 2 NC contacts 3 NC



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:

- The installation is executed according to the instructions
- The connection is executed correctly
- The cable is correctly executed and connected
- Check the free movement of the actuating element
- The safety component is not damaged
- Remove particles of dust and soiling
- Check cable entry and connections in de-energised condition

5.2 Maintenance

In case of correct installation in accordance with the above-described instructions, the component requires little maintenance. By use in extreme conditions, we recommend routine maintenance including the following steps:

1. Check the correct fixing of the actuator and the safety switchgear
2. Remove particles of dust and soiling
3. Check cable entry and connections in a de-energised condition



Do not open the device when live.



Adequate measures must be taken to ensure protection against tampering either to prevent tampering of the safety guard, for instance by means of replacement actuators.

Damaged or defective components must be replaced.

For explosion protection reasons, the component must be exchanged after max. 1 million operations.

6. Disassembly and disposal

6.1 Disassembly


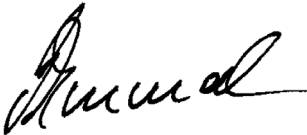
The safety switchgear must be disassembled in a de-energised condition only.

6.2 Disposal

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

7. Appendix

7.1 EC Declaration of conformity

	
<h3>EC Declaration of conformity</h3>	
Translation of the original Declaration of Conformity	K. A. Schmersal GmbH & Co. KG Möddinghofe 30 42279 Wuppertal Germany Internet: www.schmersal.com
We hereby certify that the hereafter described safety components both in its basic design and construction conform to the applicable European Directives.	
Name of the safety component:	EX-AZ 3350 ⊕ II 3D Ex tc IIIC T90°C Dc X
Description of the safety component:	Positive break position switch with separate actuator for safety functions
Relevant EC-Directives:	2006/42/EC EC-Machinery Directive 94/9/EC EC-Explosion Protection Directive (ATEX)
Used harmonized standards:	IEC 61508, EN 61241-0, EN 61241-1,
Person authorized for the compilation of the technical documentation:	Oliver Wacker Möddinghofe 30 42279 Wuppertal
Place and date of issue:	Wuppertal, December 9, 2014
EX-AZ3550-D-EN	
	Authorised signature Philip Schmersal Managing Director



The currently valid declaration of conformity can be downloaded from the internet at www.schmersal.net.



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