

Our experience. Your safety.

The ultimate safety system

SAFEMASTER STS

Revolutionary. Simple.

The SAFEMASTER STS safety switch and key transfer system serves to monitor the moveable safety guards found on machines and installations. It combines the advantages of safety switches, guard locks, key transfer and command functions in a single system. The rugged stainless steel or fibre reinforced polymer (FRP) interlocking system is suitable for many different uses, and can be individually tailored to your specific application.

Modular. Flexible.

The building block system allows for flexible safety solutions adapted to the application – whether they are standalone solutions, complex system solutions, electrical, mechanical, or hybrid systems. The modular, expandable system reduces installation and maintenance work, since entrances and doors can be secured without any wiring.

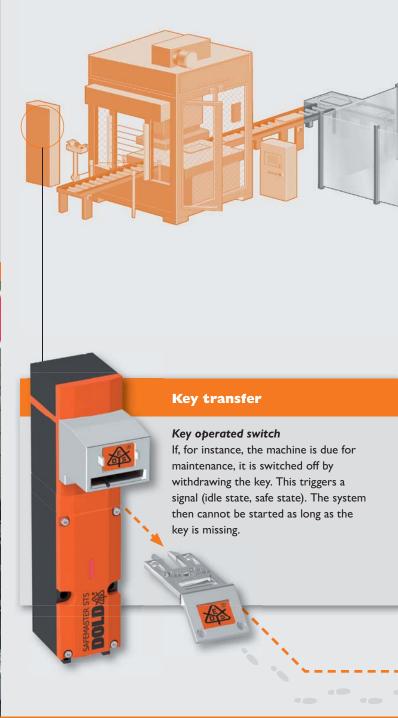
Safe. Tested.

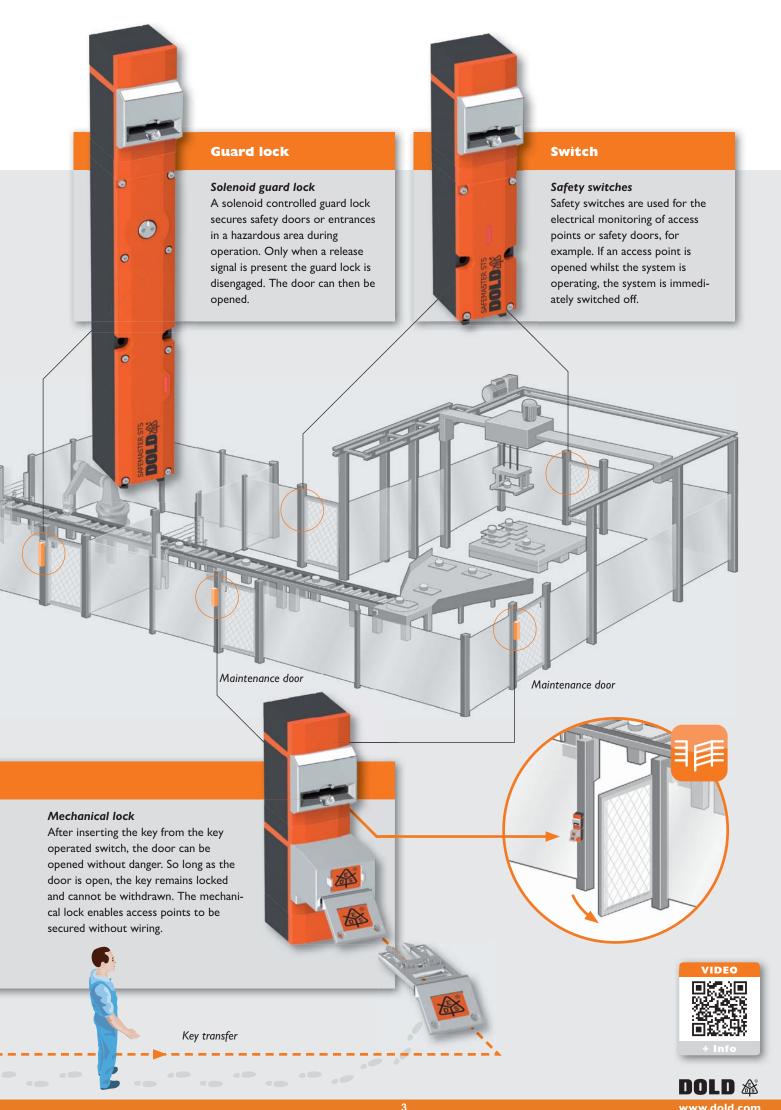
SAFEMASTER STS is tested and approved according to legal requirements, and as an individual system is suitable for use in safety applications up to cat. 4 / PL e in accordance with EN ISO 13849-1.

Reg.-Nr./No.: 01/205/5418.03/22 Prilingenenation Product Safety Safety Switch and Trapped Key System Product Fested Schrinkeschning Product Fested Schrinke

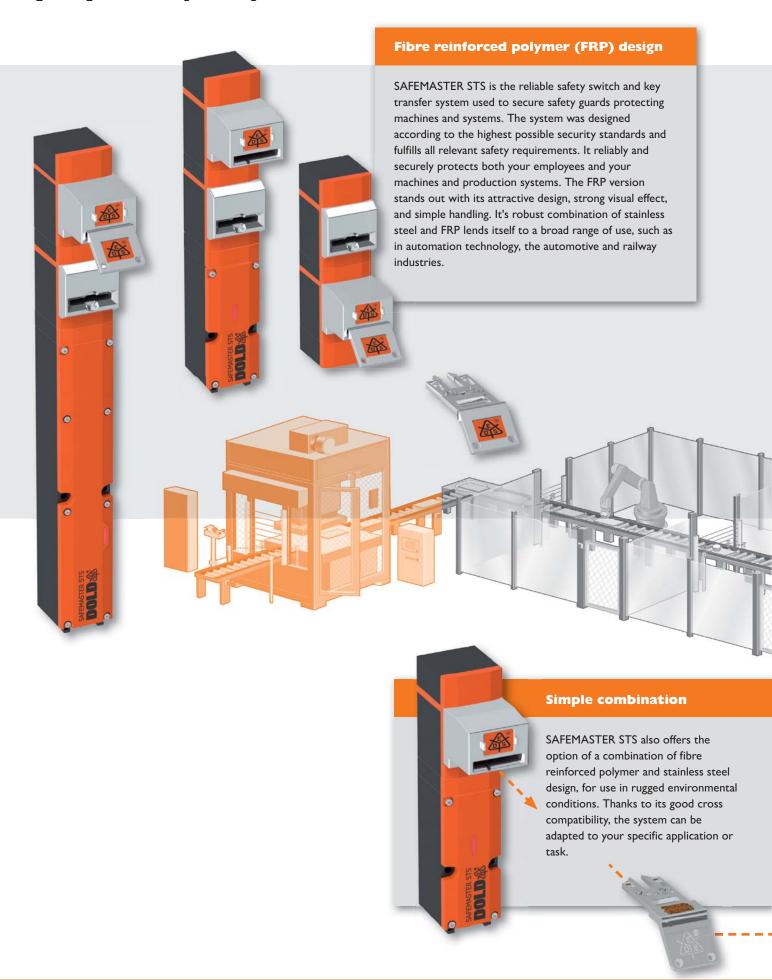
Economical. Sustainable.

With SAFEMASTER STS, your company can create customized wire free security concepts. This saves cost, power, effort and material. The components are long-lasting and recyclable. That makes this system a pioneer in terms of energy efficiency and environmental sustainability.





Reliable fibre reinforced polymer (FRP) version

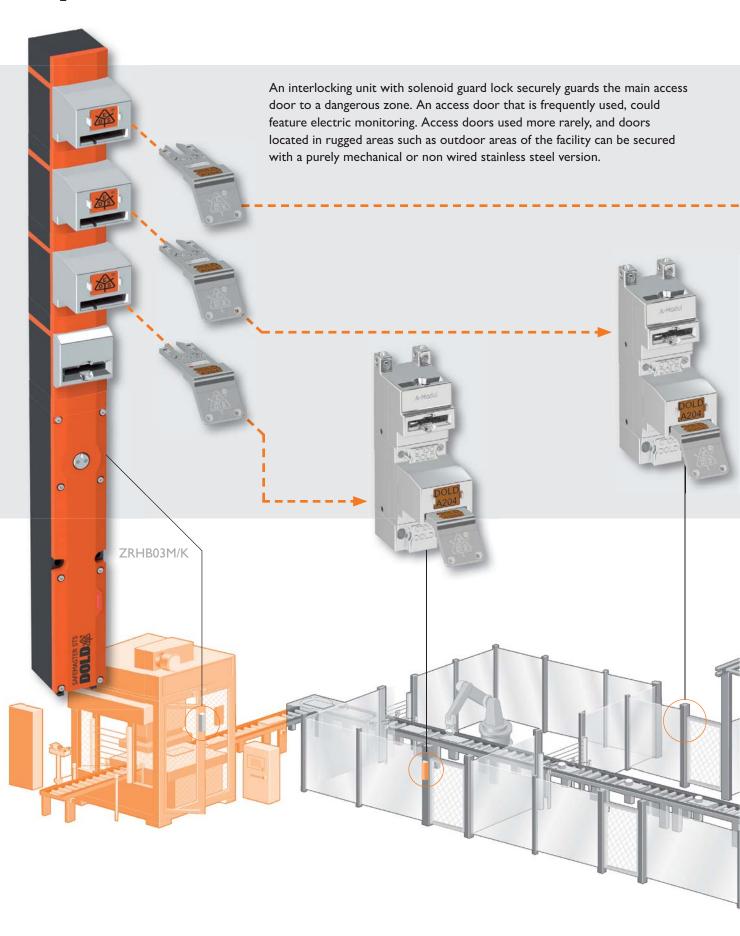


Tough robust stainless steel version



For example, the FRP version can be used in your switch cabinet, and the stainless steel solution is well suited for extreme rough handling areas.

SAFEMASTER STS - Simple combination



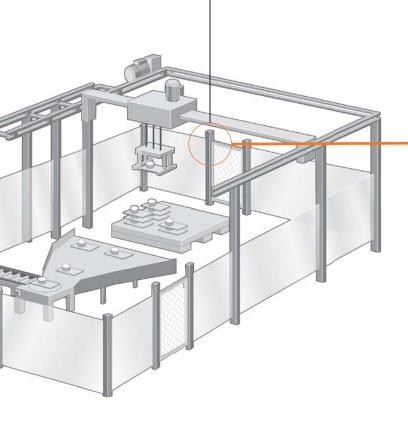
Stainless steel and fibre reinforced polymer (FRP) design



Integrating stainless steel solution

SAFEMASTER STS also offers the option of a combination of fibre reinforced polymer (FRP) and stainless steel design, for use in rugged environmental conditions. Thanks to its good cross compatibility, the system can be adapted to suite your specific application. For example, the FRP version can be used in your switch cabinet, with the stainless steel solution being used in extreme and rough handling areas.







Safety switches



Safety switch (type 2)

SAFEMASTER STS series safety switches reliably secure access and protective doors and hatches, and are suitable for safety applications up to Cat. 4 / PL e in accordance with EN ISO 13849-1 without fault exclusion. They are suited for applications requiring a high level of security. The very narrow design also allows them to be installed on movable safety guards.



When the safety guards are opened, hazardous movements must immediately be switched off and secured against restart. The hazardous machinery can only be restarted once the safety guards are closed.

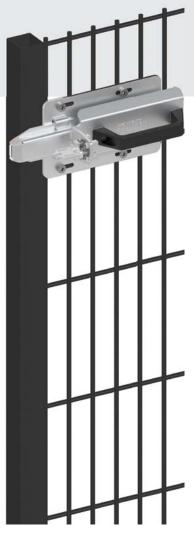
Guard locks

Mechanical / Solenoid guard lock

Guard locks in the SAFEMASTER STS family combine our trusted mechanical principle with the advantages of electromechanical safety switches with a 2-channel locking function. Thanks to their lock monitoring features, they can be used to reliably protect both processes and personnel. Different coding levels, very high locking forces, and comprehensive diagnostic capabilities allow them to be used in almost all safety-relevant applications.

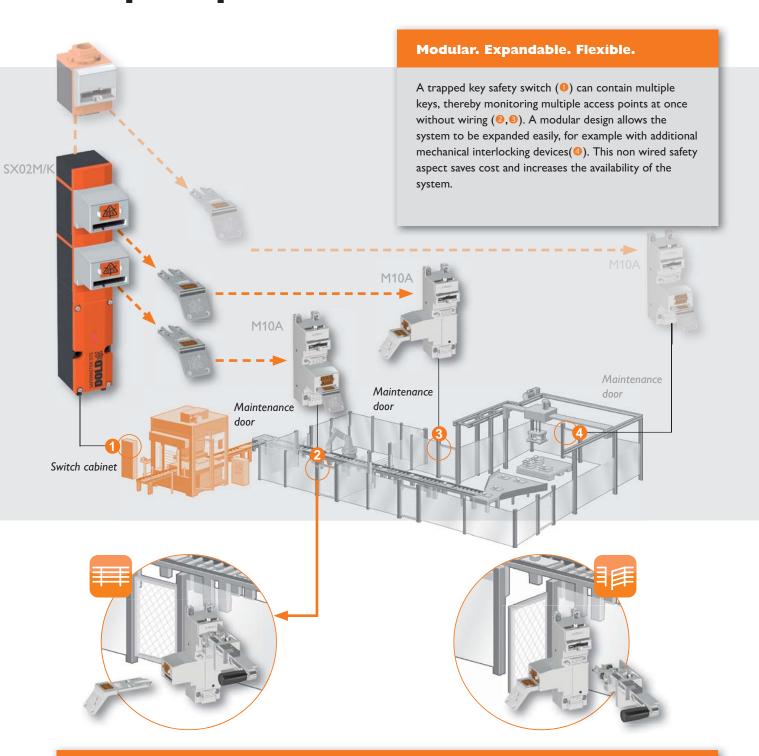






An access door can only be opened after the machine controller has transmitted an enabling signal to the guard lock. As long as this enabling signal is active, the movable section of the safety guard can be opened and closed. If the release signal is cancelled, the safety guard is closed and the guard lock is reactivated. The machine can then be restarted. Possible uses include safety applications with machine or equipment follow-up movements involving high pressure or high temperatures.

Key transfer – The principle



Wireless. Safe.

Safety door closed and locked

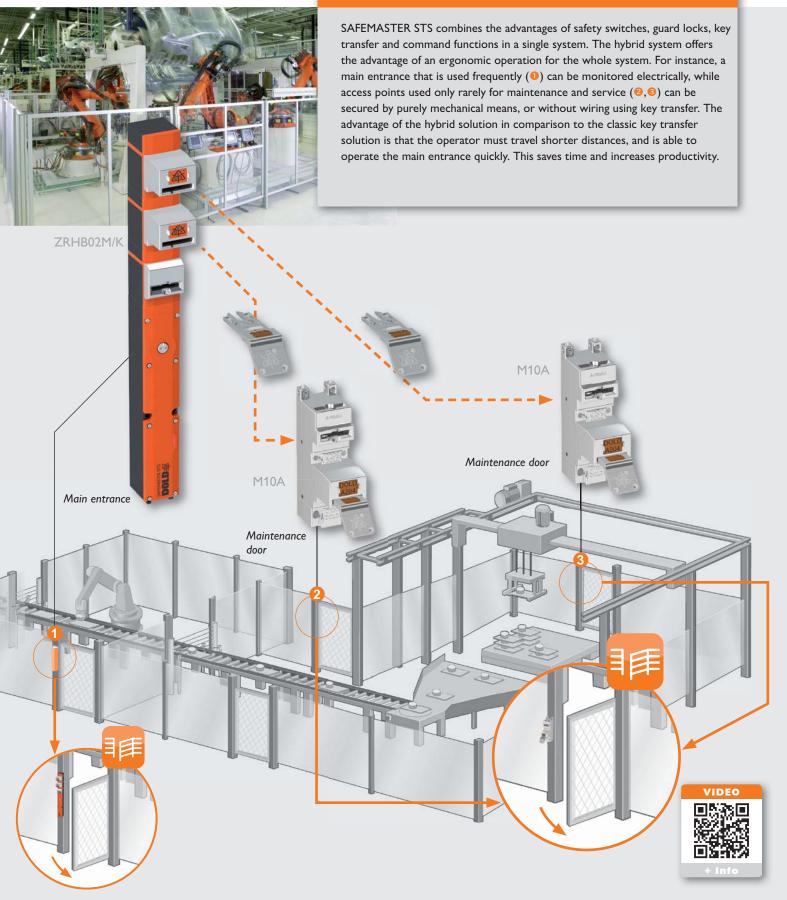
To open the safety door, a key from the trapped key safety switch (1) must be inserted into the mechanical guard lock (2). Only then can the door be opened.

Safety door opened, key retained

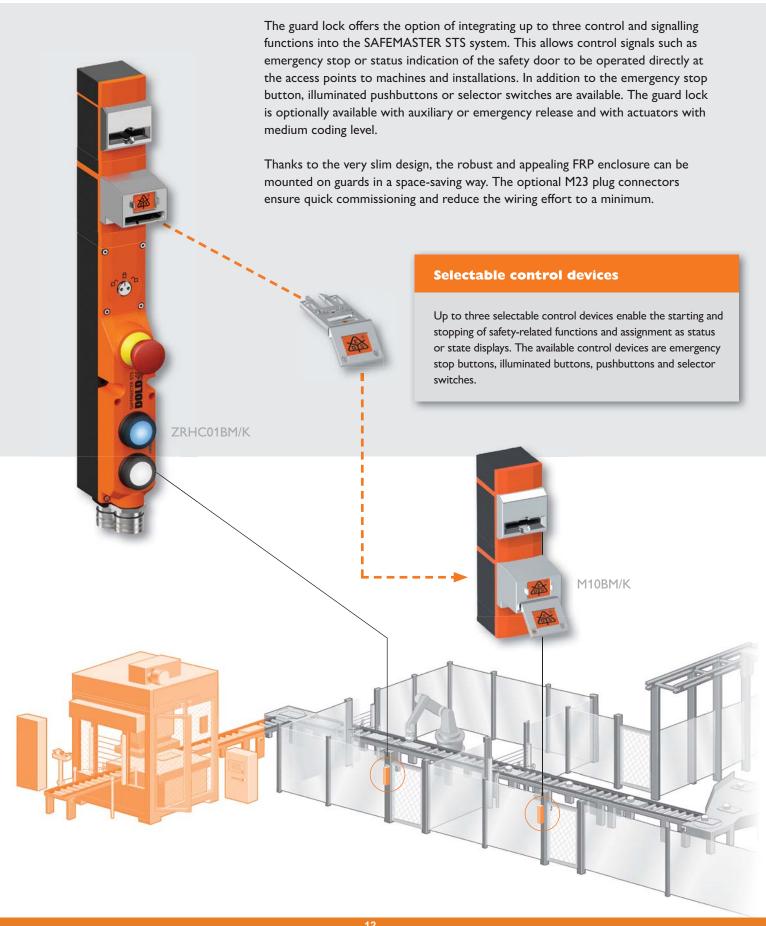
As long as the door is open, the key is retained in the mechanical guard lock (②). Only once the door is closed the key can be removed. The system-enforced process means that it is only possible to start the machine once all keys (②, ⑤ and ⑥) are re-inserted into the trapped key safety switch (⑥).

Hybrid system – Ergonomic safeguard

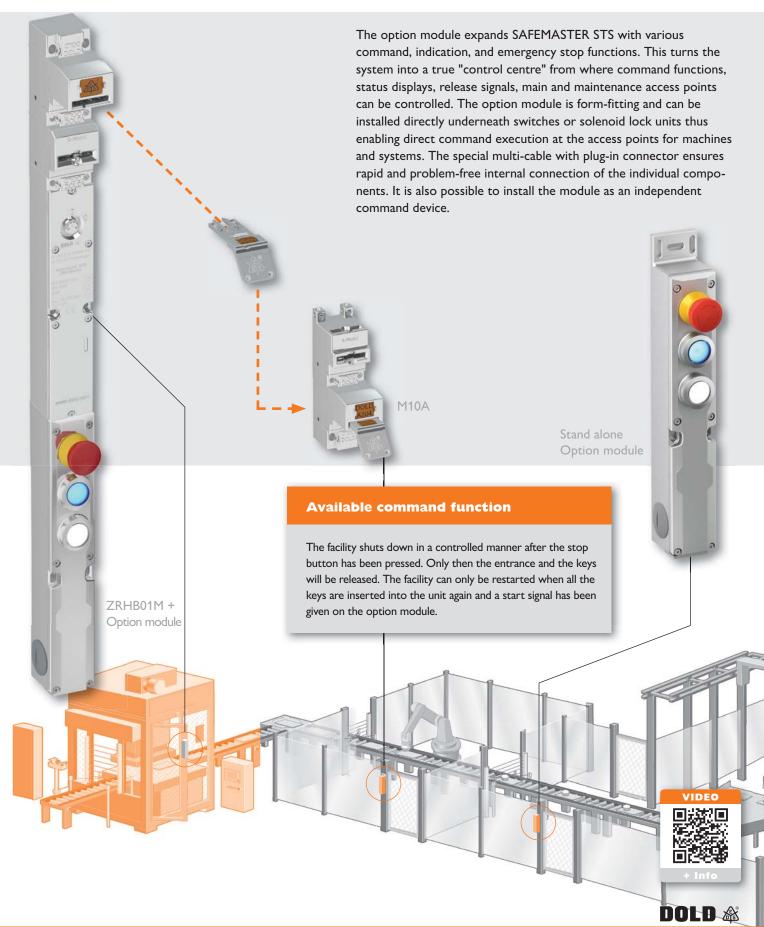
Reduced wiring. Ergonomic.



Guard lock with integrated control and signalling functions



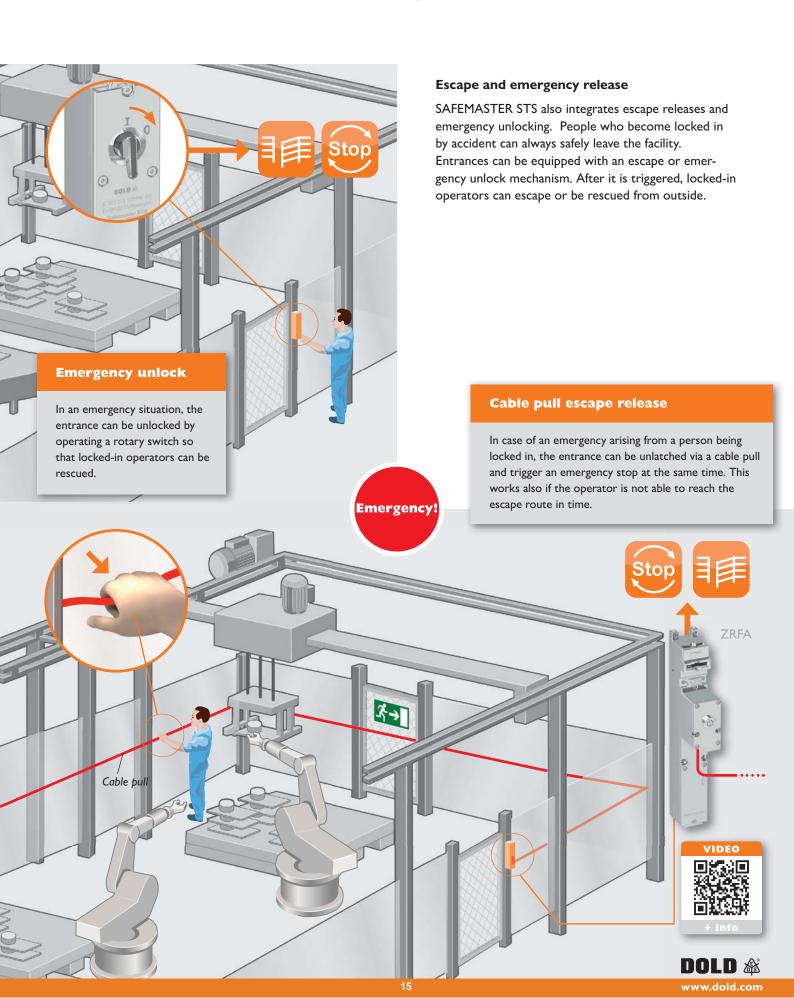
Option module Operating and command functions



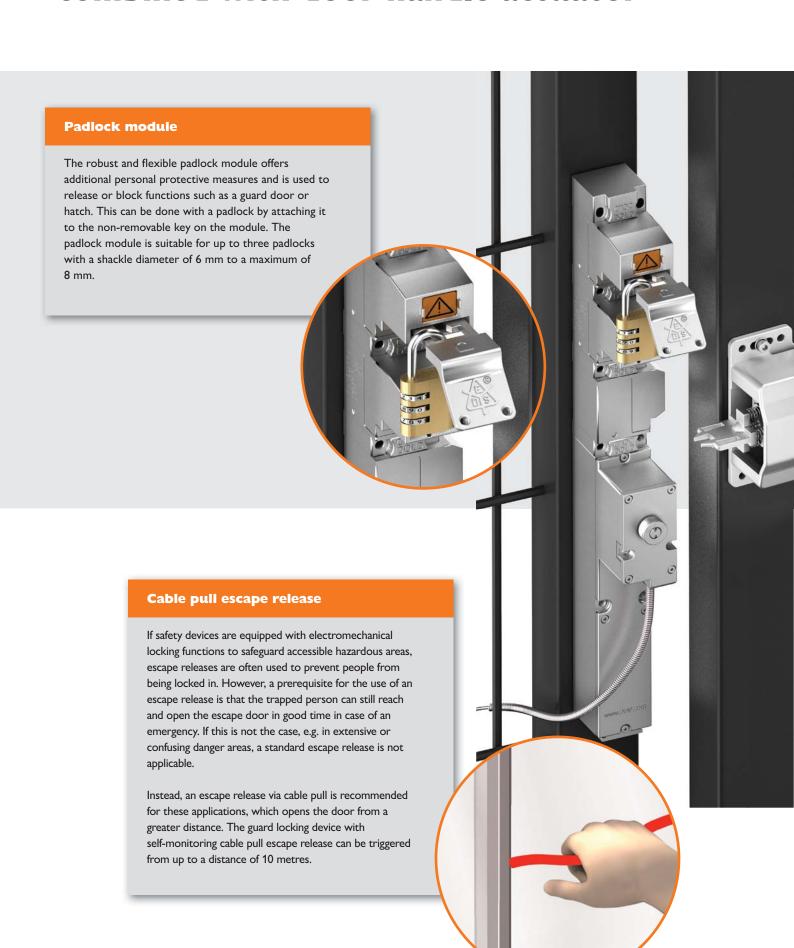
Protection against being locked in - preventative measures

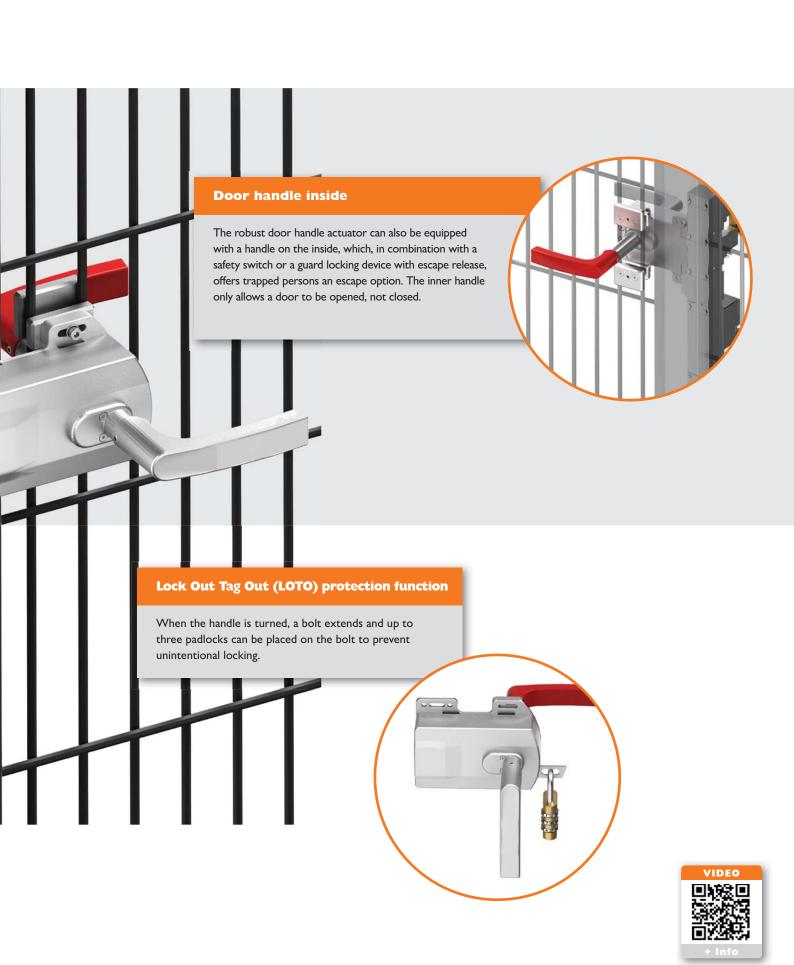


Protection against being locked in - reliably control emergency situations



Cable pull escape release combined with door handle actuator



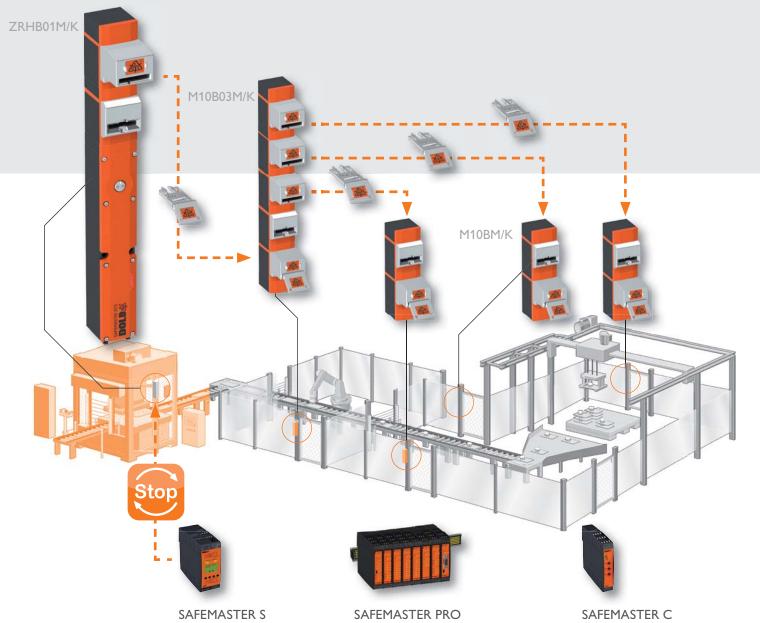


Control Interlocking – Controlled shutdown

Machine and facility monitoring

Flexible and highly efficient: With control interlocking, machine or facility shutdown is monitored by a higher level control unit, such as safety modules, speed and standstill monitors or safety controllers. This means the system is shut down in a controlled manner and the access to the system is enabled. SAFEMASTER STS is suitable for applications up to the highest safety level (PL e in accordance with EN ISO 13849-1), and can be integrated into both centralised and decentralised control concepts.





Power Interlocking – Reliable all-pole disconnection

Power Interlocking enables the integration of a switch disconnector into the safety switch and key transfer system SAFEMASTER STS. It allows direct, all-pole disconnection and safety-related locking of the energy supply to machines and plants. The safety system thus protects persons entering a hazardous area. Thanks to its simple design, Power Interlocking, in combination with other modules, offers a non-wired, purely mechanical protection of safety doors without the need for an additional control level.

The key of the integrated interlocking unit can only be removed after the switch disconnector has been switched off. When the key is removed, the drive shaft of the switch disconnector is mechanically locked in the off position. This prevents the system from being switched back on. The released key can be used to operate the other purely mechanically locked access points. This considerably reduces installation and assembly costs. The additional integration into the emergency stop circuit allows a two-channel system structure. This can achieve a safety level up to PL e, category 4 according to EN ISO 13849-1. Power Interlocking is suitable for switch disconnectors with a square drive shaft.



SAFEMASTER STS -The components

Key modules

Padlock modules (LOTO)

















V/K

W/K

Actuator modules

Actuators

TG







B/K











Α

Solenoid lock modules



Switch modules

Command devices

















Stand alone

Integrated option module

Accessories



Multiple functional elements



End module

Key module

Actuator module

Switch module

Command devices

Individual configuration – for an optimal design for your system

The **key module** monitors, for example, the release or locking of a safety door, using personal keys. This feature makes it possible to require a specific order of operations from which workers may not deviate.

The **padlock module** (LOTO) offers additional safety functions and serves to release or lock functions. This can be implemented with a padlock inserted to a key that cannot be removed.

Actuator modules guarantee safe access, for instance to a protective cover or door. The actuator module, together with the actuator, monitors the placement of two moving components of a protective device. In combination with other modules, they can create output signals, keep access doors closed, and force processes.

Solenoid lock modules ensure that protective doors and other safety guards remain closed as long as there is a hazardous situation or a danger of injury to persons. Access is only granted once a release signal is present.

The **switch module** serves, for instance, to secure moveable safety guards. When the safety guards are opened, hazardous movements must be immediately turn off by the switch module and secured against restart.

Command devices enable safety doors to be monitored on machines and systems. They expand switch modules and solenoid lock modules with additional command functions in order to control main access points and maintenance access points for example.

Accessory parts, such as end module M or bayonet fittings, are used to connect or complete the SAFEMASTER STS Module. They also serve to flexibly mount the complete functional unit.

All functional modules can be mounted in 4 positions, each rotated by 90°. You can find further information on the individual modules on www.dold.com or in the module data sheets.

SAFEMASTER STS - The base units

Functions	Safety switch
Units with basic functions	SXBM/K SXA Switch with separat actuator The contacts are operated when removing the actuator
Units with mechanical guard lock function by means of a key	SX01BM/K SX01A Switch with separat actuator and forced key removal The contacts are operated and the actuator is released when the key is removed
Units with optional key release	SXB01M/K SXB01M Switch with separat actuator and optional key removal The contacts are operated and the key can be removed when the actuator is removed
Units without actuators	SX01M/K SX01M Key operated switch The contacts are operated when removing the key

Safety switch with guard lock

Mechanical guard lock units



ZRHBM/K ZRHA

Switch with electromechanical guard lock and separat actuator

When the solenoid is operated, the solenoid contacts are switched, when the actuator is removed, the actuator contacts are operated



M10BM/K M10A

Mechanical guard lock with separat actuator

The actuator can be removed after the key has been inserted



ZRH01BM/K ZRH01A

Switch with electro-mechanical guard lock, separat actuator, and forced key removal

When the solenoid is operated, the solenoid contacts are switched, when the key is removed, the key contacts are operated and the actuator can be removed



M11BM/K M11A

Mechanical guard lock with separat actuator and forced key removal

After the first key has been inserted, the second key and the actuator can be removed



ZRHB01M/K ZRHB01M

Switch with electromechanical guard lock, separat actuator, and optional key removal

When the solenoid is operated, the solenoid contacts are switched, when the actuator is removed, the actuator contacts are operated and the key can be removed



M10B01M/K M10B01M

Mechanical guard lock with separat actuator and optional key removal

If the first key has been inserted, the actuator must be removed, and the second key is released



ZRH01M/K ZRH01M

Key-operated switch with electro-mechanical locking

When the solenoid is operated, the solenoid contacts are switched, when the key is removed, the key contacts are operated



M11M/K M11M

Key exchange unit

The second key can be removed after the first key has been inserted

SAFEMASTER STS - The base units

Mechanical guard lock units **Functions** with interlock RXK01M/K Units with basic functions RXK01M / RX10A Mechanical guard lock with electrical monitoring of actuator or key position with separat actuator RXK01M: The actuator can be removed after the key has been inserted on top. RX10A: The actuator can be removed after the key is inserted RXK11M/K Units with RXK11M / RX11A mechanical guard lock function Mechanical guard lock with by means of a key separat actuator and forced key removal RXK11M: After the first key has been inserted on top, the second key and the actuator can be removed RX11A: After the first key has been inserted on top, the second key and the actuator can be removed, operating the RX10K01M/K Units with optional **RX10K01M** key release Mechanical guard lock with monitoring of second key After the first key has been inserted on top, the actuator and then the second key can be removed; only then will the contacts be operated Units without actuators **RX11M** Key exchange unit with electrical monitoring After the first key is inserted above, the second key can be removed, thereby operating the contacts

Electro-mechanical guard lock units with electro-mechanical release



YRKKM/K YRXKM

Switch with separat actuator and actuator insertion blocking

The actuator can be removed at any time, operating the actuator contacts. When the solenoid is triggered, the solenoid contacts are operated and the actuator can be inserted; this operates the actuator contacts



YRX10BM/K YRX10A

Mechanical guard lock with separate actuator and electro-mechanical release

The key can only be inserted if the solenoid is triggered; this operates the solenoid contacts Inserting the key operates the key contacts and the actuator can be removed



YRX10B01M/K YRX10B01M

Mechanical guard lock with separate actuator and electro-mechanical release, and optional second removable key

The first key can only be inserted if the solenoid is triggered; this operates the solenoid contacts. Inserting the key operates the key contacts. Then, the actuator and the second key can be removed



YRX11M/K YRX11M

Key exchange unit with electromechanical release signal

After a release signal is present, the first key can be inserted and the second key removed

Command devices



TTN

Command device with two command functions and an emergency stop switch

Plug-in connection technology with double-spring clamp terminals for wires up to 1.5 mm²



TTT

Command device with three command functions

Plug-in connection technology with double-spring clamp terminals for wires up to 1.5 mm²



WTT

up to 1.5 mm²

Command device with a selector switch (2 positions) and two command functions
Plug-in connection technology with double-spring clamp terminals for wires

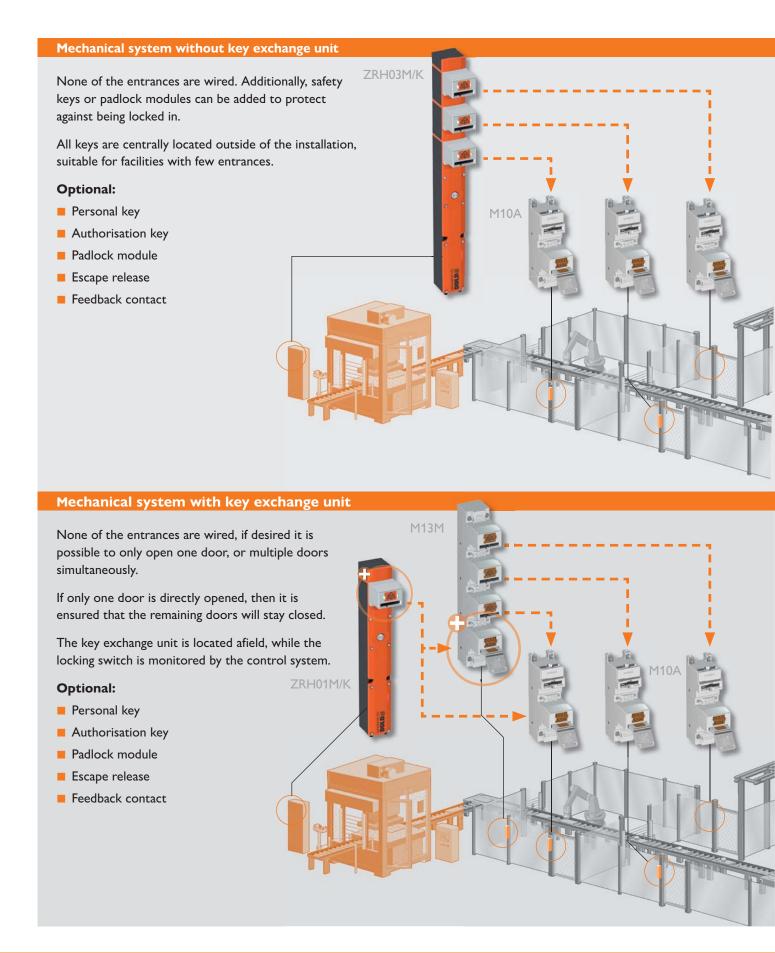


WTN

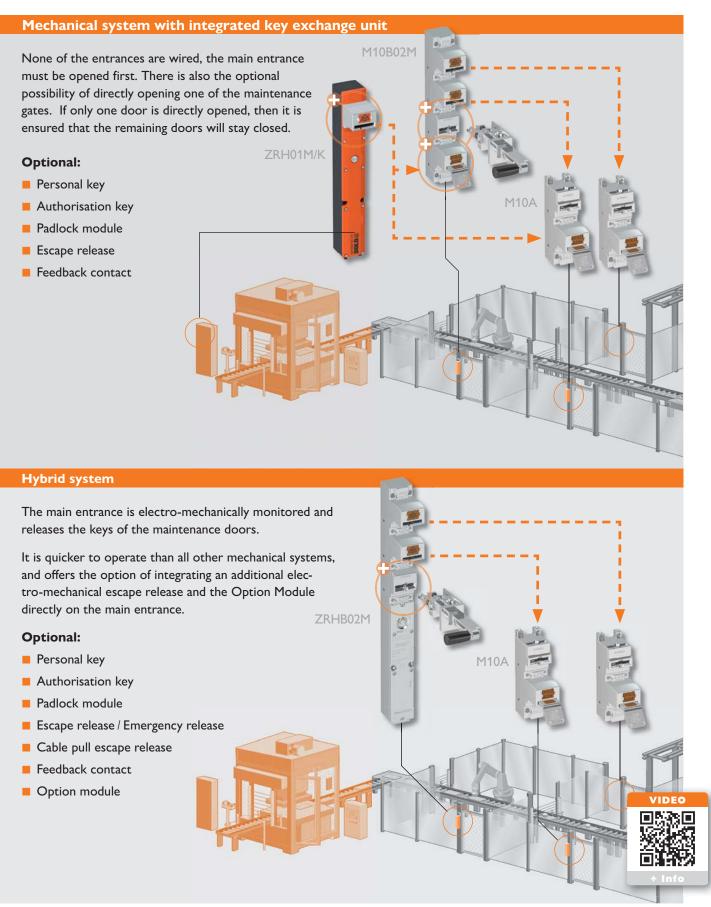
Command device with one selector switch, one command function, and one emergency stop switch

Plug-in connection technology with double-spring clamp terminals for wires up to 1.5 mm²

Four safety concepts ...



for maximum protection in all areas



Different actuators - Wide variety of solutions

Various actuators are available for the modular safety switch and key transfer system SAFEMASTER STS. Find the optimal actuator for every application.

The actuator monitors the position of moving parts of a protective guard together with the actuator module. SAFEMASTER STS offers a variety of actuators for a wide range of applications. Whether you need a flexible, robust, self-adjusting or a coded actuator, SAFEMSATER STS offers you the perfect solution for your application.

T actuator

The T actuator is the simplest actuator in the SAFEMASTER STS product range. It has two mounting holes and is impressively strong despite its flat design. The actuator can also be welded for greater stability and to prevent the mounting screws from loosening.



J actuator

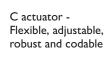
Specially developed for sliding doors, the J actuator has four degrees of freedom and is therefore able to compensate for height differences of up to 16 mm. In addition to self-adjustment, the J actuator has the advantage that it retains its last position when removed from the actuator module.



J actuator -Self-adjusting, 4-degrees of freedom, robust and codable

C actuator

The flexible C actuator is suitable for applications in rough environmental conditions where the associated SAFEMASTER STS unit may be overloaded. A set of springs integrated into the actuator reduces hard door impacts, thus preventing excessive force from being applied to the modules. The actuation angles are also adjustable. This makes it ideal for use as a radius actuator for hinged accesses with a radius of > 200 mm.



Coding

SAFEMASTER STS actuators and actuator modules can be coded as a safeguard against manipulation. This function can also be retrofitted.



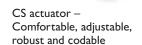
The CW latch actuator combines a door handle and door latch in one, and is especially well suited to secure guard doors exposed to high forces, such as when the door is slammed. The "floating" installation transfers forces from the interlocking unit into the bolt actuator. The robust and ergonomic handle allows safety doors to be opened and closed easily and is ideally suited for use in rugged ambient conditions. The CW latch actuator can be installed on either the left or right side of a safety door without additional assembly work. In addition, a variety of options and attachment mountings are available.



CW latch actuator – Robust, ergonomic, high strength and codable

CS actuator and **CS** mounting plate

The CS actuator consists of a flexible C actuator and a manually operated sliding latch. It is used as a door lock on revolving doors, and is designed for applications with high shearing and traction forces, so as to prevent most breakages caused by overloading. The optional CS mounting plate allows for easy mounting of a CS actuator to machinery and plants.



Door handle actuator – robust design for your safety door solution

Machines and plants are often safeguarded by protective fences and must be accessed at regular intervals for maintenance work or to rectify faults. The door handle actuator TG enables convenient and ergonomic opening of doors and protective guards.

The door handle actuators are used in conjunction with actuator modules. As a rule, the actuators are mounted on the moving part of a guard and are used to actuate the associated STS unit.

TG door handle actuator

The robust door handle actuator TG allows for convenient and ergonomic operation of guard doors. The stainless steel actuator is available with both an adjustable, spring-loaded actuator and a self-adjusting actuator. The self-adjusting actuator compensates for door offsets of up to 20 mm. The robust door handle actuator can also be equipped with a handle on the inside, which, in combination with a safety switch or an guard locking device with escape release, offers trapped persons the option of an escape release.



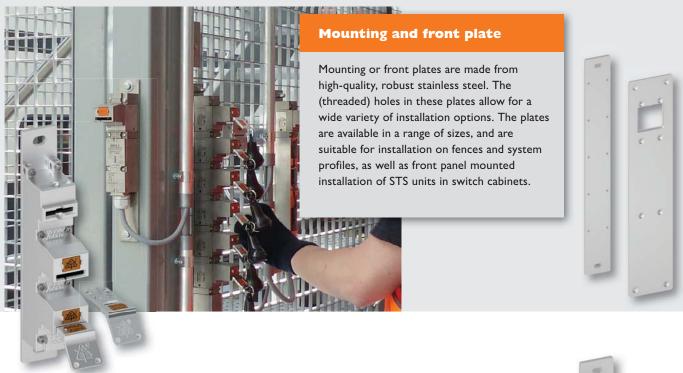




Comprehensive range of accessories - Simple installation

The various accessory components connect the base module to a wide range of different locking units. This means you can create a wide range of different combinations with just a few individual components – specifically adapted to your application.

SAFEMSTER STS units can be delivered either pre-assembled on a mounting or front plate, or with pre assembled wiring harnesses and plugs.



The front plate facilitates panel mounted installation of SAFEMASTER STS units, for instance in switch cabinets or machine enclosures.

Robust plug connection with cable

Pre assembled cables, available in different lengths, allow quick and easy connection of safety switches or guard locks from the SAFEMASTER STS series, optionally also via round plug connectors.

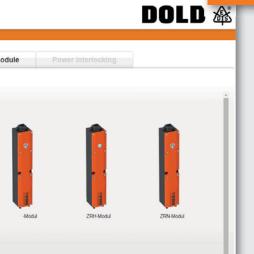




Typical applications – FRP version

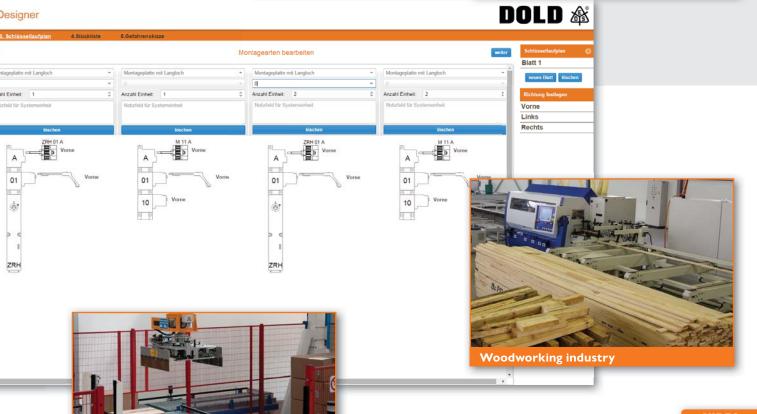




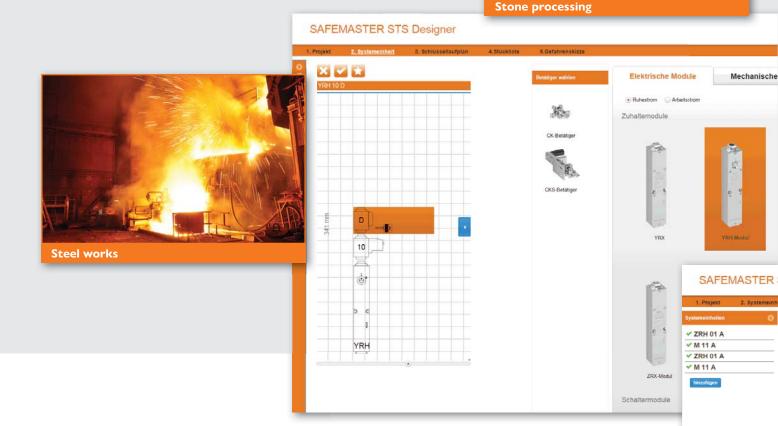


Materials handling technology





For use in rugged conditions – Stainless steel version —

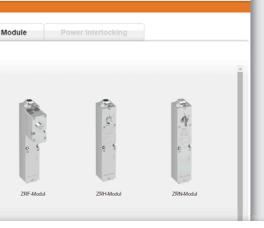




Construction materials industry



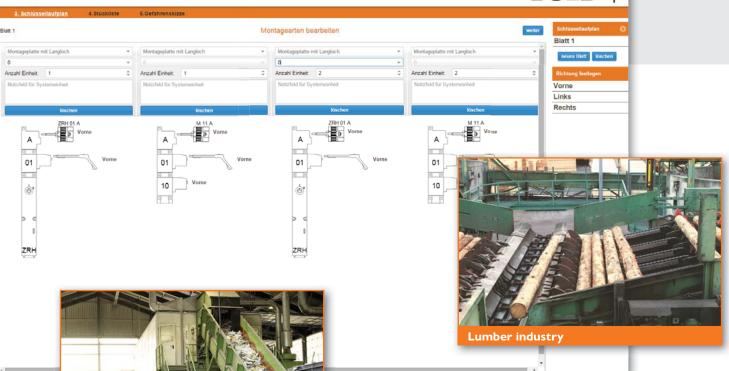




Recycling industry









Our experience. Your safety.

SAFEMASTER - The right solution for every application.



Innovative safety concepts

As a solution provider for safe automation and electrical safety, DOLD offers a comprehensive product portfolio from a single source. Our SAFEMASTER solutions have been successfully used for many decades around the world.

From single function safety switching devices for simple safety applications through to multifunction, modular safety systems, DOLD develops tailor-made solutions for your industry and applications.

We would be happy to provide you with information about further safety solutions.





SAFEMASTER PRO

SAFEMASTER W

The safety relay modules of the SAFEMASTER series monitor different safety functions such as emergency stop, safety door, two-hand control, etc. The safety modules are characterised by quick and easy commissioning, combined with convenient connection technology. Command devices such as the wired enabling switch complete the portfolio.

Our solutions for secure drive monitoring utilise a combination of safe speed, standstill, or frequency monitoring, with or without external sensors, to increase productivity and safety.

SAFEMASTER S

The modular and configurable SAFEMASTER PRO safety system monitors all safety circuits of your machinery and installations — in a simple, flexible and safe manner. The number of inputs and outputs of the central control unit can be upgraded via extension modules at any time. Now also featuring safe speed monitoring and dynamic program realization.

In addition to the safe wireless emergency stop system and the wireless enabling switch of the SAFEMASTER W family, Dold now also offers the radio controlled safety system UH 6900, a safe, bidirectional safety solution that can be wirelessly integrated into various applications.



