SAFEMASTER

Safety relay modules and
configurable safety systems

DOLD ®

Our experience. Your safety.

Functional safety

Customer-oriented solutions for your success

SAFEMASTER

DOLD - Your solution provider for safe automation, electrical safety and smart drive technology

DOLD develops tailor-made solutions for individual customer applications in the field of safety technology. In addition to a large number of devices with standard functions, we offer many years of experience in the development of individual, economical problem solutions.

From monofunctional or multifunctional safety relay modules to modular, configurable safety systems with fieldbus connection to radio controlled safety systems, DOLD develops safe, coordinated components from a single source.

As a solutions provider, we supply innovative products to a wide variety of markets such as mechanical and plant engineering, power generation and distribution, rail and medical technology, and the raw materials processing industry ... and wherever safety has the highest priority.

Everything from a single source - The SAFEMASTER product range includes the following components and systems:

▶ Emergency stop modules

▶ Two-hand / safety mat evaluation

▶ Safety gate monitoring

▶ Light barrier / light grid evaluation

▶ Extension / delay / interface modules

▶ Standstill / speed / frequency monitoring

▶ Multifunctional safety systems

▶ Wireless safety solutions

Benefit from flexible and economical safety solutions for small and medium-sized machines up to large, networked plants. SAFEMASTER products are used worldwide wherever people, machines and plants have to be protected from damage.

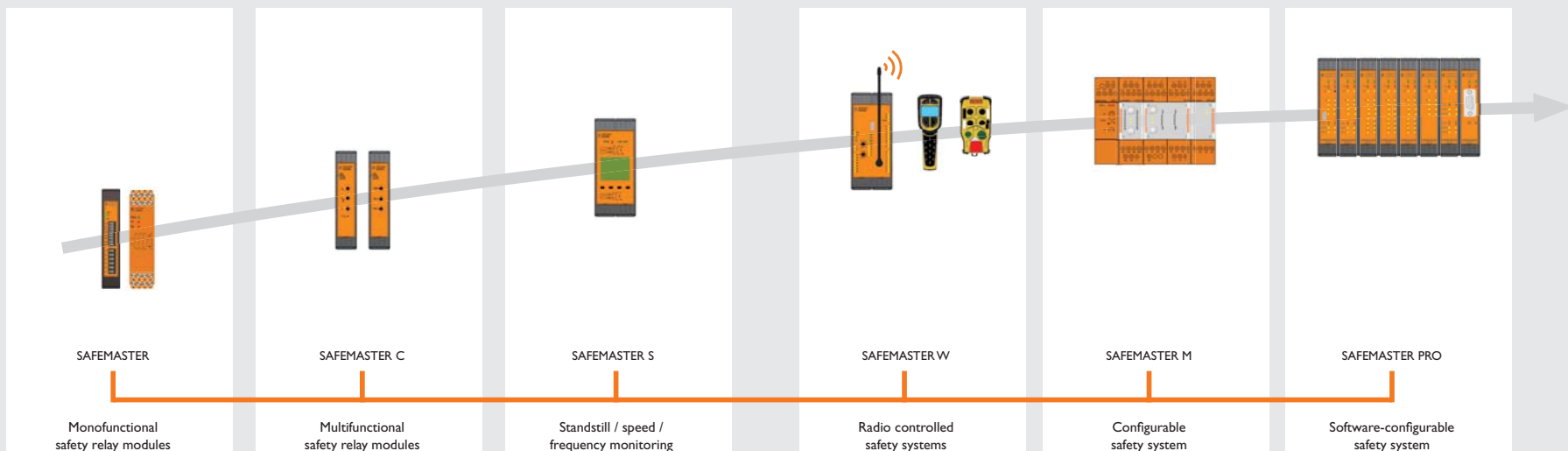**Always on the safe side - certified safety**

The combination of know-how, innovation and experience makes us one of the world's leading manufacturers of solutions in safe automation. This is another reason why products in the field of safety technology meet the highest safety requirements and thus comply with international machine safety standards.

▶ IEC/EN 61508 to SIL 3

▶ IEC/EN 62061 to SIL CL 3

▶ EN ISO 13849-1 up to Cat. 4 / PL e

Functional safety even for low requirement rates

For the use of our products in operating modes with low requirement rates (low-demand mode), e.g. in applications in the process industry, we provide additional safety-related characteristic data depending on the device.

DOLD offers you an integrated concept of safety-related solutions – from monofunctional safety relay modules up to complex safety systems

SAFEMASTER	SAFEMASTER C	SAFEMASTER S	SAFEMASTER W	SAFEMASTER M	SAFEMASTER PRO
Monofunctional safety relay modules	Multifunctional safety relay modules	Standstill / speed / frequency monitoring	Radio controlled safety systems	Configurable safety system	Software-configurable safety system

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SAFEMASTER -
Classic emergency stop modules

The extensive SAFEMASTER product range offers conventional or monofunctional safety modules with emergency stop function. These find their optimum field of application when a plant or machine has a small number of required safety functions.

DOLD offers compact safety relay modules from a width of 17.5 mm, variable connection technologies as well as emergency stop modules with time delay or mains failure detection.

The emergency-stop safety relay modules are ready-to-connect, type-tested modules that can be used in safety applications up to Cat. 4 / PL e or SIL 3. The SAFEMASTER series features a large selection of variants and functions for a large number of applications.

Emergency stop module UF 6925 from the SAFEMASTER series with integrated push-in cage clamp terminals at the front

Your advantages at a glance

▶ Up to cat. 4 / PL e or SIL 3

▶ Outputs with forcibly guided contacts

▶ Minimum overall width from 17.5 mm

▶ Variable connection technology

▶ Fast diagnosis by LED

▶ Different enclosure designs (distributor and switch cabinet enclosures) available

▶ Optionally with time delay, mains failure detection or safety door monitoring

Further information can be found at www.dold.com or in the respective data sheets.

Overview: Emergency stop modules *

Device type	UF 6925	RK 5942	LG 5924	LG 5925	LG 5925/034	LG 5928	BD 5935	BD 5987	BH 5903	BL 5903	BH 5928	BI 5928	BN 5930.48/204	BN 5983
Function	Emergency stop module	Emergency stop module	Emergency stop module	Emergency stop module	Emergency stop module	Emergency stop module	Emergency stop module	Emergency stop module	Emergency stop module		Emergency stop module		Emergency stop module	Emergency stop module
Special features	wide voltage range, front terminals	distributor enclosure design	also for combustion plants		safety module for elevator controls	with time delay up to 300 s	overvoltage and short-circuit protection	also for elevator controls	with mains failure detection		with time delay up to 300 s		with cross fault detection	overvoltage and short-circuit protection
Also suitable as safety gate monitor	+			+		+	+	+			+		+	+
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e	4 / e		4 / e	3 / d (NOv) 4 / e (NO)	4 / e	4 / e	4 / e		3 / d (NOv) 4 / e (NO)		4 / e	4 / e
SIL CL according to IEC/EN 62061	3	3	3		3	3	3	3	3		3		3	3
1- / 2-channel	2	1	1	1; 2	1; 2	1; 2	1; 2	1; 2	1; 2		1; 2		1; 2	1; 2
Output contacts max.	3 NO	1 NO	4 NO		3 NO, 1 NC	2 NO, 1 NOv	3 NO, 1 NC	2 NO	3 NO		3 NO, 3 NOv		3 NO, 1 NC	3 NO, 1 NC
Thermal current I$_{th}$ max.	8 A	5 A	5 A	8 A	5 A	8 A	10 A	10 A	5 A		5 A		10 A	10 A
Cross fault detection	+		+		+	+	+	+	+		+		+	
Nominal voltage DC	+	+	+			+	+	+	+		+		+	+
Nominal voltage AC			+	+			+	+		+			+	+
Nominal voltage AC/DC				+	+						+			
Connection technique	C	S/PC/PCA	S/PS/PC		S/PS/PC	S/PS/PC	PS	S	PS		PS		PS	PS
Width	17,5 mm	17,5 mm	22,5 mm		22,5 mm	22,5 mm	45 mm	45 mm	45 mm	90 mm	45 mm	67,5 mm	100 mm	100 mm

S   = Screw terminals C = Cage clamp terminals
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact
NOv = normally open contact delayed

* Specifications, approvals etc. see data sheet

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Safety gate monitoring

Safety edge / Safety mat evaluation

SAFEMASTER - Safety modules for safety gate monitoring

In addition to the emergency stop safety function, the SAFEMASTER series also offers modules for safety gate monitoring. The safety gate monitors monitor the position of movable safety guards. They are used wherever access or access in a room with hazardous movement requires safeguarding, e.g. for machine operation, setup or troubleshooting.

Your advantages at a glance
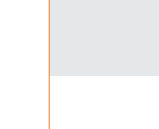
▶ Up to cat. 4 / PL e or SIL 3

▶ Outputs with forcibly guided contacts

▶ Safe time function and safety gate monitoring

Safety module for safety gate monitoring LG 5925/920 from the SAFEMASTER series + magnetic switch (see special devices)

SAFEMASTER - Safety edge / Safety mat modules

The safety edge modules of the SAFEMASTER series monitor safety edges. They are used for the safety-related release and interruption of a safety circuit and for the protection of persons and machines. To prevent damage to the safety edges due to excessive switching currents, the current is limited, even in the event of a short circuit.

Your advantages at a glance

▶ Up to cat. 4 / PL e or SIL 3

▶ Universally suitable for safety edges with different permissible switching currents

▶ Switching current limitation

Safety edge module LG 5944 from the SAFEMASTER series

Overview: Modules for safety gate monitoring *

Device type	BG 5925/920	LG 5925/920	BN 5930.48	BO 5988.47	BO 5988.61
Function	Emergency stop module / Safety gate monitor	Emergency stop module / Safety gate monitor	Emergency stop module / Safety gate monitor	Emergency stop module / Safety gate monitor	Emergency stop module / Safety gate monitor
Special features	magnetic switch connectable	also for combustion plants		time delay up to 600 s	
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e	4 / e	3 / d (NOv) 4 / e (NO)	4 / e
SIL CL according to IEC/EN 62061	3	3	3	3	3
1- / 2-channel	2	1; 2	1; 2	1; 2	1; 2
Output contacts max.	3 NO	4 NO	3 NO, 1 NC	3 NO, 1 NC, 1 NOv	6 NO, 1 NC
Thermal current I_{th} max.	5 A	8 A	5 A	10 A	10 A
Cross fault detection	+	+		+	+
Nominal voltage DC	+	+	+	+	+
Nominal voltage AC			+	+	+
Connection technique	PS	S/PS/PC	PS	PS	PS
Width	22,5 mm	22,5 mm	100 mm	100 mm	100 mm

S = Screw terminals
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact
NOv = normally open contact delayed

* Specifications, approvals etc. see data sheet

Overview: Modules for safety edge evaluation *

Device type	BG 5925/910	LG 5944
Function	Safety mat module	Safety edge module
Special features	for safety mats with max. switching current of 100 mA	for safety mats with max. switching current of 10 mA
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e
SIL CL according to IEC/EN 62061	3	3
1- / 2-channel	2	2
Output contacts max.	3 NO	2 NO
Thermal current I_{th} max.	5 A	5 A
Nominal voltage DC	+	
Nominal voltage AC		
Nominal voltage AC/DC		+
Connection technique	PS	S/PS/PC
Width	22,5 mm	22,5 mm

S = Screw terminals
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

Light barrier / Light grid evaluation

SAFEMASTER - Modules for light barrier evaluation

Light barrier evaluation devices are used to protect access to hazardous areas. Light barriers belong to the group of electro-sensitive protective devices (ESPE) which switch off the hazardous movement when persons and objects approach a danger point and thus initiate the safe state.

If a machine operator must intervene regularly in a machine, it is advantageous to use ESPE instead of mechanical guards. This reduces the access time and at the same time increases productivity and ergonomics.

Your advantages at a glance

▶ Up to cat. 4 / PL e or SIL 3

▶ Increased productivity due to shorter cycle times

Light barrier evaluation module LG 5925/900 from the SAFEMASTER series

C UL US LISTED *

Overview: Modules for light barrier evaluation *

Device type	BG 5925/900	LG 5925/900	BH 5902/01MF2
Function	Light curtain controller	Light curtain controller	Light curtain controller
Special features		also for combustion plants	with selectable operating modes
Cat. / PL acc. to EN ISO 13849-1	4 / e	4 / e	4 / e
SIL CL acc. to IEC/EN 62061	3	3	3
1- / 2-channel	1; 2	1; 2	1; 2
Output contacts max.	3 NO	4 NO	3 NO
Nominal voltage DC	+	+	+
Thermal current I_{th} max.	5 A	8 A	5 A
Cross fault detection	+	+	+
Connection technique	PS	S/PS/PC	PS
Width	22,5 mm	22,5 mm	45 mm

S = Screw terminals
PS = removable screw terminals
PC = removable cage clamp terminals
PT = removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

Two-hand evaluation

SAFEMASTER - Modules for two-hand evaluation

Two-hand evaluations serve the safety-related release and interruption of a safety circuit. They can be used for the protection of persons and machines in applications with two-hand switches in metalworking presses, as well as in other working machines with dangerous closing movements.

Your advantages at a glance

▶ Up to cat. 4 / PL e or SIL 3

▶ Fast commissioning / compact two-hand safety relays ready for connection

▶ Up to safety level Type III-C according to EN 574

Two-hand evaluation module BG 5933 from the SAFEMASTER series

C UL US LISTED *

Overview: Modules for two-hand evaluation *

Device type	BG 5933	LG 5933	BD 5980N	BH 5933
Function	Two-hand safety relay	Two-hand safety relay	Two-hand safety relay	Two-hand safety relay
Special features	use on power-driven presses for metal processing			use on power-driven presses for metal processing
Cat. / PL acc. to EN ISO 13849-1	4 / e	4 / e	1 / c	4 / e
SIL CL acc. to IEC/EN 62061	3	3	1	3
Safety level acc. to EN 574	III C	III C	III A	III C
Inputs	2 x (1 NO, 1 NC)	2 x (1 NO, 1 NC)	2 x 1 NO	2 x (1 NO, 1 NC)
Output contacts max.	2 NO, 1 NC	3 NO, 1 NC	2 NO	3 NO, 1 NC
Nominal voltage DC	+	+	+	+
Nominal voltage AC	+	+	+	+
Thermal current I_{th} max.	5 A	5 A	5 A	5 A
Connection technique	PS	S/PS/PC	S	PS
Width	22,5 mm	22,5 mm	45 mm	45 mm

S = Screw terminals
PS = removable screw terminals
PC = removable cage clamp terminals
PT = removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

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SAFEMASTER - Extension / Delay / Interface Modules

Extension modules

With extension modules the output contacts of the base modules can be multiplied. It is also possible to strengthen the contacts by dividing it into several control circuits.

Delay modules

When triggering an emergency stop signal, delayed shutdown may be desired. For example, robots with dangerous movements can be driven into a safe state. The delay modules are available in the versions with release or response delay.

Interface modules

Interface modules with forcibly guided contacts are used to switch safety-related functions as links between logic and load. The forcibly guided normally closed contacts enable monitoring of the normally open contacts.

Delay module LG 7928 from the SAFEMASTER series

Your advantages at a glance

Extension modules
▶ Cost-effective contact multiplication universally connectable to the basic modules
▶ Monitoring of the output contacts via a feedback loop by the respective base module
▶ Connection of several expansion modules to one basic module

Delay modules
▶ Targeted stopping of the drives, thereby reducing the risk of injury
▶ No loss of productivity, as a targeted restart is made possible
▶ High long-term stability due to digital time stage

Interface modules
▶ Particularly safe switching behaviour due to forcibly guided contacts
▶ Enables standard-compliant implementation of safety-related circuits
▶ In the event of an error, a new activation is prevented

Overview:	Extension modules *				Delay modules *						Interface modules *								
Device type	BG 5929	LG 5929	UG 6929	BN 3081	BG 7925 / BH 7925	BG 7926	LG 7927	LG 7928	IL 7824 / IN 7824	BA 7924	HC 3098	IK 3079	HC 3096N / HL 3096N	HK 3087N	LG 3096 / MK 3096N	UG 3096 / UH 3096	UG 3088	HL 3094N	IP 3078 / SP 3078
Function	Extension module	Extension module	Extension module	Extension module	Delay module, release delayed	Delay module, release delayed	Delay module, on delayed	Delay module, release delayed	Delay module, release delayed	Delay module, release delayed	Interface module, with plug-in socket	Interface module	Interface module, with plug-in socket	Interface module, with plug-in socket	Interface module	Interface module	Interface module	Interface module, with plug-in socket	Interface module
Cat. / PL acc. to EN ISO 13849-1	4 / e	4 / e	4 / e	4 / e	3 / d	2 / d	3 / d	3 / d	2 / c	3 / d									
SIL CL acc. to IEC/EN 62061	3	3	3	3	2	2	2	2	2	2									
1- / 2-channel	1; 2	1; 2	1; 2	1; 2	1	1	1	1	1	1									
Output contacts max.	5 NO, 1 NC **	5 NO, 1 NC **	7 NO, 1 NC **	7 NO, 1 NC **	3 NO, 1 NC **	5 NO, 1 NC **	4 NO, 1 NC **	4 NO, 1 NC **	1 NO, 1 NC	1 NO, 1 NC	1 NO, 1 NC	1 NO, 1 NC	3NO,1NC/4NO,2NC	1 NO, 1 NC	5 NO, 1 NC	4NO,4NC/8NO,8NC	6 NO, 2 NC	3 NO, 1 NC	4 NO, 2 NC
Nominal voltage DC		+		+					+	+	+	+	+	+	+	+	+	+	
Nominal voltage AC		+	+	+	+								+						
Nominal voltage AC/DC	+	+	+	+	+	+	+	+					+			+			+
Thermal current Ith max.	5 A	5 A	8 A	10 A	5 A	5 A	5 A	5 A	8 A	8 A	3 x 5 A	8 A	3 x 5 A / 4 x 5 A	25 A	5 A	6 A	2,5 A	3 x 8 A	8 A
Time delay max.					10 s	3 s	300 s	300 s	10 s	30 s									
Connection technique	PS	S/PS/PC	PS/PC/PT	PS	PS	PS	S/PS/PC	S/PS/PC	S	S	S	S	S	S	S/PS/PC	PS	PS	C	S
Width	22,5 mm	22,5 mm	22,5 mm	100 mm	22,5 / 45 mm	22,5 mm	22,5 mm	22,5 mm	35 / 52,5 mm	45 mm	15,8 mm	17,5 mm	18 / 36 mm	22,5 mm	22,5 mm	22,5 / 45 mm	22,5 mm	36 mm	70 mm

S = Screw terminals C = Cage clamp terminals
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact
C/O = changeover contact

* Specifications, approvals etc. see data sheet
** NC contacts are used for feedback monitoring

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SAFEMASTER S -
safe drive monitoring

Standstill and speed monitoring

SAFEMASTER S -
Reliable speed and standstill monitoring modules

The speed and standstill monitors of the SAFEMASTER S series detect and signal the standstill and the speed of machines and plants in automatic as well as in setup mode. DOLD offers efficient and economical solutions for safe sensorless drive monitoring as well as speed monitoring via initiators.

The speed and frequency monitor UH 6937 of the SAFEMASTER S series monitors frequency-controlled drives safely and without sensors up to 690 V. Due to the sensorless monitoring, the installation of additional proximity switches or initiators can be omitted. The frequency monitor thus creates new possibilities for construction, planning and retrofitting, even for larger machines and plants, e.g. in woodworking or machine tools.

In the event of overfrequency, underfrequency or violation of the set window range, the frequency monitor switches off safely and shows its strengths in comparison to frequency inverters with integrated safety functions when simplicity, flexibility and safety are equally important.

The safety functions STO (safe torque off), SOS (safe operating stop), SLS (safely limited speed), SSM (safe speed monitoring) and SSR (safe speed range) can be implemented with the appropriate circuitry. SAFEMASTER S offers maximum safety up to Cat. 4 / PL e or SIL 3.

Sensorless speed and frequency monitor UH 6937 from the SAFEMASTER S Series

Your advantages of SAFEMASTER S at a glance

▶ Up to cat. 4 / PL e or SIL 3

▶ Easy and fast adjustment via rotary switch or display, without PC

▶ Extensive diagnostic functions

▶ Suitable for standard motor feedback systems and proximity switches (depending on type)

▶ Convenient, menu-guided parameterisation via front display (depending on type)

▶ Sensorless (depending on type) and easy to retrofit

▶ Over-, underfrequency or window monitoring

▶ Easy to integrate into existing drive solutions

Further information can be found at www.dold.com or in the respective data sheets.

Overview: Speed and standstill monitoring SAFEMASTER S *

|					
Device type	LH 5946	UH 6932	UH 6937		UH 5947
Function	Sensorless standstill monitor	Speed monitor	Sensorless speed and frequency monitor		Speed and standstill monitor
Special features		optional analog output	optional analog output		with safety gate monitoring
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e	4 / e		4 / e
SIL CL according to IEC/EN 62061	3	3	3		3
1- / 2-channel	2	1; 2	2		2
Forcibly guided output contacts max.	3 NO, 1 NC	2 NO	2 NO		2 x 2 NO
Usable sensors / signals	direct connection to AC or 3 AC	initiators	direct connection to AC or 3 AC		initiators / encoders
Input signal max.	690 V	< 3 kHz	690 V, < 1200 Hz		up to 2 kHz / up to 400 kHz
Indicator contacts	2 hl, 1 NO	2 hl	2 hl		2 hl
Nominal voltage DC	+	+	+		+
Nominal voltage AC	+				
Nominal voltage AC/DC					+
Thermal current I_{th} max.	5 A	8 A	8 A		5 A
Connection technique	S/PS/PC	PS/PC/PT	PS/PC/PT		PS/PC/PT
Width	45 mm	45 mm	45 mm		45 mm

NO = normally open contact; NC = normally closed contact; hl = semiconductor   * Specifications, approvals etc. see data sheet
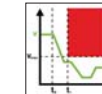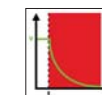
Safety functions
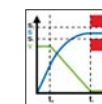
Safe Operating Stop (SOS)
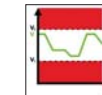
Safe Speed Range (SSR)

Safely Limited Speed (SLS)

Safe Torque Off (STO)

Safe Door Locking (SDL) (only UH 5947)

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SAFEMASTER C - multifunctional safety modules

SAFEMASTER - Special devices

SAFEMASTER C -
Multifunctional safety modules with selectable safety and safety time functions

The multifunctional safety modules of the SAFEMASTER C family serve to protect persons and machines by safety-related release and interruption of safety circuits.

The multifunctional safety time relay UG 6960 combines safe time functions with safety functions in just one device. With the UG 6970, up to two independent safety functions can be implemented, which can be selected easily and without programming via latching rotary switches.

SAFEMASTER C offers maximum safety up to Cat. 4 / PL e or SIL 3 and is also suitable for use in combustion plants according to EN 50156-1.

Multifunctional safety time relay UG 6960 from the SAFEMASTER C series

c UL US LISTED *

Special devices -
Emergency stop monitor, emergency stop device and magnetic switch

The non-contact magnetic switches are suitable for position monitoring of sliding, rotating or removable safety doors as well as in cases of heavy soiling or hygienic requirements.

The emergency stop device is used to trigger a switch-off / shutdown of machines and plants in order to avoid danger to persons or damage to the machine and the manufactured products.

The emergency stop monitors can be used to monitor the operating status of emergency stop buttons in an emergency stop chain. At the beginning of a machine cycle, a valve monitoring module monitors the position of the valve using a position switch.

Emergency stop device NI 5061 from the VARIBOX series *

Overview: Multifunctional safety modules SAFEMASTER C *

Device type	UG 6960	UG 6961	UG 6970	UG 6980
Function	Multifunctional safety time relay	Multifunctional safety time relay	Multifunctional safety module	Multifunctional safety module
Application	+	+	+	+
	III C	III C	III C	III C
	+	+		
Special features	also suitable for combustion plants according to EN 50156-1			
Cat. / PL acc. to EN ISO 13849-1	4 / e	4 / e	4 / e	4 / e
SIL CL acc. to IEC/EN 62061	3	3	3	3
1- / 2-channel	2	2	2	2
Output contacts safe, redundant NO contacts max.	4	2	4	2
Nominal voltage DC	+	+	+	+
Thermal current I_{th} max.	8 A	8 A	8 A	8 A
Cross fault detection	+	+	+	+
Connection technique	PS/PC/PT	PS/PC/PT	PS/PC/PT	PS/PC/PT
Width	22,5 mm	22,5 mm	22,5 mm	22,5 mm

S = Screw terminals
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

Overview: Special devices *

Device type	NI 5061	BH 5904/00MF2	BH 5922	BL 5922	NE 5020	NE 5021
Function	Emergency stop device	Valve monitoring module	Emergency stop monitor	Emergency stop monitor	Magnetic switch coded	Magnetic switch coded
Cat. / PL acc. to EN ISO 13849-1		4 / e				
1- / 2-channel		1; 2	1; 2	1; 2	2	2
Output contacts max.	1 NO, 2 NC	2 NO	8	16	2 NO	2 NO, 1 NC
Thermal current I_{th} max.	4 A	5 A				
Usable evaluation devices					BG 5925/920 / LG 5925/920	
Width	42 mm	45 mm	45 mm	90 mm		

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

DOLD

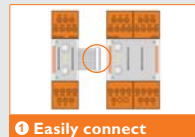# SAFEMASTER M -
configurable safety solution

Your safety -
easily configured in 3 steps

SAFEMASTER M -
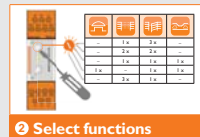## Modular, configurable safety system

The SAFEMASTER M multifunctional safety system is an interesting and economical alternative, especially for smaller to medium-sized systems. Safety requirements can be implemented quickly and easily thanks to the simple configuration via DIP and rotary switches.

All you need to configure your safety applications with SAFEMASTER M is a simple screwdriver: Simply connect the safety modules to each other via flat ribbon cable, set the safety function via rotary switches and assign the safety-related inputs to the outputs and thus to different safety zones via DIP switches - done.
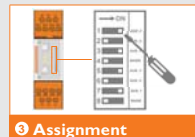
The SAFEMASTER M - System simple and easy to configure in 3 steps:

❶ Easily connect

❷ Select functions

❸ Assignment

Control unit BH 5911 from the SAFEMASTER M system solution

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Your advantages of SAFEMASTER M at a glance

▶ Multifunctional, modular, freely configurable

▶ Free assignment of input and output functions

▶ Easy software-free configuration

▶ Modular expandability with input and output modules

▶ Diagnosis using LEDs and semiconductor outputs

▶ Easy function selection with rotary switch

▶ Optional fieldbus connection

Further information can be found at www.dold.com or in the respective data sheets.

Overview: Modular safety system SAFEMASTER M *

Device type	BH 5911.03	BH 5911.22	BG 5912.04	BG 5912.48	BG 5912.86	BG 5912.95	BG 5913.08	BG 5914.08	BG 5915.08	BH 5913.08	BH 5914.08	BH 5915.08	BG 5551	BH 5552	On request
Function	Control unit	Control unit	Output module	Output module	Output module, off-delayed	Output module, off-delayed	Input module	Input module	Input module, with monitoring function	Input module, with galvanically isolated inputs	Input module, with galvanically isolated inputs	Input module, with monitoring function and galvanically isolated inputs	Fieldbus module CANopen	Fieldbus module Profibus DP	Fieldbus module Profinet
Application — Emergency stop	+	+					+	+	+	+	+	+			
Application — Light barrier	+	+					+	+	+	+	+	+			
Application — Safety gate							+		+	+		+			
Application — Two-hand							III A, III C			III A, III C					
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	2 / d	4 / e	4 / e	2 / d	4 / e			
Output contacts safe, redundant NO contacts max.	3	2	4	3											
Output contacts safe, time delay					3 (up to 20 s)	2 (up to 3 s)									
Auxiliary contact		1		1		1									
Feedback for external monitoring	+	+	+	+	+	+									
Width	45 mm	45 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	45 mm	45 mm	45 mm	22,5 mm	45 mm	45 mm

* Specifications, approvals etc. see data sheet

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SAFEMASTER PRO -
software-configurable safety system

The modular system -
more flexibility for your safety

SAFEMASTER PRO -
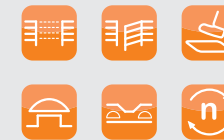### Software-configurable safety system

With increasing plant size and complexity of safety requirements, the number of safety devices to be monitored usually increases. In addition, logical links - for example by switching individual plant areas on and off - must often also be taken into account.

The modular and configurable safety system SAFEMASTER PRO monitors all safety circuits of your machines and plants - simple, flexible and safe. The number of inputs and outputs of the central control unit can be expanded at any time via expansion modules. SAFEMASTER PRO can thus be flexibly adapted to the respective application.

The TÜV-certified system can be configured quickly and easily via PC using the free SAFEMASTER PRO Designer software: Select safety functions, assign inputs and outputs, and wire them comfortably on the PC. Then transfer the tested safety logic to the safety module via USB cable. Done!

SAFEMASTER PRO system with control unit, safe speed monitoring and fieldbus module

Your advantages of SAFEMASTER PRO at a glance

▶ Up to cat. 4 / PL e up to SIL 3

▶ Configuration instead of wiring with the free SAFEMASTER PRO Designer software (Drag & Drop)

▶ Time and cost saving commissioning, quick installation by simply snapping the modules onto the mounting rail bus (In-Rail-Bus)

▶ Reduced wiring, large space saving in the control cabinet thanks to compact design of 22.5 mm

▶ Safe speed monitoring

▶ Flexible expansion with safe I/O modules

▶ Comprehensive fault localization and diagnosis

Further information can be found at www.dold.com or in the respective data sheets.

Overview: Multifunctional safety solutions SAFEMASTER PRO *

Device type		UG 6911.10	UG 6912.02 UG 6912.04	UG 6912.14 UG 6912.28	UG 6914.04	UG 6913	UG 6916.10	UG 6918	UG 6951, UG 6952, UG 6954, UG 6955, UG 6956, UG 6957
Function		Control unit	Output module OSSD	Extension module relay	Output module relay	Input module	I/O module	Bus Extender	Fieldbus modules
Application	Emergency stop	+				+	+		
	Light barrier	+				+	+		
	Safety gate	+				+	+		
	Two-hand	+				+	+		
	Safety mat	+				+	+		
Cat. / PL according to EN ISO 13849-1		4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e
SIL CL according to IEC/EN 62061		3	3	3	3	3	3	3	3
Safe inputs max.		8				16	8		
Safe NO contacts max.				4	4				
NC contacts max.				2					
Safe, 2-channel outputs OSSD max.		2	2 4				2		
Width		22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm

Overview: Speed monitoring modules SAFEMASTER PRO *

Device type			UG 6917/002	UG 6917/102	UG 6917/202	UG 6917/302	UG 6917/112	UG 6917/222	UG 6917/332
Function			Speed monitoring module	Speed monitoring module	Speed monitoring module	Speed monitoring module	Speed monitoring module	Speed monitoring module	Speed monitoring module
Cat. / PL according to EN ISO 13849-1			4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e
SIL CL according to IEC/EN 62061			3	3	3	3	3	3	3
Signal generator	Encoder	TTL		1			2		
		HTL			1			2	
		sin/cos				1			2
	Proximity sensor		2	2	2	2	2	2	2
Width			22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm

* Specifications, approvals etc. see data sheet

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SAFEMASTER W - Wireless Safety System

Radio controlled safety system for pair or group mode

SAFEMASTER W - Wireless Safety System

The safe radio controlled safety system UH 6900 of the SAFEMASTER W series for the transmission of emergency stop and control functions offers more flexibility in safeguarding hazardous areas. High availability, long range and safety are achieved by implementing the latest radio technologies.

Whether in bidirectional pair mode or unidirectional group mode - UH 6900 ensures that mobile intralogistics applications, large machines and extensive plants, cranes and Automated Guided Vehicles (AGVs) can communicate wirelessly and safely.

This means for you: maintenance-intensive conductor rails and trailing cables are no longer required, more space for movement as well as reduced wiring and installation costs. The seamless integration of our system also ensures simple retrofitting without high investment costs.

SAFEMASTER W - Radio controlled safety system for pair mode

Consists of two identical radio modules that enable the safety-related bidirectional connection of two safety circuits.

Radio controlled safety system for group mode

Consists of a group controller and up to 255 group receivers that can be switched off via a unidirectional connection. In addition, each group device can be switched off locally in a safety-related manner.

Your advantages of SAFEMASTER W at a glance

▶ For safety applications up to Cat. 4 / PL e or SIL 3, TÜV certified

▶ Safety-related emergency stop transmission

▶ High availability at long transmission range (up to 800 m)

▶ Quick Start, fast commissioning

▶ Reliable data transmission and low susceptibility to interference

▶ Comprehensive fault localization and diagnosis

▶ Two-channel safety inputs / outputs

▶ Control inputs / outputs

▶ Integrated analysis of the existing radio network

Further information can be found at www.dold.com or in the respective data sheets.

Overview: SAFEMASTER W - Pair mode *

Device type	UH 6900
Function	Radio controlled safety module
Cat. / PL according to EN ISO 13849-1	4 / e
SIL CL according to IEC/EN 62061	3
Frequency range (MHz)	433/434; 869
2-channel safety inputs max.	3
Outputs [1] max.	2 NO, 1 NC 3 NO
Semiconductor inputs max.	8
Semiconductor outputs max.	8
Connection technique	PS/PC/PT
Width	45 mm

[1] forcibly guided contacts
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

Overview: SAFEMASTER W - Group mode *

Device type	UH 6900	UH 6900
Function	Radio controlled safety module (Group controller)	Radio controlled safety module (Group receiver)
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e
SIL CL according to IEC/EN 62061	3	3
Frequency range (MHz)	433/434; 869	433/434; 869
2-channel safety inputs max.	3	3
Outputs max.	2 NO, 1 NC 3 NO	2 NO, 1 NC [1] 3 NO [1]
Semiconductor inputs max.	8	8
Semiconductor outputs max.	8	8
Connection technique	PS/PC/PT	PS/PC/PT
Width	45 mm	45 mm

[1] forcibly guided contacts
PS= removable screw terminals
PC= removable cage clamp terminals
PT= removable cage clamp terminals 2-wire

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

800 m | SIL 3 PL e

DOLD

SAFEMASTER W - Wireless Safety System

Wireless emergency stop and wireless enabling switch

SAFEMASTER W - Wireless Safety System

The wireless emergency stop and the wireless enabling switch of the SAFEMASTER W family enable safe operation and shutdown of systems in hazardous situations and ensure maximum mobility. They fulfil the safety requirements up to Cat. 4 / PL e or SIL 3 and also have TÜV approval.

In automated manufacturing systems, safety devices such as protective fences ensure that the operator does not come too close to the danger zone. Frequently, however, persons must also work in a hazardous area during the operation of a machine, e.g. during set-up, inspection or maintenance. In such situations, the Wireless Safety Systems from DOLD provide the necessary safety. In case of danger, the operator switches off via the transmitter and the system immediately returns to a safe state.

SAFEMASTER W offers more safety, efficiency and economy. The operating personnel is safe, closer to the process and can control and switch off the process directly on site. SAFEMASTER W decisively solves the wear problem of trailing cables without having to sacrifice safety and reaction speed.

Wireless Safety System - Wireless emergency stop and enabling switch from the SAFEMASTER W series

Your advantages of SAFEMASTER W at a glance

▶ Reduced assembly and wiring effort due to wireless fuse protection

▶ Suitable for harsh and extreme environmental conditions as well as for difficult to access safety areas

▶ Compact, easy-to-install radio controlled safety modules

▶ For safety applications up to Cat. 4 / PL e or SIL 3, TÜV certified

▶ Maximum mobility and flexibility with maximum safety

▶ Ergonomic transmitter for fatigue-free operation

▶ Comfortable one-hand operation

▶ Maximum freedom of movement due to wireless design

▶ Clear control panel, individually configurable

Further information can be found at www.dold.com or in the respective data sheets.

Overview: Wireless enabling switch *

		BI 6910	RE 6910
Device type		BI 6910	RE 6910
	Function	Radio controlled safety module	Radio enabling switch for BI 6910
Application	Emergency stop	+	
	Light barrier	+	
	Safety gate	+	
	Start	+	
Cat. / PL according to EN ISO 13849-1		4 / e	
Output contacts safe, redundant NO contacts		3	
NC contacts max.		1	
Enabling function			+
Width		67,5 mm	75 mm

* Specifications, approvals etc. see data sheet

Overview: Wireless emergency stop *

		BI 5910	RE 5910
Device type		BI 5910	RE 5910
	Function	Radio controlled safety module	Transmitter for BI 6910
Application	Emergency stop	+	
	Light barrier	+	
	Safety gate	+	
	Start	+	
Cat. / PL according to EN ISO 13849-1		4 / e	
Output contacts safe, redundant NO contacts		3	
NC contacts max.		1	
Emergency stop button			+
Start button			+
Width		67,5 mm	46 mm

* Specifications, approvals etc. see data sheet

TÜV NORD
TÜV NORD CERT GmbH
Type Tested

DOLD

Our experience. Your safety.

SAFEMASTER STS - The key to more safety

SAFETY GUARD LOCKS
electrical

SAFETY SWITCHES
electrical

GUARD LOCKS
mechanical

SAFEMASTER STS
Stainless steel version

SAFEMASTER STS
Fibre reinforced polymer version

SAFEMASTER STS
Command and indication functions
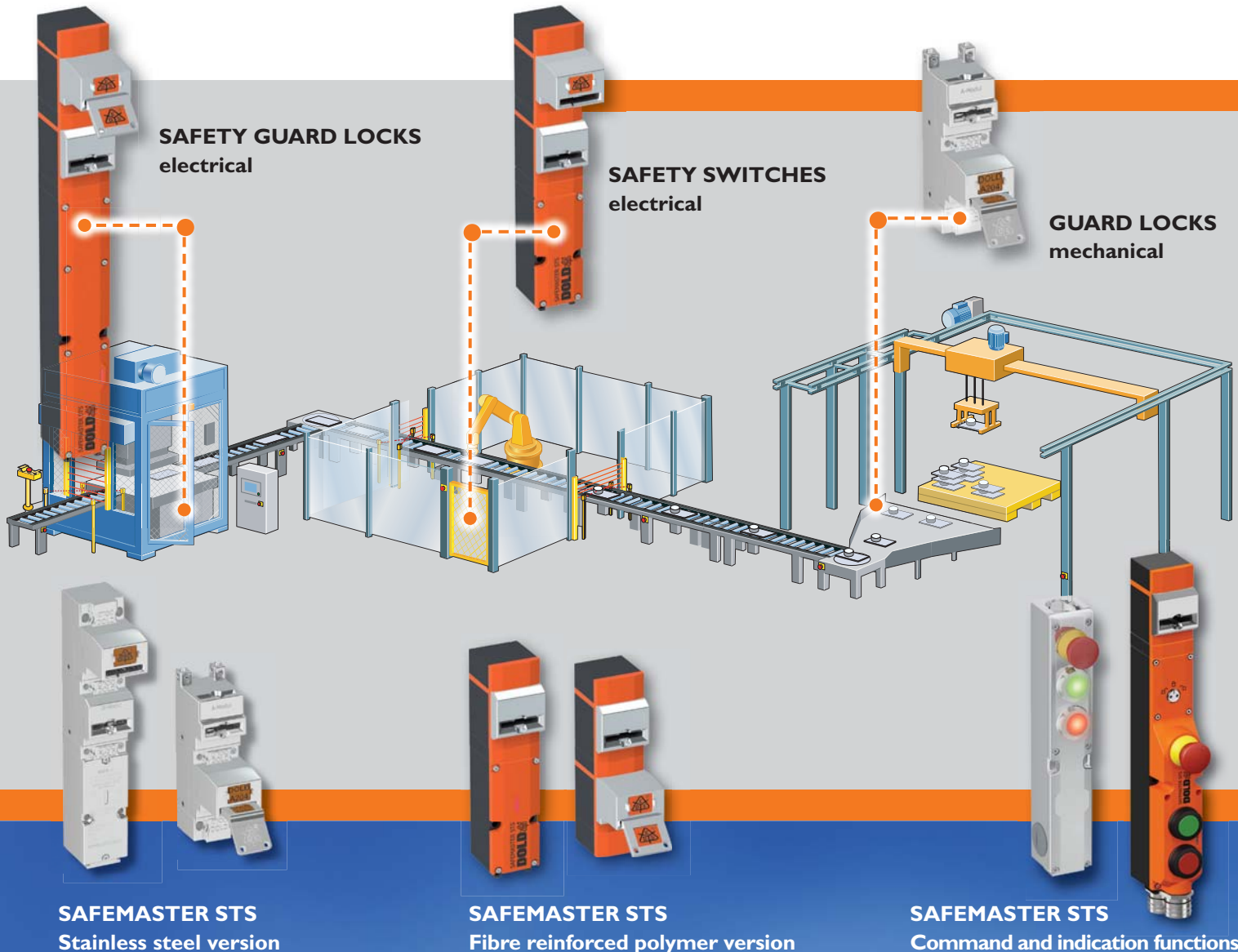
The modular safety switch and key transfer system SAFEMASTER STS is used to protect safety guards of machines and plants. It combines the advantages of safety switches, guard locks, key transfer and command functions in one system.

SAFEMASTER STS is type-tested according to the legal requirements and is suitable as an individual system for use in safety applications up to Cat. 4 / PL e according to EN ISO 13849-1.

For further information please request our system brochure for SAFEMASTER STS.

VIDEO

+ Info

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