



**SAFEMASTER**  
**Emergency Stop Module**  
**UF 6925**

**Translation**  
**of the original instructions**



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Before installing, operating or maintaining this device, these instructions must be carefully read and understood.



Keep instructions for future reference



The installation must only be done by a qualified electrician!



Do not dispose of household garbage!  
The device must be disposed of in compliance with nationally applicable rules and requirements.

To help you understand and find specific text passages and notes in the operating instructions, we have important information and information marked with symbols.

### Symbol and Notes Statement



**DANGER:**  
Indicates that death or severe personal injury will result if proper precautions are not taken.



**WARNING:**  
Indicates that death or severe personal injury can result if proper precautions are not taken.



**CAUTION:**  
Indicates that a minor personal injury can result if proper precautions are not taken.



**INFO:**  
Referred information to help you make best use of the product.



**ATTENTION:**  
Warns against actions that can cause damage or malfunction of the device, the device environment or the hardware / software result.

### General Notes

The product hereby described was developed to perform safety functions as a part of a whole installation or machine. A complete safety system normally includes sensors, evaluation units, signals and logical modules for safe disconnections. The manufacturer of the installation or machine is responsible for ensuring proper functioning of the whole system. DOLD cannot guarantee all the specifications of an installation or machine that was not designed by DOLD. The total concept of the control system into which the device is integrated must be validated by the user. DOLD also takes over no liability for recommendations which are given or implied in the following description. The following description implies no modification of the general DOLD terms of delivery, warranty or liability claims.

### Designated Use

The UF 6925 is used to interrupt a safety circuit in a safe way. It can be used to protect people and machines in applications with e-stop buttons and safety gates.

When used in accordance with its intended purpose and following these operating instructions, this device presents no known residual risks. Non-observance may lead to personal injuries and damages to property.

### Safety Notes



**Risk of electrocution!**  
**Danger to life or risk of serious injuries.**

- Disconnect the system and device from the power supply and ensure they remain disconnected during electrical installation.
- The device may only be used for the applications described in the mutually applicable operating instructions / data sheet. The notes in the respective documentation must be heeded. The permissible ambient conditions must be observed.
- Note the VDE and local regulations, particularly those related to protective measures.



**Risk of fire or other thermal hazards!**  
**Danger to life, risk of serious injuries or property damage.**

- The device may only be used for the applications described in the mutually applicable operating instructions / data sheet. The notes in the respective documentation must be heeded. The permissible ambient conditions must be observed. In particular, the current limit curve must be heeded.
- The device may only be installed and put into operation by experts who are familiar with this technical documentation and the applicable health and safety and accident prevention regulations.



**Functional error!**  
**Danger to life, risk of serious injuries or property damage.**

- The device may only be used for the applications described in the mutually applicable operating instructions / data sheet. The notes in the respective documentation must be heeded. The permissible ambient conditions must be observed.
- The device may only be installed and put into operation by experts who are familiar with this technical documentation and the applicable health and safety and accident prevention regulations.
- The unit should be panel mounted in an enclosure rated at IP 54 or superior. Dust and dampness may lead to malfunction.



**Installation fault!**  
**Danger to life, risk of serious injuries or property damage.**

- Make sure of sufficient protection circuitry at all output contacts for capacitive and inductive loads.



**Attention!**

- The safety function must be triggered during commissioning.
- If a line fault occurs after the voltage has been connected to S12, S22, the unit will be activated because this line fault is similar to the normal On-function.
- Switches S1 and S2 must not be set while device is under supply voltage.
- **AUTOMATIC START !**  
According to IEC/EN 60204-1 part 9.2.5.4.2 and 10.8.3 it is not allowed to restart automatically after emergency stop. Therefore the machine control has to disable the automatic start after emergency stop.
- Opening the device or implementing unauthorized changes voids any warranty





### Product Description

The Emergency-Stop-Module UF 6925 is suitable to protect men and machine by safety related enabling or disabling of a safety circuit. It is used in applications with e-stop buttons and safety gates.

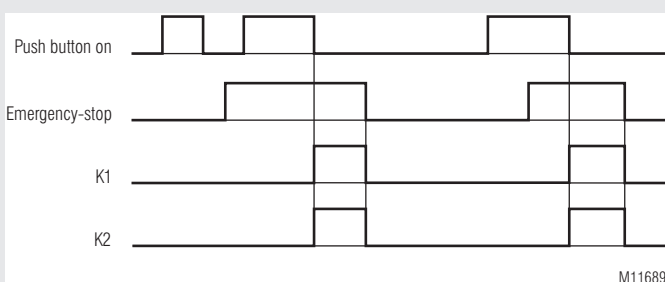
### Your Advantages

- For safety applications up to PL e / Cat. 4 e.g. SIL 3
- Space saving
- Connection front side
- Manual or automatic start
- Can be used also for safety gate
- Line fault detection on On-button

### Features

- **Corresponds to**
  - PL e and category 4 according to EN ISO 13849-1
  - SIL 3 according to EN 61508
  - maximum SIL 3 according to EN IEC 62061
- **Can be used in applications:**
  - According to EN 61511
  - According to EN 50156-1 for furnaces
- 2-channel operation
- Forcibly guided output contacts
- With or without cross fault monitoring in the E-stop loop, switch S1
- Manual restart or automatic restart, switch S2
- LED indicator for channel 1, 2 and Netz
- Width 17,5 mm

### Function Diagram



### Approvals and Markings



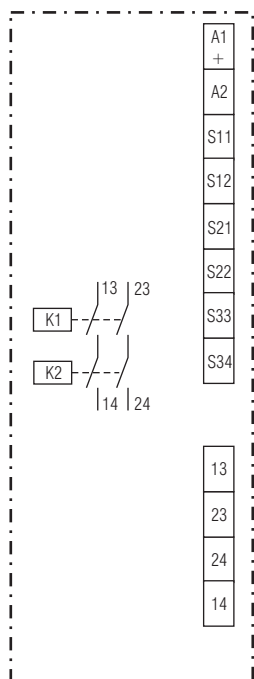
### Applications

- Protection of people and machines
- Emergency stop circuits on machines
  - Monitoring of position switches on a safety gate

### Indicators

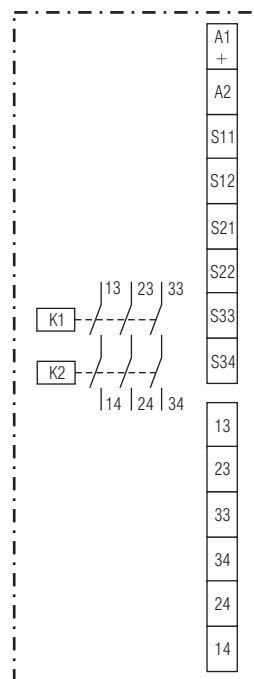
- |                 |                            |
|-----------------|----------------------------|
| Green LED Netz: | On when supply connected   |
| Green LED K1:   | On when relay K1 energized |
| Green LED K2:   | On when relay K2 energized |

### Circuit Diagrams



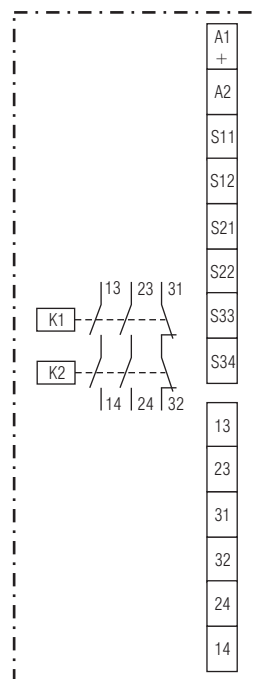
M11947

UF 6925.02



M11315

UF 6925.03



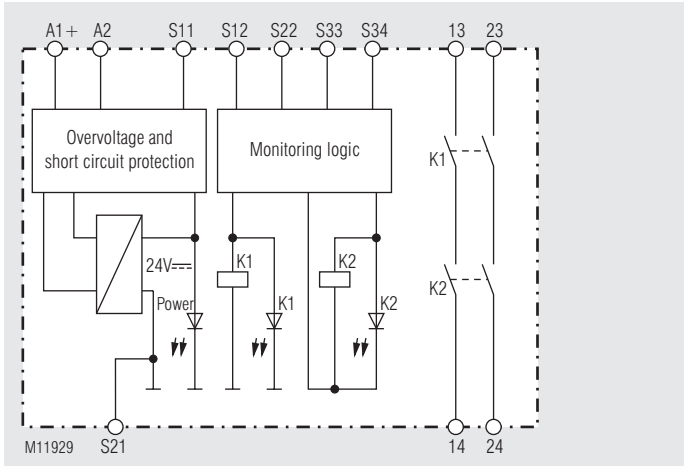
M11314

UF 6925.22

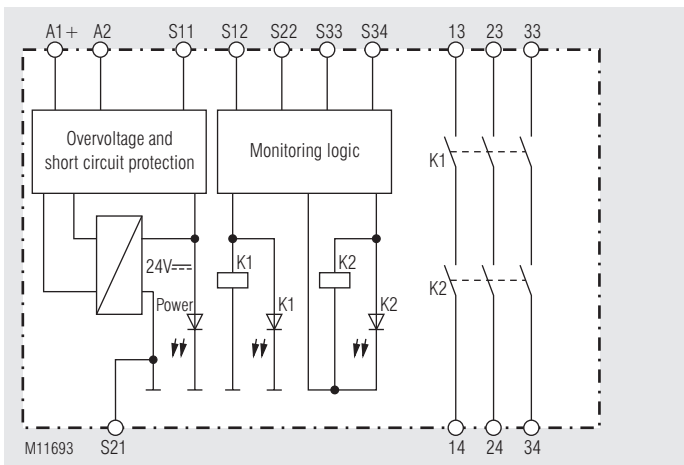
## Connection Terminals

Terminal designation	Signal description
A1+	+
A2	-
S12, S22, S34	Control inputs
S11, S21, S33	Control outputs
13, 14, 23, 24, 33,34	Forcibly guided NO contacts for release circuit
31, 32	Forcibly guided indicator output

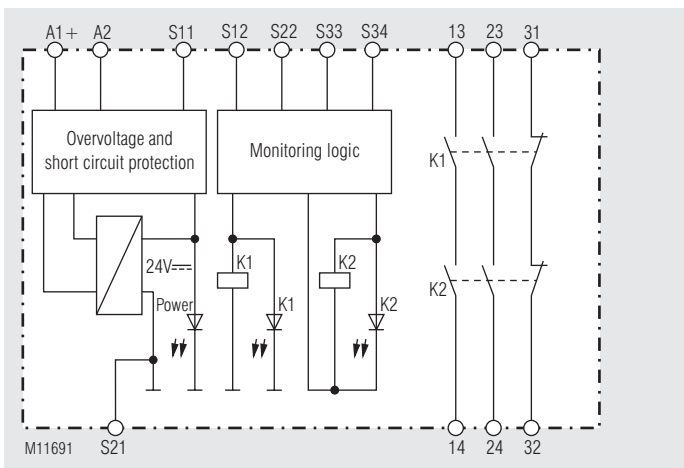
## Block Diagrams



UF 6925.02



UF 6925.03



UF 6925.22

## Notes

### Setting Cross fault detection

Switch S1 is for selecting with or without cross fault detection at the e-stop button resp. on safety gate.

For connection please see application examples.



**ATTENTION!** The setting of S1 has to be made before starting the device.

### Setting Start-Mode

S2 is used to change between automatic and manual restart. On automatic start also the terminals S33 - S34 have to be linked.

With the function manual start a start button has to be connected to terminals S33-S34. The unit starts up with the negative edge of the start button signal.

For connection please see application examples.



**ATTENTION!** The setting of S2 has to be made before starting the device.

### Line fault detection on On-button

A line fault detection is only active when S12 and S22 are switched simultaneously. If The On-button is closed before S12, S22 is connected to voltage (also when line fault across On-Button), the output contacts will not close. A line fault across the On-button which occurred after activation of the relay, will be detected with the next activation and the output contacts will not close.



**ATTENTION!** If a line fault is removed while the unit is powered up, the unit switches on.

## Technical Data

### Input

<b>Nominal Voltage <math>U_N</math>:</b>	DC 24 V, DC 8 ... 36 V The power supply shall meet the requirements of SELV / PELV
<b>Voltage range</b>	
DC 24 V:	0.8 ... 1.1 $U_N$
<b>Nominal consumption at</b>	
DC 24 V:	< 1.6 W
DC 8 ... 36 V:	< 2.2 W
<b>Min. Off-time:</b>	150 ms
<b>Control voltage on S11 at not activated device:</b>	DC 23 V at $U_N$
<b>Control current typ. over S12, S22:</b>	30 mA at $U_N$
<b>Min. voltage on terminal S12 at not activated device:</b>	DC 19 V
<b>Short-circuit protection:</b>	Internal PTC
<b>Overvoltage protection:</b>	Internal VDR

### Output

<b>Contacts</b>	
UF 6925.02:	2 NO contacts
UF 6925.03:	3 NO contacts
UF 6925.22:	2 NO contacts, 1 NC contact

The NO contacts are safety contacts.  
The NC contacts 31-32 can only be used for monitoring.

<b>Operating time at <math>U_N</math>:</b>	< 350 ms
<b>Release delay at <math>U_N</math>:</b>	
In case of break of supply voltage:	
DC 24 V:	< 20 ms
DC 8 ... 36 V:	< 90 ms
In case of break of S12, S22:	< 25 ms
<b>Contact type:</b>	Relay, forcibly guided
<b>Thermal current <math>I_{th}</math>:</b>	Max. 8 A (see quadratic total current limit curve)

### Switching capacity

to AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60947-5-1
To DC 13		
NO contact:	2 A / 24 V	IEC/EN 60947-5-1
NC contact:	2 A / 24 V	IEC/EN 60947-5-1
To DC 13		
NO contact:	4 A / 24 V at 0.1 Hz	IEC/EN 60947-5-1
NC contact:	4 A / 24 V at 0.1 Hz	IEC/EN 60947-5-1

### Electrical life

at AC 230 V, 8 A, $\cos \varphi = 1$ :	> 1.0 x 10 <sup>6</sup> switching cycles (at 1 s On, 1 s Off)
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### Permissible operating

<b>frequency:</b>	Max. 1200 switching cycles / h
<b>Short circuit strength</b>	
max. fuse rating:	8 A gG / gL IEC/EN 60947-5-1
Line circuit breaker:	B 6 A
<b>Mechanical life:</b>	> 40 x 10 <sup>6</sup> switching cycles

### General Data

<b>Operating mode:</b>	Continuous operation
<b>Temperature range</b>	
Operation:	- 25 ... + 60 °C (see quadratic total current limit curve) At an altitude of > 2000 m the maximum permissible temperature reduces by 0.5 °C / 100 m
Storage:	- 40 ... + 85 °C
<b>Altitude,</b>	
<b>Clearance and creepage distance</b>	
Rated impulse voltage / pollution degree:	IEC 60664-1 ≤ 2000 m > 2000 m up to ≤ 4000 m
Contacts 13/14, 23/24, 31/32 or 33/34 against all others:	6 kV / 2 4 kV / 2
Contacts 13/14, 23/24, 31/32 or 33/34 to each other:	4 kV / 2 2,5 kV / 2

## Technical Data

<b>EMC</b>	IEC/EN 61326-3-1
Interference suppression	
DC 24 V:	Limit value class B EN 55011
DC 8 ... 36 V:	Limit value class A*) EN 55011
*) The device is designed for the usage under industrial conditions (Class A, EN 55011). When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken.	
<b>Degree of protection:</b>	
Housing:	IP 40 IEC/EN 60529
Terminals:	IP 20 IEC/EN 60529
<b>Housing:</b>	Thermoplastic with V0 behaviour according to UL subject 94
<b>Vibration resistance:</b>	Amplitude 0,35 mm frequency 10 ... 55 Hz IEC/EN 60068-2-6 25 / 060 / 04 IEC/EN 60068-1
<b>Climate resistance:</b>	
<b>Terminal designation:</b>	EN 50005
<b>Wire connection:</b>	Cage clamp terminal "Push-In"
<b>Mounting:</b>	DIN rail IEC/EN 60715
<b>Weight:</b>	140 g

### Dimensions

<b>Width x height x depth:</b>	17.5 x 110 x 120 mm
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### UL-Data

The safety functions were not evaluated by UL. Listing is accomplished according to requirements of Standard UL60947, "general use applications"

### Standards:

- ANSI/UL 60947-1, 5<sup>th</sup> Edition (Low-Voltage Switchgear and Controlgear Part1: General rules)
- ANSI/UL 60947-5-1, 3<sup>th</sup> Edition (Low-Voltage Switchgear and Controlgear Part5-1: Control circuit Devices and Switching Elements - Electromechanical Control Circuits Devices)
- CAN/CSA-C22.2 No. 60947-1-13, 2<sup>nd</sup> Edition (Low-Voltage Switchgear and Controlgear - Part1: General rules)
- CAN/CSA-C22.2 No. 60947-1-14, 1<sup>st</sup> Edition (Low-Voltage Switchgear and Controlgear - Part5-1: Control circuit Devices and Switching Elements - Electromechanical Control Circuits Devices)

<b>Ambient temperature:</b>	- 25 ... + 55 °C
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<b>Altitude:</b>	≤ 2000 m
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### Switching capacity:

UF 6925.03:	Pilot duty B300, R300 6A 250Vac Resistive 6A 24Vdc Resistive
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UF 6925.02, UF 6925.22:	Pilot duty B300, R300 8A 250Vac Resistive 8A 24Vdc Resistive
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<b>Wire connection:</b>	Min. 60°C copper conductors AWG 28 - 14
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Technical data that is not stated in the UL-Data, can be found in the technical data section.

### Standard Type

UF 6925.03/61 DC 8 ... 36 V	
Article number:	0067556
• Output:	3 NO contacts
• Nominal voltage $U_N$ :	DC 8 ... 36 V
• Width:	17.5 mm

## Variants

### UF 6925.../1...:

For switching small loads of 10 mA ... 12 VA bzw. 10 mW ... 12 W in the ranges 2 ... 60 V und 2 ... 300 mA.

The device is also suitable for switching the maximum switching current. However, this will burn off the gold plating of the contacts, so that switching of small loads is no longer possible afterwards.

### Ordering example for variants

UF 6925 .03 / \_ \_ \_ /61 8 ... 36 V

- Nominal voltage  
DC 8 ... 36 V
- UL-approval
- Cross fault detection  
0 = Adjustable  
1 = Without cross fault detection  
2 = With cross fault detection
- Start-Mode  
0 = Adjustable  
1 = Auto-Start  
2 = Manual-Start
- Switching capacity  
0 = Standard  
1 = For small loads (2 ... 60 V, 2...300 mA)
- Contacts  
.02 = 2 NO contacts  
.03 = 3 NO contacts  
.22 = 2 NO contacts, 1 NC contact
- Type

UF 6925 .02 / \_ \_ \_ /61 DC 24 V

- Nominal voltage  
DC 24V
- UL-approval
- Cross fault detection  
1 = Without cross fault detection  
2 = With cross fault detection
- Start-Mode  
1 = Auto-Start  
2 = Manual-Start
- Switching capacity  
0 = Standard
- Contacts  
.02 = 2 NO contacts  
.03 = 3 NO contacts
- Type

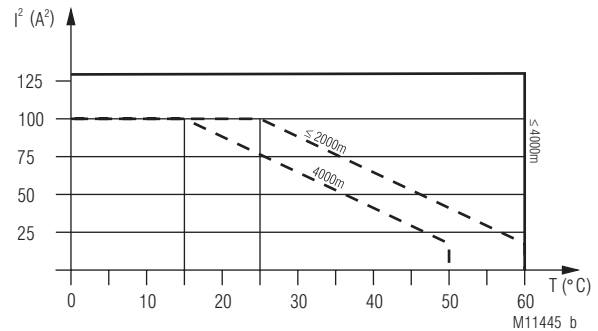
## Troubleshooting

Failure	Potential cause
LED "Power" does not light up	- Power supply not connected - Cross fault between S11 and S21
LED "K1" lights up, but "K2" remains off	- Safety relay K1 is welded (replace device) - A 1-channel switch-off occurred on S12 (switch channel off on S22)
LED "K2" lights up, but "K1" remains off	- Safety relay K2 is welded (replace device) - A 1-channel switch-off occurred on S22 (switch channel off on S12)
Device cannot be activated	- A safety relay is welded (replace device) - Incorrect setting of switch S1 Manual start mode: - Line fault on start-button (disconnect power supply and remove fault) Automatic start mode: - S33-S34 not bridged

## Maintenance and repairs

- The device contains no parts that require maintenance.
- In case of failure, do not open the device but send it to manufacturer for repair.

## Characteristics



Device free-standing.  
Max. current at 60°C over  
2 contact path = 8A  $\hat{=}$  2x8²A² = 128A²

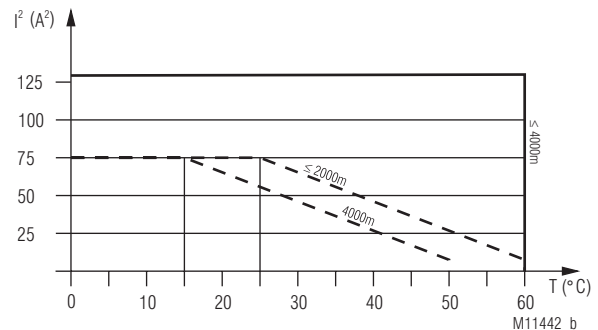
Device mounted without distance heated by  
devices with same load.  
Max. current at 60°C (≤2000m) or 50°C (4000m) over  
2 contact path = 3A  $\hat{=}$  2x3²A² = 18A²

$$\Sigma I^2 = I_1^2 + I_2^2$$

$I_1, I_2$  - Current in contact paths

### Quadratic total current limit curve DC 24 V

Devices mounted without distance and an altitude of > 2000 m the curve is adjusted by - 0,5 °C / 100 m (see example for 4000 m).



Device free-standing.  
Max. current at 60°C over  
2 contact path = 8A  $\hat{=}$  2x8²A² = 128A²

Device mounted without distance heated by  
devices with same load.  
Max. current at 60°C (≤2000m) or 50°C (4000m) over  
2 contact path = 2A  $\hat{=}$  2x2²A² = 18A²

$$\Sigma I^2 = I_1^2 + I_2^2$$

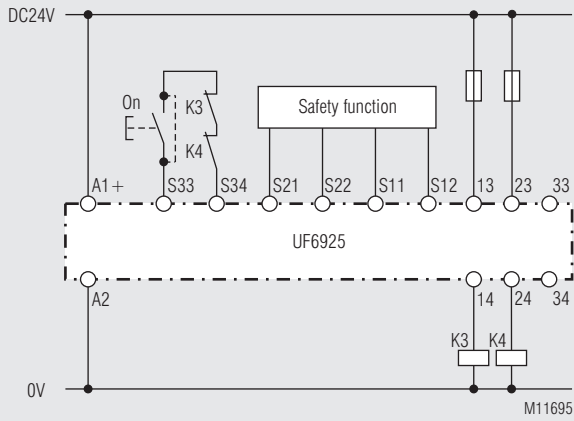
$I_1, I_2$  - Current in contact paths

### Quadratic total current limit curve DC 8 ... 36 V

Devices mounted without distance and an altitude of > 2000 m the curve is adjusted by - 0,5 °C / 100 m (see example for 4000 m).



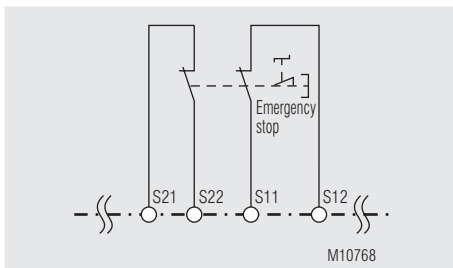
## Application Examples



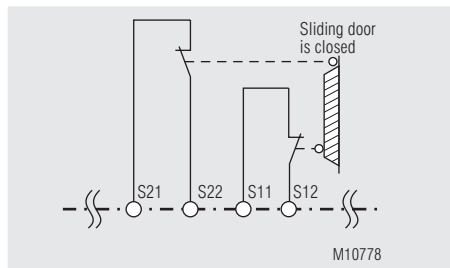
A jumper must be fitted S33 - S34 for the automatic On function. The On pushbutton is not required. The required start function has to be selected on switch S1 before starting the device. (see "Unit Programming").

Functioning of the external contactors is monitored by looping the NC contacts into the closing circuit (terminals S33 - S34).

### Safety function for units with cross fault detection (pay attention to "Unit Programming!")

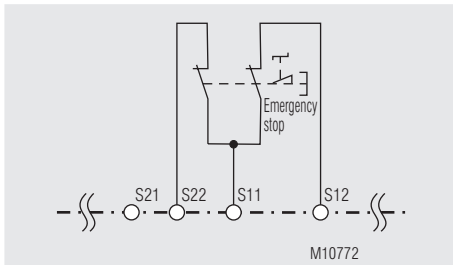


Fct.: E-stop  
SIL 3, PL e, Cat. 4

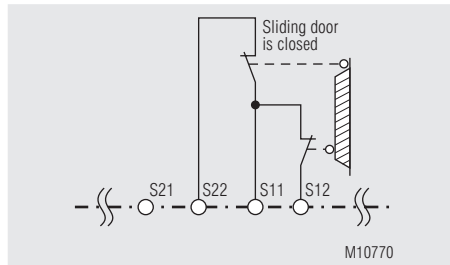


Fct.: Safety gate  
SIL 3, PL e, Cat. 4

### Safety function for units without cross fault detection (pay attention to "Unit Programming!")



Fct.: E-stop  
SIL 3, PL e, Cat. 4 <sup>1)</sup>



Fct.: Safety gate  
SIL 3, PL e, Cat. 4 <sup>1)</sup>

<sup>1)</sup> To achieve the safety classifications a crossfault safe wiring has to be installed.

