SAFEMASTER STS
Safety Switch- And Key Interlock System
Basic Unit STS-SX01A

0258043

Presentation
in the deactivated condition:
Key and actuator removed

STS-System Benefits
- TÜV certificate according to the legal and standard requirements
- For safety applications up to PLe/Category 4 according to EN/ISO 13849-1
- Modular and expandable system
- Rugged stainless steel design
- Wireless mechanical safeguarding
- Combines the benefits of safety switch, solenoid locking and key transfer in a single system
- Easy installation through comprehensive accessories
- Protection against lock-in

Features STS-SX01A
The unit is particularly suitable for applications with:
- Full body access (lock-in danger)
- Several secured entries
- Single-channel/ redundant/ diverse safety circuits
- Rugged ambient conditions

Approvals and marking

CE TÜVRheinland® Functional Safety Type Approved FS

Function

Safety switch (type 2) for separating guards with mechanical solenoid locking and forced key removal

Application

To secure separating guards such as safety gates and hoods in machine and plant engineering.

Design and Operation

Attention!

Hazards must be ruled out before a key can be removed and the movable part of the guard can then be opened!

The STS switch unit is to be integrated into a system and connected with a control unit so that the hazardous machine can run only when the guard is locked and closed.

The key can be removed at any time, whereby hazards must be ruled out immediately.
The actuator can only be removed from actuator module A and the access opened after removing the key from key module 01. Key operation is thus forced and queried through the contacts of key monitoring.
Key entry is blocked when the door is opened and an escape route is thus secured. The key can be entered again after the access was closed again. By entering the key the solenoid locking is activated again and the machine can be restarted.

STS-SX01A is usually used in the system in connection with additional STS units and SAFEMASTER products (e.g. Emergency stop module LG 5925, Softstarter with DC-Brake BL 9228). The forced key to be removed can serve as protection against lock-in or for the operating release of these units (e.g. STS-M10A, STS-M11A, STS-M12M, STS-M10B01M).

Circuit Diagrams

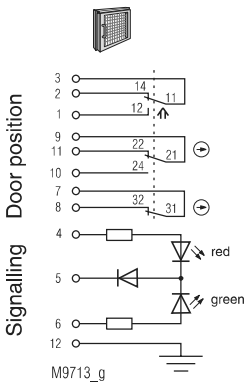


Fig. 1:
Locked while activated:
Key and actuator inserted,
Door closed

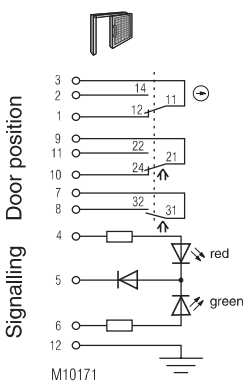


Fig. 2:
Lock deactivated:
Key removed
Door open

Switching logic

			Fig. 1	Fig. 2
Door contacts	3	2	■	
	3	1		■
	9	11	■	
	9	10		■
	7	8	■	

■ closed
□ open

Technical Data

Enclosure:	Stainless steel V4A / AISI 316L
Degree of protection:	IP 65
Temperature range:	- 25 °C to + 65 °C
Storage temperature:	- 40 °C to + 80 °C
Mechanical principle:	Rotating axis with redundant actuation
Connection method:	Cage tension spring clamping
min. connection cross-section:	0.25 mm²
max. connection cross-section:	1.5 mm²
Cable entry:	1 x M20 x 1.5
$B10_d$:	2 x 10^6 switching cycles
Electrical service life:	5 x 10^6 switching cycles
min. operating speed:	100 mm/s
max. operating speed:	500 mm/s (by exception, 1500 mm/s is permitted)
max. switching frequency:	360/h
Nominal voltage U_N:	AC/DC 24 V
Nominal voltage range:	0.85 ... 1.1 U_N
Power consumption:	0.3 W
Rated impulse voltage:	0.8 kV
Rated insulation voltage:	< 60 V
Contacts:	1 NC contact, 2 diverse changeovers contacts
Switching principle:	Changeover contact with forced-opening snap-action switch
max. operating current:	2 A
Short circuit strength, max. fusing:	4A gG
Contact material:	Ag / $AgSnO_2$
Indicator	LED red/green, separate selection possible
Test principles:	EN ISO 13849-1:2008 EN 1088+A2:2008 EN 60947-5-1:2005 GS-ET 19:04.2004
Intended use:	up to max. cat. 4, PL e according to EN ISO 13849-1
Mounting:	according to DIN EN 50041
Contact elements:	IEC EN 60947-5-1 Appendix K
Additional requirement for cat. 4 structure (as single unit):	Add 2nd actuator module, Type STS-SX01BA

Diagnostic coverage (DC), (mechanical):

Logic and output	**cat. 2**	**cat. 3**	**cat. 4**
STS-SX01A	84 %	85 %	85 %
STS-SX01BA	98 %	99 %	99 %

Fault exclusions:	none
Protection against faults of common cause:	see table in STS design guide
Repair and replacement:	by manufacturer only
Test intervals:	semi-annually recommended min. once a year

Variants and Combination Options

Because of their modular design the basic units of the Safemaster STS System can be combined and expanded according to customer requests. This allows for a variety of possible units and functions.

Overview of the basic units

	Application			
Group of the basic unit	**Basic function with separate actuator**	**Forced key removal as protection against lock-in or to operate additional units**	**Optional key removal as protection against lock-in or to operate additional units**	**Units without actuator**
Mechanical	STS-M10A	STS-M11A	STS-M10B01M	STS-M12M
Locking	STS-ZRHA	STS-ZRH01A	STS-ZRHB01M	STS-ZRH01M
Switch	STS-SXA	STS-SX01A	STS-SXB01M	STS-SX01M
For additional information refer to the data sheets of the individual modules and other basic units.				

Data sheets

STS Solenoid locking modules SX/SV
STS Key module 01/10
STS Actuator module A

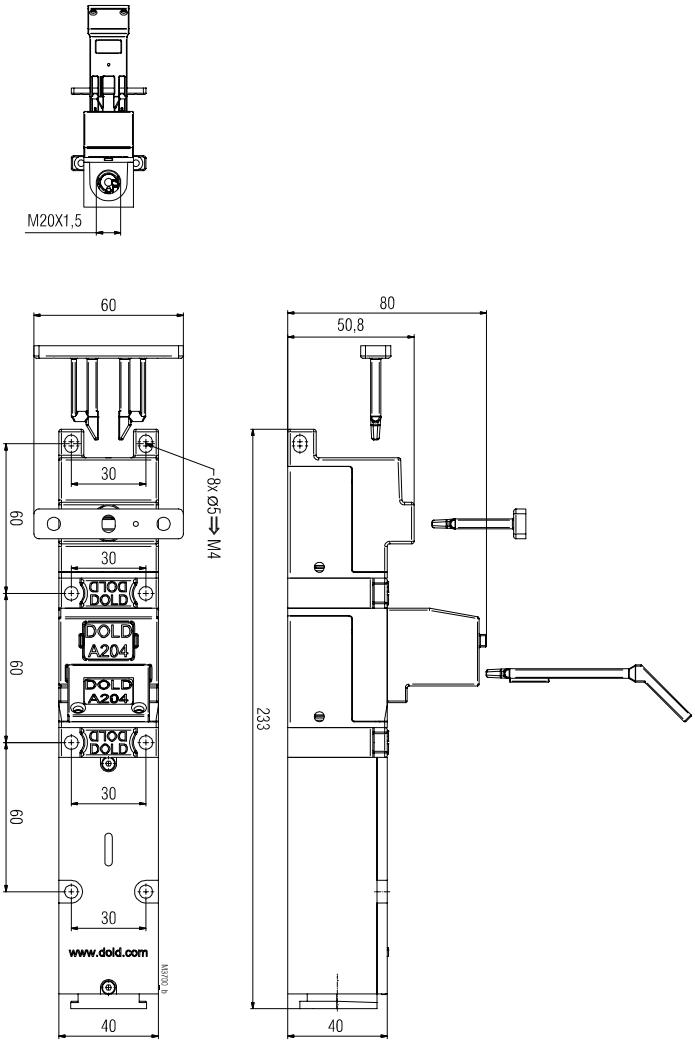
Take advantage of the advice of the **E. DOLD & SÖHNE KG** specialists regarding the choice of units and combination of a system.

Ordering Example

STS- SX 01 A

- A — Actuator module A
- 01 — Key module 01
- SX — Switch module SX

Dimensional Drawing [mm]



Clearance tolerances ± 2%