



SAFEMASTER

Safety relay modules and
configurable safety systems

Functional safety

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.

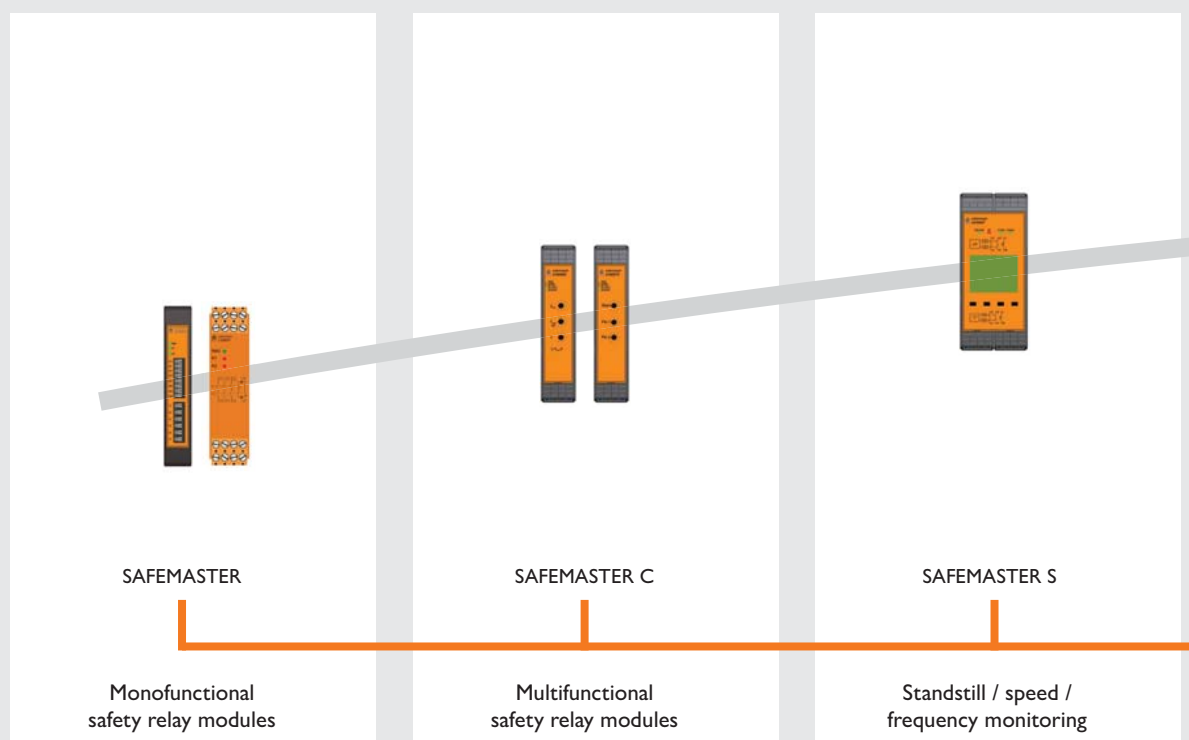
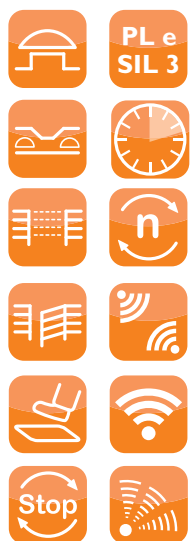
As a solutions provider, we supply innovative products to a wide variety of markets such as mechanical and plant engineering, power generation and distribution, rail and medical technology, and the raw materials processing industry ... and wherever safety has the highest priority.

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.

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



Customer-oriented solutions for your success



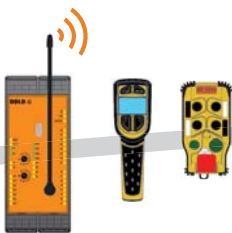
Always on the safe side - certified safety

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.

- ▶ EN 61508 to SIL 3
- ▶ maximum SIL 3 nach EN IEC 62061
- ▶ 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.



SAFEMASTER W

Radio controlled
safety systems



SAFEMASTER M

Configurable
safety system



SAFEMASTER PRO

Software-configurable
safety system

SAFEMASTER -

Classic safety modules

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.



Overview: Emergency stop modules *

						
Device type	UF 6925	RK 5942	LG 5924	LG 5925	LG 5925/034	LG 5928
Function	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
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)
Maximum SIL according to EN IEC 62061	3	3	3		3	2 (NOv) 3 (NO)
1- / 2-channel	2	1	1	1; 2	1; 2	1; 2
Safe output contacts max.	3 NO	1 NO	4 NO		3 NO	2 NO, 1 NOv
Thermal current I _{th} max.	8 A	5 A	5 A	8 A	5 A	8 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
Width	17,5 mm	17,5 mm	22,5 mm		22,5 mm	22,5 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

Emergency stop monitoring



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.

			
BD 5935	BD 5987	BH 5903	BL 5903
Emergency stop module	Emergency stop module also for elevator controls	Emergency stop module with mains failure detection	Emergency stop module with time delay up to 300 s
+	+		+
4 / e	4 / e	4 / e	3 / d (NOv) 4 / e (NO)
3	3	3	2 (NOv) 3 (NO)
1; 2	1; 2	1; 2	1; 2
3 NO	2 NO	3 NO	3 NO, 3 NOv
10 A	10 A	5 A	5 A
+	+	+	+
+	+	+	+
+	+		+
			+
PS	S	PS	PS
45 mm	45 mm	45 mm	90 mm

Safety gate monitoring

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 safe-guarding, e.g. for machine operation, setup or trouble-shooting.

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)

Overview: Modules for safety gate monitoring *

				
Device type	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
Special features	also for combustion plants		time delay up to 10 s	
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e	3 / d (NOv) 4 / e (NO)	4 / e
Maximum SIL according to EN IEC 62061	3	3	2 (NOv) 3 (NO)	3
1- / 2-channel	1; 2	1; 2	1; 2	1; 2
Output contacts max.	4 NO	3 NO, 1 NC	3 NO, 1 NC, 1 NOv	6 NO, 1 NC
Thermal current I _{th} max.	8 A	5 A	10 A	10 A
Cross fault detection	+		+	+
Nominal voltage DC	+	+	+	+
Nominal voltage AC		+	+	+
Connection technique	S/PS/PC	PS	PS	PS
Width	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

Safety edge / Safety mat evaluation

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 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	up to 2 safety mats with max. switching current of 10 mA
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e
Maximum SIL according to EN IEC 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



Overview: Modules for light barrier evaluation *

		
Device type	LG 5925/900	BH 5902/01MF2
Function	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
Maximum SIL acc. to EN IEC 62061	3	3
1- / 2-channel	1; 2	1; 2
Output contacts max.	4 NO	3 NO
Nominal voltage DC	+	+
Thermal current I _{th} max.	8 A	5 A
Cross fault detection	+	+
Connection technique	S/PS/PC	PS
Width	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



Two-hand evaluation module LG 5933 from the SAFEMASTER series



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 ISO 13851

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
Cat. / PL acc. to EN ISO 13849-1	4 / e	4 / e	1 / c	4 / e
Maximum SIL acc. to EN IEC 62061	3	3	1	3
Safety level acc. to EN ISO 13851	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

SAFEMASTER - Safety modules

SAFEMASTER - Extension / Delay / Interface modules

Extension modules

Extension modules are used when safety switching devices or control systems with integrated switching outputs reach their limits in the application. Their task is to amplify and multiply contacts and, due to the galvanic isolation between input and output, also to decouple the control and power levels. In conjunction with a suitable higher-level safety switching device, applications up to Cat. 4 / PL e or SIL 3 can be implemented.

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 serve as links between logic and load. Their forcibly guided contacts enable monitoring of the switching status via the normally closed contact and can therefore be used for reliable decoupling of the control and power levels.



Overview:	Extension modules *						Delay modules *		
									
Device type	XF 6929	RK 6929	BG 5929	LG 5929	UG 6929	BN 3081	BG 7925 / BH 7925	BG 7926	
Function	Extension module	Extension module	Extension module	Extension module	Extension module	Extension module	Delay module, release delayed	Delay module, release delayed	
Special features	wide voltage range, also for combustion plants	also suitable for combustion plants in accordance with EN 50156-1							
Cat. / PL acc. to EN ISO 13849-1	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	3 / d	2 / d	
Maximum SIL acc. to EN IEC 62061	3	3	3	3	3	3	2	2	
1- / 2-channel	1; 2	1; 2	1; 2	1; 2	1; 2	1; 2	1; 2	1	
Output contacts max.	2 x 3 NO, 2 NC **	2 NO, 1 NC	5 NO, 1 NC **	5 NO, 1 NC **	7 NO, 1 NC **	7 NO, 1 NC **	3 NO, 1 NC **	5 NO, 1 NC **	
Nominal voltage DC	+	+		+		+			
Nominal voltage AC				+	+	+	+		
Nominal voltage AC/DC			+	+	+	+	+	+	
Thermal current I _m max.	8 A	6 A	5 A	5 A	8 A	10 A	5 A	5 A	
Time delay max.							30 min	3 s	
Connection technique	C	PS	PS	S/PS/PC	PS/PC/PT	PS	PS	PS	
Width	17,5 mm	17,5 mm	22,5 mm	22,5 mm	22,5 mm	100 mm	22,5 / 45 mm	22,5 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

Extension / Delay / Interface modules



Delay module LG 7928 from the SAFEMASTER series



Your advantages at a glance

Extension modules

- ▶ Cost-effective contact multiplication universally connectable to the higher-level safety device
- ▶ Monitoring of the output contacts via a feedback loop using a suitable higher-level safety device

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 reliable switching behaviour due to mechanical forcibly guided contacts
- ▶ Contact amplification, contact multiplication and decoupling of control and power level

			Interface modules *						
									
LG 7927	LG 7928	BA 7924	HC 3098	HC 3096N / HL 3096N	LG 3096 / MK 3096N	UG 3096 / UH 3096	UG 3088	HL 3094N	
Delay module, on delayed	Delay module, release delayed	Delay module, release delayed	Interface module, with plug-in socket	Interface module, with plug-in socket	Interface module	Interface module	Interface module	Interface module, with plug-in socket	
						switching high DC voltage/load			
3 / d	3 / d	3 / d							
2	2	2							
1; 2	1	1; 2							
4 NO, 1 NC **	4 NO, 1 NC **	1 NO, 1 NC	2 C/O	4 NO, 4 NC	5 NO, 2 NC	14 NO, 8 NC	6 NO, 4 NC	3 NO, 2 NC	
		+	+	+	+	+	+	+	
		+			+		+		
+	+								
5 A	5 A	8 A	3 x 5 A	5 x 5 A	5 A	6 A	2,5 A	3 x 8 A	
300 s	300 s	30 s							
S/PS/PC	S/PS/PC	S	S	S	S/PS/PC	PS	PS	C	
22,5 mm	22,5 mm	45 mm	15,8 mm	18 / 36 mm	22,5 mm	22,5 / 45 mm	22,5 mm	36 mm	

SAFEMASTER S -

Safe drive 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 incorrect direction of rotation, 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), SSR (safe speed range) and SDI (safe direction) can be implemented with the appropriate circuitry. SAFEMASTER S offers maximum safety for direction of rotation monitoring up to PL d / Cat. 2 or SIL 2 while retaining PL e / Cat. 4 or SIL 3 for frequency monitoring.

Overview: Speed and standstill monitoring SAFEMASTER S *

				
Device type	UG 6946	LH 5946	UH 6932	
Function	Sensorless standstill monitor	Sensorless standstill monitor	Speed monitor	
Special features	Options for bridging the standstill monitoring (muting)		optional analog output, up to 4 switchable speed windows / muting	
Cat. / PL according to EN ISO 13849-1	4 / e	4 / e	4 / e	
Area of application EN 61511	+	+	+	
Maximum SIL according to EN IEC 62061	3	3	3	
1- / 2-channel	1; 2	1; 2	1; 2	
Forcibly guided output contacts max.	2 NO, 1 NC	3 NO, 1 NC	2 NO	
Usable sensors / signals	direct connection to AC or 3 AC	direct connection to AC or 3 AC	initiators	
Input signal max.	690 V	690 V	< 3 kHz	
Indicator contacts	1 NC	2 hl, 1 NO	2 hl	
Nominal voltage DC	+	+	+	
Nominal voltage AC		+		
Nominal voltage AC/DC				
Thermal current I _{th} max.	5 A	5 A	8 A	
Connection technique	PS/PC	S/PS/PC	PS/PC/PT	
Width	22,5 mm	45 mm	45 mm	

NO = normally open contact; NC = normally closed contact; hl = semiconductor

* Specifications, approvals etc. see data sheet

Standstill and speed monitoring



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, window or direction of rotation monitoring (depending on type)
- ▶ Easy to integrate into existing drive solutions

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

		
	UH 6937	UH 5947
	Sensorless speed and frequency monitor	Speed and standstill monitor
	optional analog output, up to 4 switchable frequency windows / muting	with safety gate monitoring operating mode selection
	4 / e; 2 / d	4 / e
	+	
	3; 2	3
	1; 2	2
	2 NO	2 x 2 NO
	direct connection to AC or 3 AC	initiators / encoders / namur-sensors
	690 V, < 1200 Hz	up to 3 kHz / up to 500 kHz
	2 hl	2 hl
	+	+
		+
	8 A	5 A
	PS/PC/PT	PS/PC/PT
	45 mm	45 mm

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)



Safe Speed Monitor (SSM)



Safe Direction (SDI)

SAFEMASTER C - Multifunctional safety modules

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



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
		+	+	
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
Maximum SIL acc. to EN IEC 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

SAFEMASTER - Special devices



Enabling switch RE 6909 from the SAFEMASTER series serves as an enabling device in accordance with EN 60204-1 and complies with the requirements for enabling devices with three positions from EN 60947-5-8.

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

Overview: Special devices *

						
Device type	NI 5061	BH 5904/00MF2	BH 5922	BL 5922	NE 5021	RE 6909
Function	Emergency stop device	Valve monitoring module	Emergency stop monitor	Emergency stop monitor	Magnetic switch coded	Three-stage enabling switch
Cat. / PL acc. to EN ISO 13849-1		4 / e				
Maximum SIL acc. to EN IEC 62061						
1- / 2-channel		1; 2	1; 2	1; 2	2	2
Connectable emergency stop devices max.			8	16		
Output contacts max.	1 NO, 2 NC	2 NO			2 NO, 1 NC	
Thermal current I _{th} max.	4 A	5 A				
Usable evaluation devices					LG 5925/920	UG 6970 UG 6980
Width	42 mm	45 mm	45 mm	90 mm		53 mm

NO = normally open contact
NC = normally closed contact

* Specifications, approvals etc. see data sheet

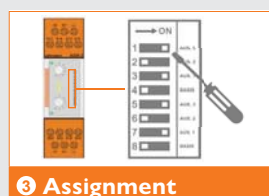
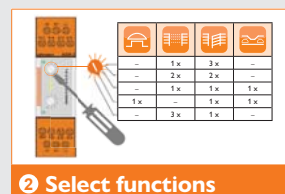
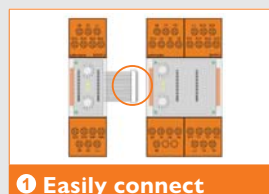
SAFEMASTER M - Configurable safety solution

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:



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	
Function		Control unit	Control unit	Output module	Output module	Output module, off-delayed	Output module, off-delayed	Input module	
Application	 Emergency stop	+	+					+	
	 Light barrier	+	+					+	
	 Safety gate							+	
	 Two-hand							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	
Maximum SIL acc. to EN IEC 62061		3	3	3	3	3	3	3	
Inputs safe max.								4 two-channel	
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 loop for external monitoring		+	+	+	+	+	+		
Width		45 mm	45 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	22,5 mm	

* Specifications, approvals etc. see data sheet

Your safety - Easily configured in 3 steps



Control unit BH 5911 from the
SAFEMASTER M system solution



Your advantages of SAFEMASTER M at a glance

- ▶ Multifunctional, modular, freely configurable
- ▶ Assignment of input functions and outputs
- ▶ Easy software-free configuration
- ▶ Modular expandability with input and output modules
- ▶ Diagnosis using LEDs and semiconductor outputs
- ▶ Easy function selection with rotary switch
- ▶ Up to 4 zones can be mapped
- ▶ Optional fieldbus connection

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



BG 5914.08	BG 5915.08	BH 5913.08	BH 5914.08	BH 5915.08	BH 5552
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 Profibus DP
+	+	+	+	+	
+	+	+	+	+	
	+	+		+	
		III A, III C			
2 / d	4 / e	4 / e	2 / d	4 / e	
2	3	3	2	3	
8 single-channel	4 two-channel	4 two-channel	8 single-channel	4 two-channel	
22,5 mm	22,5 mm	45 mm	45 mm	45 mm	45 mm

SAFEMASTER PRO - Software-configurable safety system

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!



Overview: Multifunctional safety solutions SAFEMASTER PRO *

								
Device type	UG 6911.10 UG 6911.12/080	UG 6912.02 UG 6912.04	UG 6912.14 UG 6912.28	UG 6914.04	UG 6915	UG 6913	UG 6916.10 UG 6916.12/080	UG 6918
Function	Control unit	Output module OSSD	Extension module relay	Output module relay	Output module	Input module	I/O module	Bus Extender
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
Maximum SIL according to EN IEC 62061	3	3	3	3		3	3	3
Safe inputs max.	8					16	8	
Safe NO contacts max.			1x2 / 2x2	2				
NC contacts max.			2					
Semiconductor control outputs					8			
Safe, 2-channel outputs OSSD max.	2 ¹⁾	2 / 4					2 ¹⁾	
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

The modular system - More flexibility for your safety



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)
- ▶ Easy system expansion thanks to space-independent In-Rail-Bus
- ▶ Program test possible without hardware via simulation mode
- ▶ Supplementary online monitoring enables comprehensive fault localization and diagnosis
- ▶ 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 and direction of rotation monitoring
- ▶ Flexible expansion with safe I/O modules
- ▶ Optimized commissioning thanks to individual diagnostic LEDs

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

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						
	Cat. / PL according to EN ISO 13849-1		4 / e	4 / e	4 / e	4 / e	4 / e	4 / e	4 / e
	Maximum SIL according to EN IEC 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

Overview: Fieldbus modules SAFEMASTER PRO *

Device type		UG 6951	UG 6952	UG 6954	UG 6955	UG 6956	UG 6958	UG 6959
Function		CANopen	PROFIBUS DP	PROFINET	Ethernet/IP	EtherCAT	Modbus TCP/IP	Modbus RTU
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 manual

*1)/080 : Safe OSSD outputs can be controlled individually

SAFEMASTER W - Wireless Safety System

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.



Overview: SAFEMASTER W - Pair mode *

	
Device type	UH 6900
Function	Radio controlled safety module
Cat. / PL according to EN ISO 13849-1	4 / e
Maximum SIL according to EN IEC 62061	3
Frequency range (MHz)	433/434; 869; 912 MHz
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

* Specifications, approvals etc. see data sheet

NO = normally open contact

NC = normally closed contact



Radio controlled safety system for pair or group mode

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

- ▶ Extensive operating modes for flexible adaptation to the application
- ▶ Simple setting via USB using free configuration software
- ▶ 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 - 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
Maximum SIL according to EN IEC 62061	3	3
Frequency range (MHz)	433/434; 869; 912 MHz	433/434; 869; 912 MHz
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



SAFEMASTER W - Wireless Safety System

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.



Overview: Wireless enabling switch *

			
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	
Maximum SIL according to EN IEC 62061		3	
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

Wireless emergency stop and wireless enabling switch



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 depending on type

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



Overview: Wireless emergency stop *

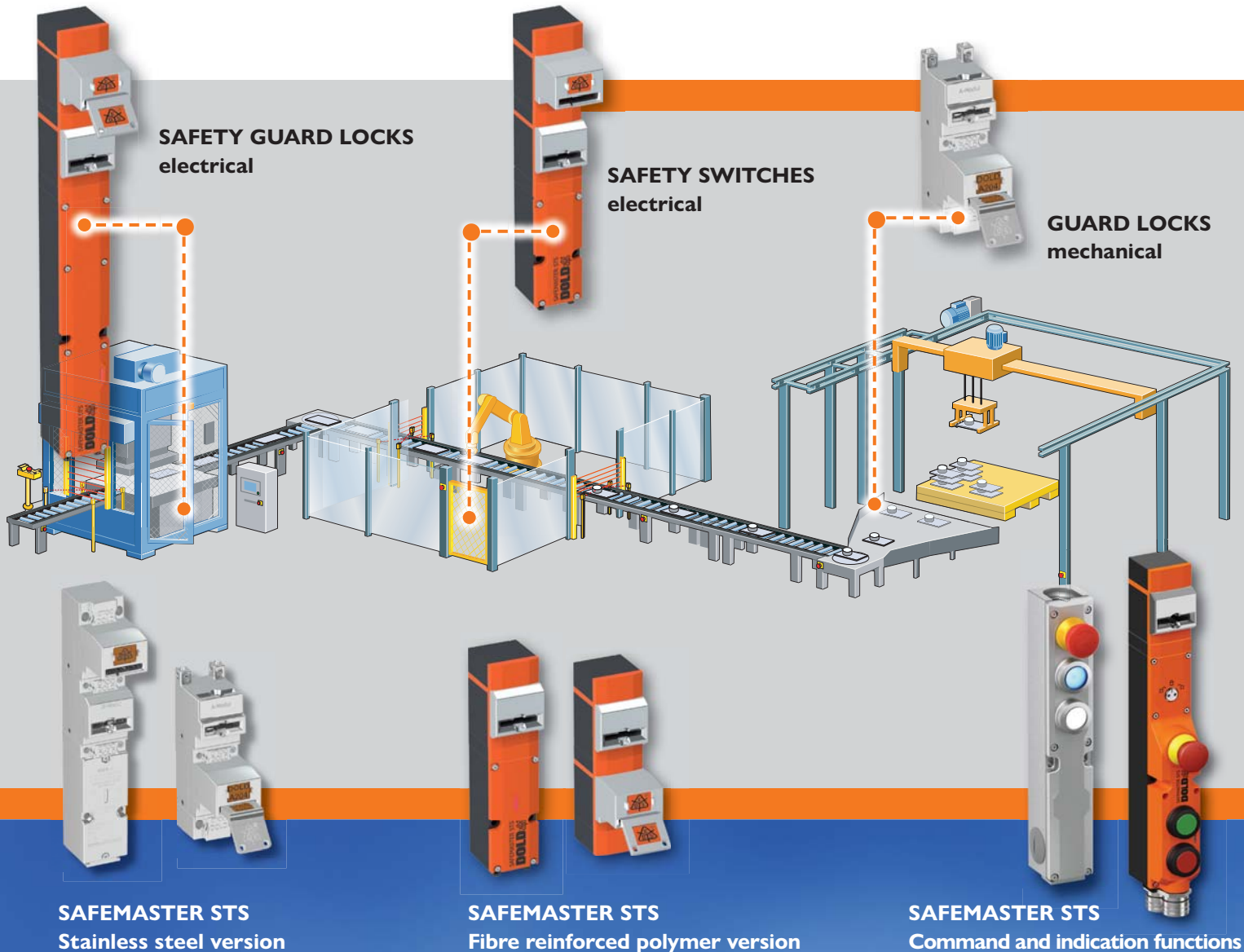
			
Device type		BI 5910	RE 5910
Function		Radio controlled safety module	Transmitter for BI 5910
Application	 Emergency stop	+	
	 Light barrier	+	
	 Safety gate	+	
	 Start	+	
Cat. / PL according to EN ISO 13849-1		4 / e	
Output contacts safe, redundant NO contacts		3	
NC contacts max.		1	
Emergency stop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

* Specifications, approvals etc. see data sheet



Our experience. Your safety.

SAFEMASTER STS - The key to more safety



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.



DOLD 

E. Dold & Söhne GmbH & Co. KG
Bregstraße 18 • D-78120 Furtwangen
T +49 7723 654-0 • F +49 7723 654-356
dold-relays@dold.com • www.dold.com