

**Presentation in the deactivated condition:**  
Actuator removed

### STS-System Benefits

- EU-Test certificate according to the directive 2006/42/EG, annex IX
- 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
- Coding level low, medium, high according to DIN EN ISO 14119:2014-03

### Features

The units are particularly suitable for applications with:

- lock-in danger
- disables the unintentional closing of a separating guard
- Single-channel/ redundant/ diverse safety circuits
- Rugged ambient conditions

### Approvals and marking



### Function

Safety switch (type 2) for separating guards with electromagnetic solenoid locking.

YRXKM and YRXK01M based units can be regarded as safety switches (lock) without interlocking with additional blocking function.

YRXK01M and YRXK01M based units can be regarded as mechanical interlock with blocking function.

### Application

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

### Design and Operation

YRXKM solenoid locking units prevent opening of separating guards and disable the closing without an enabling signal on the magnet.

#### Attention!

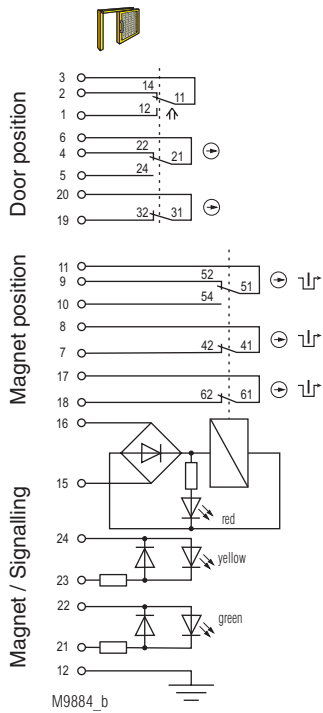


Hazards must be ruled out before a key can be inserted and the movable part of the guard can then be opened!

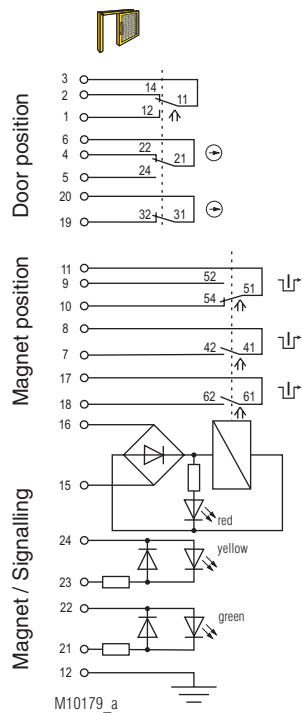
The solenoid locking units YRXKM and YRXK01M are to be integrated into a system and connected with a control unit so that the hazardous machine can run only when the guard (STS-YRXK01M) is locked and closed.

An access can only be closed and the actuator inserted in the actuator module after a release signal was sent by the machine control to the YRXKM and YRXK01M solenoid locking units. The movable part of the guard can be opened and closed as long as the release signal is still applied; Is the key not removed, the solenoid locking is not activated. The solenoid locking is activated again once no more release signal is applied and the guard is closed. The machine can now be restarted. Actuator and magnet position are monitored by separate contacts.

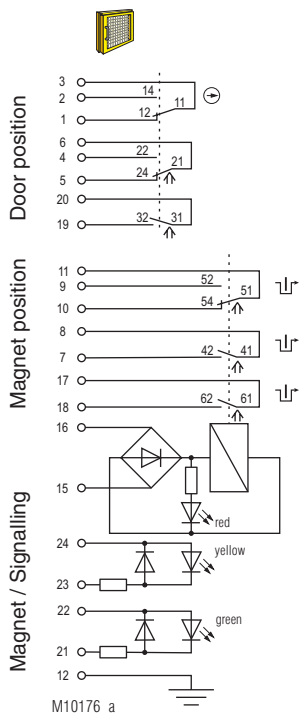
YRXK01M is usually used in the system in connection with additional STS units and SAFEMASTER products (e.g. release by speed monitor UH 5947, standstill monitor LH 5946 or speed/standstill monitor BH5932).



**Fig. 1:**  
 - YRXKM:  
 Magnet locked,  
 Actuator removed,  
 Door open  
 - YRXK01M:  
 Magnet locked,  
 Actuator removed,  
 Key inserted,  
 Door open



**Fig. 2:**  
 - YRXKM:  
 Magnet released,  
 Actuator removed,  
 Door open  
 - YRXK01M:  
 Magnet released,  
 Actuator removed,  
 Key inserted,  
 Door open



**Fig. 3:**  
 Solenoid locking activated:  
 - YRXKM:  
 Magnet released,  
 Actuator inserted,  
 Door closed  
 - YRXK01M:  
 Magnet released,  
 Actuator inserted,  
 key removed,  
 Door closed

Switching logic

		Fig. 1	Fig. 2	Fig. 3
Door contacts	3	2		
	3	1		
	6	4		
Magnet contact	6	5		
	19	20		
Control signal Magnet	11	9		
	11	10		
	7	8		
		17	18	
		15	16	

■ closed  
 □ open

The state shown in **Figure 3** does not depend on the control signal of the magnet.  
 If the control signal is applied and the actuator inserted the solenoid locking changes to the state of **Figure 2**.  
 If no signal is applied and the solenoid locking is inserted the solenoid locking changes to the state of **Figure 1**

Enclosure: Stainless steel V4A / AISI 316L / AISI 630  
 Degree of protection: IP 65  
 Temperature range standby current principle: - 25 °C to + 60 °C  
 Temperature range load current principle: - 25 °C to + 40 °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 mm<sup>2</sup>  
 max. connection cross-section: 0.75 mm<sup>2</sup>  
 Cable entry: 1 x M20 x 1.5  
 B10<sub>d</sub>: 2 x 10<sup>6</sup> switching cycles  
 Electrical service life: 5 x 10<sup>6</sup> switching cycles  
 Locking force: min. 1000 N  
 Shearing force: depending on actuator  
 Solenoid locking principle: Standby current, failure locking-proof  
 Magnetic principle: Standby current or load current  
 min. operating speed: 100 mm/s  
 max. operating speed: 500 mm/s  
 (by exception, 1500 mm/s is permitted)  
 max. switching frequency: 360/h  
 Operating mode: 100% ED  
 Power supply: „class 2“ in accordance to UL508 table 32  
 Nominal voltage U<sub>N</sub>: AC/DC 24 V  
 Nominal voltage range: 0.85 ... 1.1 U<sub>N</sub>  
 (at 23 °C ambient temperature)  
 Power consumption: 6 W  
 Rated impulse voltage: 0.8 kV  
 Rated insulation voltage: ≤ 50 V  
 Contacts: 1 NC contact, 2 antivalent changeover contacts  
 Door position: 2 NC contacts + 1 changeover contact  
 Switching principle: Changeover contact with forced-opening snap-action switches  
 Max. operating current standby current principle: 2 A  
 Load current principle: 1 A  
 Rated conditional short circuit current: 1000 A  
 Contact material: Ag / AgSnO<sub>2</sub>  
 Short circuit strength, max. fusing: 2 A gG  
 Utilization category of switching elements to AC 15: 1 A / AC 230 V  
 to DC 13: 0.5 A / DC 60 V  
 Indicator: LED red: Magnet energized  
 LED yellow/green (separate selection possible)  
 EN ISO 13849-1:2008  
 DIN EN ISO 14119:2014-03  
 EN 60947-5-1:2005  
 GS-ET-15:02.2011  
 GS-ET-19:02-2011  
 GS-ET-31:02-2010

Test principles: up to max. cat. 4, PL e according to EN ISO 13849-1  
 according to DIN EN 50041  
 IEC EN 60947-5-1 Appendix K  
 Intended use: Add 2nd actuator module, Type ZRHBA  
 Mounting: according to DIN EN 50041  
 Contact elements: IEC EN 60947-5-1 Appendix K  
 Additional requirement for cat. 4 structure (as single unit):

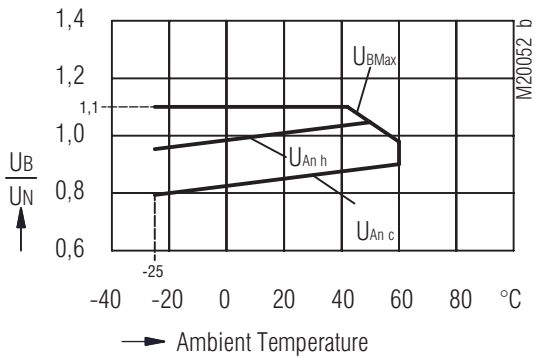
Diagnostic coverage (DC), (mechanical):

**Logic and output**

	cat. 2	cat. 3	cat. 4
YRXKM:	60 %	90 %	90 %
YRXK01M:	90 %	90 %	90 %
YRXKKM:	90 %	99 %	99 %
YRXKK01M:	90 %	99 %	99 %

Protection against faults of common cause: see table in STS design guide by manufacturer only  
 Repair and replacement: by manufacturer only  
 Test intervals: min. once a year  
 for PL a to d: min. once a month  
 for PL e:

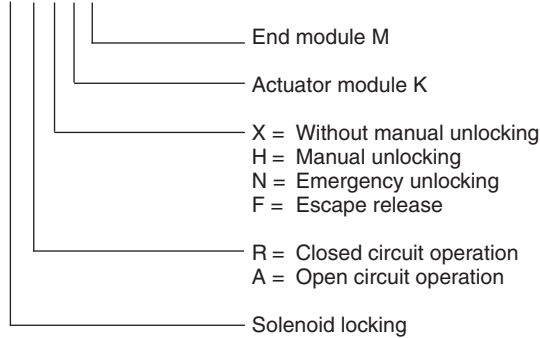
## Solenoid derating graph



$U_{BMax}$  maximum power supply dependent upon temperature  
 $U_{An c}$  response voltage at coil temperature = ambient temperature  
 $U_{An h}$  response voltage at preceding agitation at  $1.1 \times U_n$

### Ordering Example

STS- Y R X K M

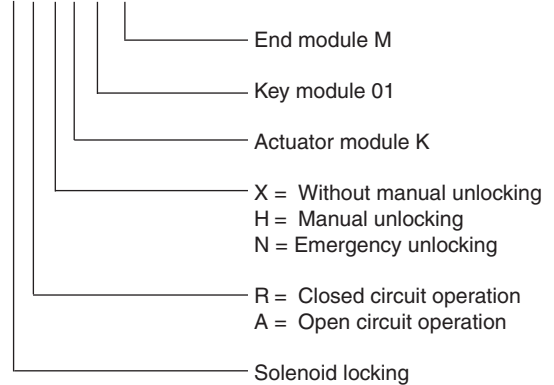


### Versions of the solenoid locking module

YRX Solenoid locking standby current principle  
 YRH Solenoid locking standby principle with manual unlocking  
 YRN Solenoid locking standby principle with emergency unlocking

### Ordering Example

STS- Y R X K 01 M



## 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

Functions	Safety switches design type 2	Safety switches design type 2 with solenoid lock	Mechanical units design type 2	Mechanical units with electrical monitoring	Mechanical units with electrical release
Units with standard function	SXA	ZRHA	M10A	RX10A RXK01M	YRXKM YRXK01M
Units with mechanical lock and forced key extraction	SX01A	ZRH01A	M11A	RX11A RXK11M	YRX10A YRX11A
Units with optional key extraction	SXB01M	ZRHB01M	M10B01M	RX10B01M RX10K01M	YRX10B01M
Units without actuator	SX01M	ZRH01M	M12M	RX11M	YRX11M

For additional information refer to the data sheets of the individual modules and other basic units.

### Data sheets

Solenoid locking modules YRX/YRH/YAX  
 Actuator module K  
 Key module 01/10  
 End module M



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

**Dimensional Drawing (YRXKM) [mm]**

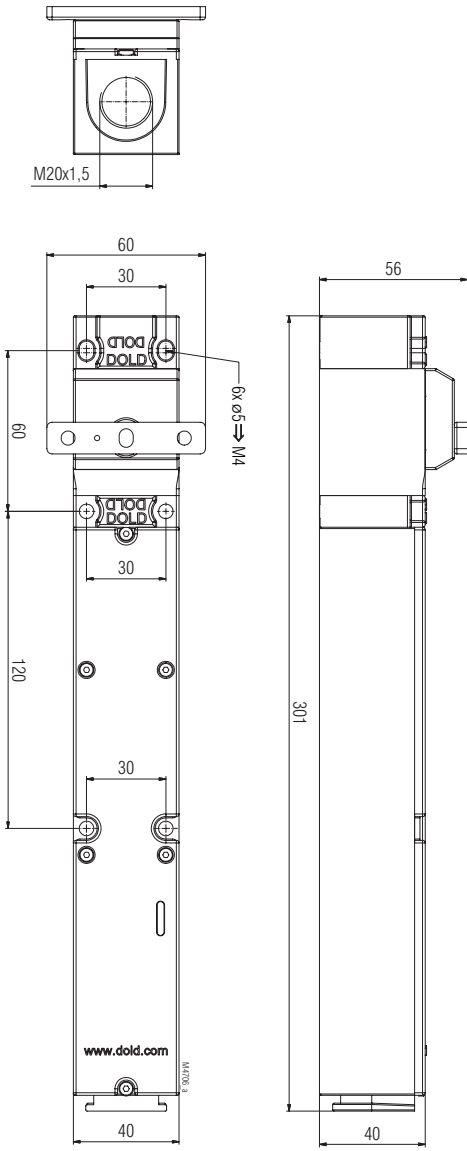


Illustration: YRXKM  
Clearance tolerances  $\pm 2\%$

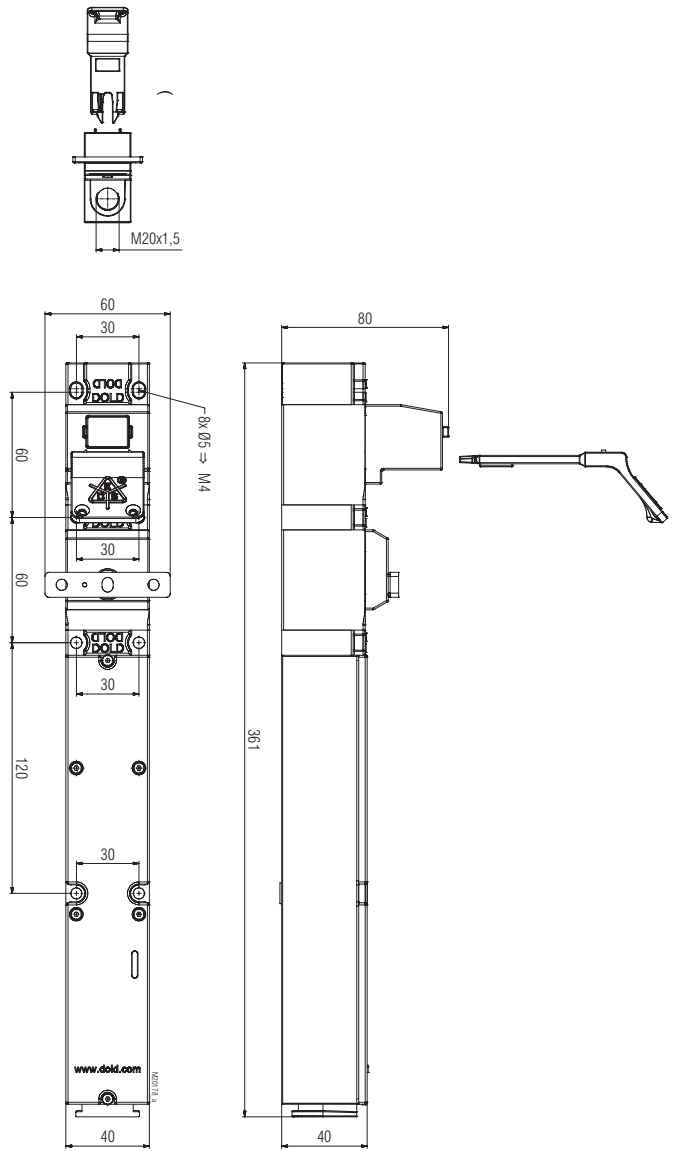


Illustration: YRXK01M  
Clearance tolerances  $\pm 2\%$

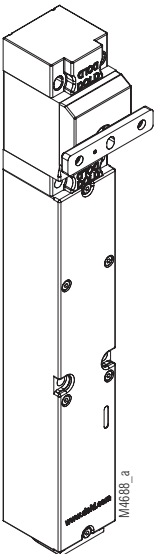


Illustration: YRXKM

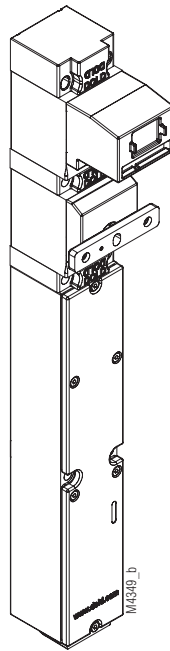


Illustration: YRXK01M