

SAFEMASTER STS

The key to more safety

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Modular safety switches and key transfer systems for the highest requirements. **Now also available in a fibre reinforced polymer version!**



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.



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.

Guard lock

opened.

in a hazardous area during

Maintenance door

operation. Only when a release

signal is present the guard lock is

disengaged. The door can then be

OLD:



Switch

Maintenance door

Safety switches

Safety switches are used for the electrical monitoring of access points or safety doors, for example. If an access point is opened whilst the system is operating, the system is immediately switched off.

Key transfer

Key operated switch If, for instance, the machine is due for maintenance, it is switched off by withdrawing the key. This triggers a signal (idle state, safe state). The system then cannot be started as long as the key is missing.

Mechanical lock

After inserting the key from the key operated switch, the door can be opened without danger. So long as the door is open, the key remains locked and cannot be withdrawn. The mechanical lock enables access points to be secured without wiring.

Key transfe

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Reliable fibre reinforced polymer (FRP) version

Tough robust stainless steel version

Stainless steel design

The robust and high-quality stainless steel design is well suited for use in rugged conditions, such as those in bulk goods handling areas in the chemical, food, or pharmaceutical industries. SAFEMASTER STS is also a practical solution for areas with extreme ambient temperature, moisture, and dirt.

Simple combination

Fibre reinforced polymer (FRP) design

SAFEMASTER STS is the reliable safety switch and key

transfer system used to secure safety guards protecting

to the highest possible security standards and fulfills all relevant safety requirements. It reliably and securely

protects both your employees and your machines and

production systems. The FRP version stands out with its attractive design, strong visual effect, and simple handling. It's robust combination of stainless steel and FRP lends itself to a broad range of use, such as in automation technology, the automotive and railway industries.

machines and systems. The system was designed according

SAFEMASTER STS also offers the option of a combination of fibre reinforced polymer and stainless steel design, for use in rugged environmental conditions. Thanks to its good cross compatibility, the system can be adapted to your specific application or task. 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.

Safety switches

Guard locks



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.

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.



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.





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 (0) must be inserted into the mechanical guard lock (\mathfrak{S}) . 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 (O). 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 (O, O and O) are re-inserted into the trapped key safety switch (O).

Hybrid system – Ergonomic safeguard

Reduced wiring. Ergonomic.



Protection against being locked in preventative measures

Protection against being locked in reliably control emergency situations



Personal key

The employee must take the key with him into the facility for his own safety. By doing so, he safeguards himself against unexpected starting and protects himself from being locked in.







Escape and emergency release

SAFEMASTER STS also integrates escape releases and emergency unlocking. People who become locked in by accident can always safely leave the facility. Entrances can be equipped with an escape or emergency unlock mechanism. After it is triggered, locked-in operators can

In case of an emergency arising from a person being locked in, the entrance can be unlatched via a cable pull and trigger an emergency stop at the same time. This works also if the operator is not able to reach the

VIDEO

SAFEMASTER STS -Simple combination

Stainless steel and fibre reinforced polymer (FRP) design



Option module -Operating and command functions



Complex requirement -

Simple solution

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 – Safely interlocking the load circuit breaker

Power Interlocking includes a load-break switch integrated into the SAFEMASTER STS system. This allows electric power to be securely shut down and locked off. This is achieved without a separate electrical or electronic control level.

Power Interlocking from the SAFEMASTER STS series forces the disconnection of the energy source by turning off the load circuit breaker before entering the facility. Only after the load circuit breaker is turned off the key to the integrated locking unit can be removed. Pulling the key mechanically locks the load circuit breaker in the off position. This stops the system from restarting. Once the key is released, another, purely mechanically locked accesses, can be operated. This significantly reduces installation and assembly work. The two-channel construction of the system allows integration into the emergency stop circuit. This makes it possible to achieve safety levels up to PL e, category 4 in accordance with EN ISO 13849-1. Power Interlocking is suitable for currents up to 800 A, and guarantees safe interlocking, even in the event of auxiliary and control circuit failure.





SAFEMASTER STS – The components

Multiple functional elements



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



SAFEMASTER STS -

The base units



Units without actuators



RXIIM

Key exchange unit with electrical monitoring After the first key is inserted above, the second key can be removed, thereby operating the contacts



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YRXIIM -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 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



None of the entrances are wired, if desired it is possible to only open one door, or multiple doors

If only one door is directly opened, then it is ensured that the remaining doors will stay closed.

The key exchange unit is located afield, while the locking switch is monitored by the control system.

Optional:

Personal key

simultaneously.

- Authorisation key
- Padlock module
- Escape release
- Feedback contact



The main entrance is electro-mechanically monitored and releases the keys of the maintenance doors.

It is quicker to operate than all other mechanical systems, and offers the option of integrating an additional electro-mechanical escape release and the Option Module directly on the main entrance.

Optional:

- Personal key
- Authorisation key
- Padlock module
- Escape release / Emergency release
- Cable pull escape release
- Feedback contact
- Option module

MIOA

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.



Mounting and front plate

Mounting or front plates are made from high-quality, robust stainless steel. The (threaded) holes in these plates allow for a wide variety of installation options. The plates are available in a range of sizes, and are suitable for installation on fences and system profiles, as well as front panel mounted installation of STS units in switch cabinets.

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.



Different actuators -Wide variety of solutions

J, C, T actuators

Actuators work with the actuator module to monitor the position of two movable components in a safety guard. SAFEMASTER STS offers different actuators for a variety of application scenarios. Whether you need a flexible, robust, self-adjusting, or coded actuator: SAFEMASTER STS offers the perfect solution for your application.





J actuator - C actuator self-adjusting, flexible, adjustable, 4 degrees of freedom, robust, and codable

Coding

also be retrofit.

SAFEMASTER STS actuators and

a safeguard against operator

manipulation. This function can

actuator modules can be coded as

T actuator stable, simple, 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.



CW bolt actuator

The CW bolt actuator combines a door handle and door latch in one, and is especially well suited to secure safety 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 bolt 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.

Typical applications – FRP version



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www.dold.com

For use in rugged conditions – Stainless steel version



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Our experience. Your safety.

SAFEMASTER - The right solution for every application.



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 C

The multifunctional safety module UG 6970 from DOLD's SAFEMASTER C family monitors two independent safety functions. Select any functions from the basic range of functions emergency stop, safety door, two-hand control, safety mat/safety strip, antivalent switches and light barrier.

SAFEMASTER S

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 PRO

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.



SAFEMASTER W

The emergency stop system and radio-controlled enabling switch in the SAFEMASTER W series can be used to wirelessly shut down hazardous movements in a fraction of a second. The Wireless Safety System thus ensures maximum freedom of movement for the operating and maintenance personnel.



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