SAFEMASTER
Emergency Stop Module
UF 6925

Translation
of the original instructions

DOLD

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0275136

Contents

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 electrican!

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

SAFEMASTER
Emergency Stop Module
UF 6925

0275136

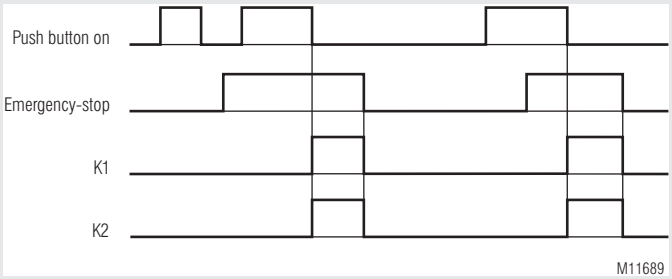
Product Description

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

CE
c UL US LISTED
Canada / USA

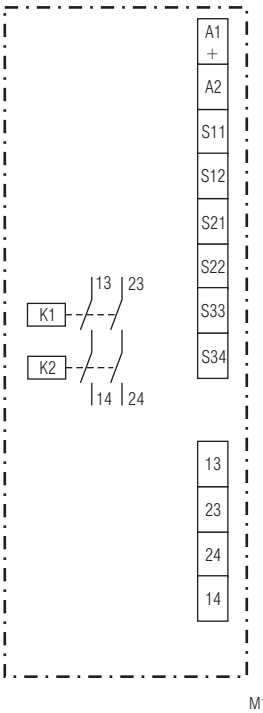
Applications

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

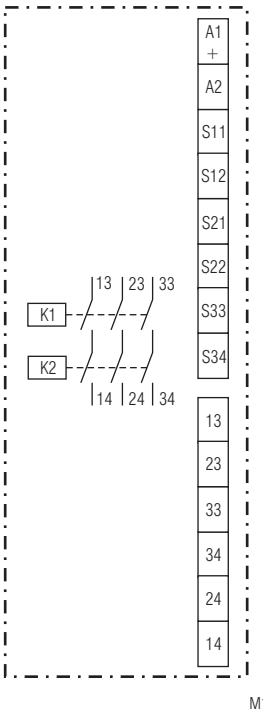
Indicators

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

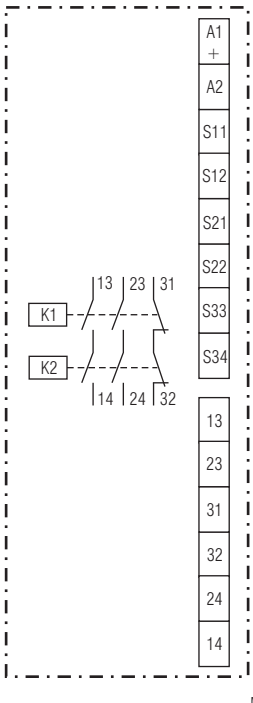
Circuit Diagrams



UF 6925.02



UF 6925.03

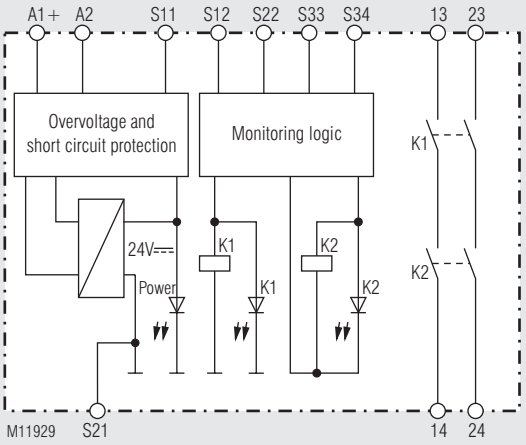


UF 6925.22

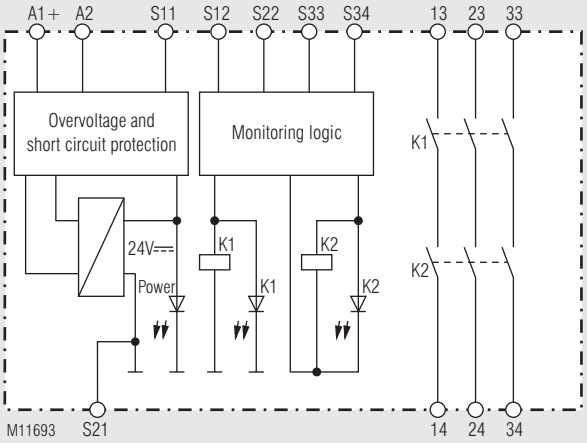
Connection Terminals

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

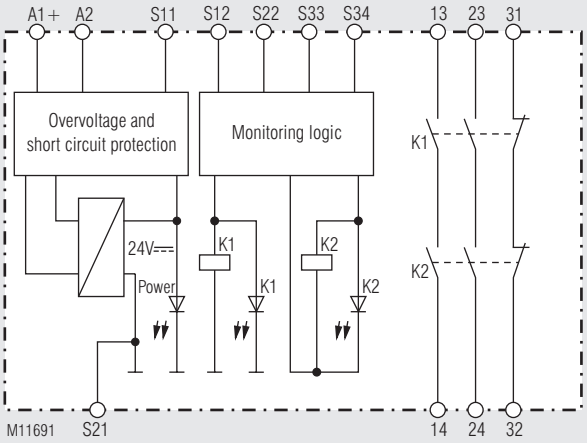
Block Diagrams



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

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

Output

Contacts		
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.		
Operating time at U_N:	< 350 ms	
Release delay at U_N:		
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	
Contact type:	Relay, forcibly guided	
Thermal current I_{th}:	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 φ = 1:	> 1.0 x 10^5 switching cycles (at 1 s On, 1s Off)	
Permissible operating frequency:	Max. 1200 switching cycles / h	
Short circuit strength		
max. fuse rating:	8 A gG / gL	IEC/EN 60947-5-1
Line circuit breaker:	B 6 A	
Mechanical life:	> 40 x 10^6 switching cycles	

General Data

Operating mode:	Continuous operation	
Temperature range		
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	
Altitude,		
Clearance and creepage distance		
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

EMC	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.	
Degree of protection:		
Housing:	IP 40	IEC/EN 60529
Terminals:	IP 20	IEC/EN 60529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94	
Vibration resistance:	Amplitude 0,35 mm frequency 10 ... 55 Hz	IEC/EN 60068-2-6
Climate resistance:	25 / 060 / 04	IEC/EN 60068-1
Terminal designation:	EN 50005	
Wire connection:	Cage clamp terminal “Push-In”	
Mounting:	DIN rail	IEC/EN 60715
Weight:	140 g	

Dimensions

Width x height x depth:	17.5 x 110 x 120 mm

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

Ambient temperature:	- 25 ... + 55 °C
Altitude:	≤ 2000 m
Switching capacity:	
UF 6925.03:	Pilot duty B300, R300 6A 250Vac Resistive 6A 24Vdc Resistive
UF 6925.02, UF 6925.22:	Pilot duty B300, R300 8A 250Vac Resistive 8A 24Vdc Resistive
Wire connection:	Min. 60°C copper conductors AWG 28 - 14

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 mVA ... 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

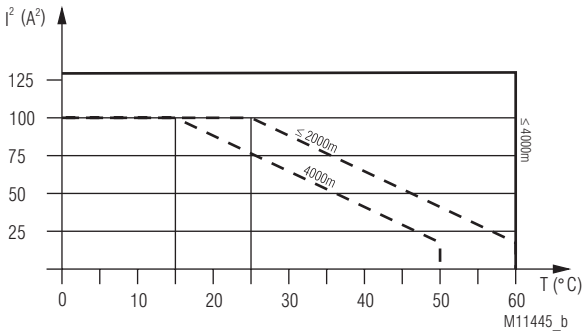
Troubleshooting

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



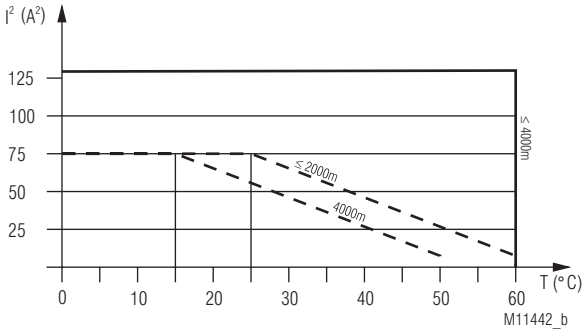
Device free-standing.
Max. current at 60°C over
2 contact path = 8A ≙ $2x8^2A^2 = 128A^2$

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 ≙ $2x3^2A^2 = 18A^2$

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

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 ≙ $2x8^2A^2 = 128A^2$

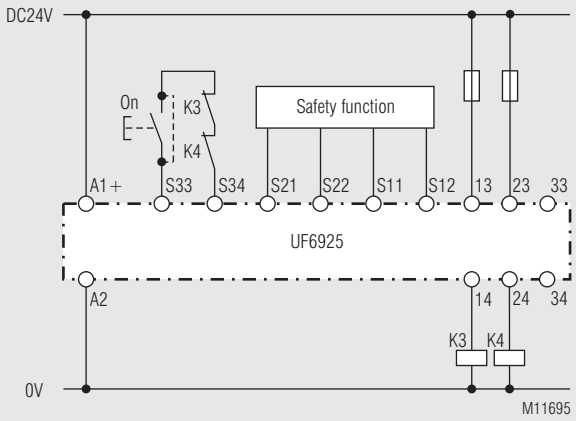
Device mounted without distance heated by devices with same load.
Max. current at 60°C (≤ 2000m) or 50°C (4000m) over
2 contact path = 2A ≙ $2x2^2A^2 = 18A^2$

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

I_1, I_2 - Current in contact paths

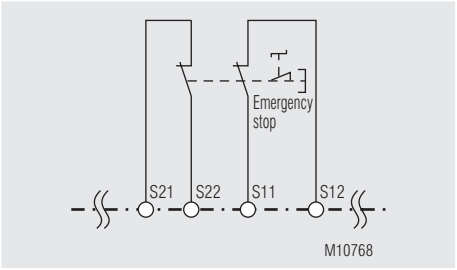
Quadratic total current limit curve DC 8 ... 36 V
Devices mounted without distance and an altitude of > 2000 m the curve is adjusted by - 0,5 °C / 100 m (see example for 4000 m).

Application Examples

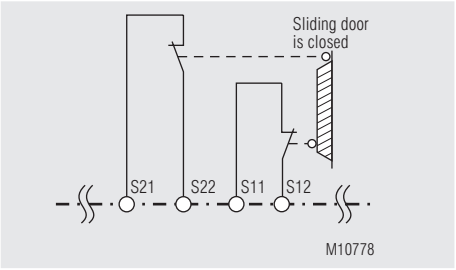


A jumper must be fitted S33 - S34 for the automatic On function. The On pushbutton is not required. The required start function has to be selected on switch S1 before starting the device. (see "Unit Programming").
Functioning of the external contactors is monitored by looping the NC contacts into the closing circuit (terminals S33 - S34).

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

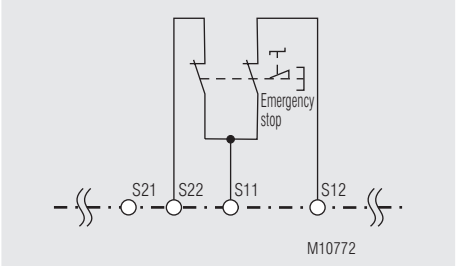


Fct.: E-stop
SIL 3, PL e, Cat. 4

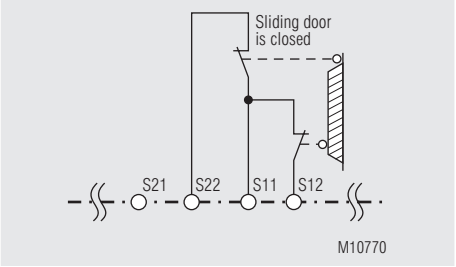


Fct.: Safety gate
SIL 3, PL e, Kat. 4

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



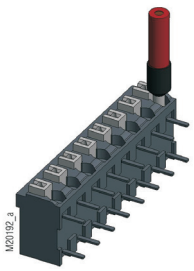
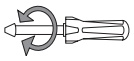
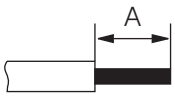
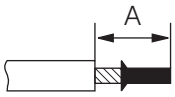
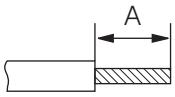
Fct.: E-stop
SIL 3, PL e, Cat. 4 [1)]



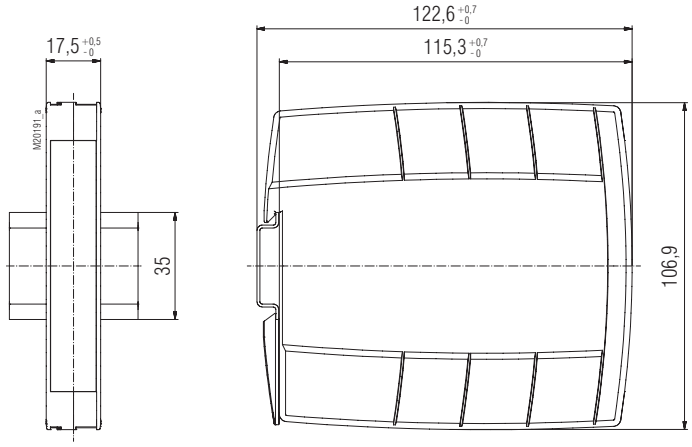
Fkt.: Safety gate
SIL 3, PL e, Cat. 4 [1)]

[1)] To achieve the safety classifications a crossfault safe wiring has to be installed.

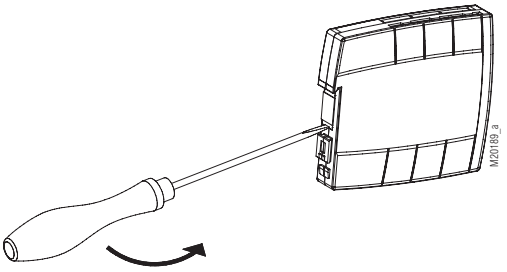
DE	**Anschlusstechnik**
EN	**Connection Technology**
FR	**Technologie de connexion**

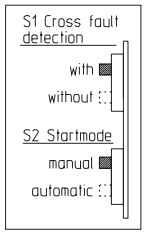
	Federkraftklemmen Cage clamp terminals Bornes ressorts
	
	DIN 5264-A; 0,5 x 3
 M10248	A = 8 mm 1 x 0,2 ... 1,5 mm² 1 x AWG 24 to 16
 M10249	A = 8 mm 1 x 0,25 ... 0,75 mm² 1 x AWG 24 to 16
 M10250	A = 8 mm 1 x 0,2 ... 1,5 mm² 1 x AWG 24 to 16

DE	**Maßbild (Maße in mm)**
EN	**Dimensions (dimensions in mm)**
FR	**Dimensions (dimensions en mm)**



DE	**Geräteprogrammierung**
EN	**Setting**
FR	**Programmation de l'appareil**





M11589_a

DE	S1 Querschlusserkennung ■ mit ☐ ohne
FR	S1 Transversal ■ avec ☐ sans

DE	S2 Start ■ Hand ☐ Auto
FR	S2 Reset ■ Manu ☐ Auto

DE	Zur Einstellung der Funktionen Automatischer Start, Hand-Start und mit oder ohne Querschlusserkennung sind die Schalter S1 und S2 vorgesehen. Diese Schalter befinden sich hinter der Abdeckplatte auf der Unterseite des Gerätes. Die Schalter S1 und S2 dürfen nur bei unbestromtem Gerät betätigt werden! Die Schalterstellung zeigt den Lieferzustand.
EN	The selection of the functions auto start, manual start, with or without cross fault monitoring is done with switches S1 and S2. These switches are located behind a cover at the bottom of the device. The setting of S1 and S2 has to be made before starting the device. Disconnect unit before setting of S1 and S2! Drawing shows setting at the state of delivery.
FR	Pour les choix d'options (démarrage automatique, démarrage manuel et arrêt d'urgence avec ou sans détection des courts-circuits transversaux), on dispose des interrupteurs S1 et S2 situés derrière la plaque de dessous de l'appareil. Commutation de S1et S2 uniquement hors tension! Appareil livré tel que sur le schéma.

DE	**Sicherheitstechnische Kenndaten**
EN	**Safety Related Data**
FR	**Données techniques sécuritaires**

EN ISO 13849-1:		
Kategorie / Category:	4	
PL:	e	
$MTTF_d$:	284,6	a (year)
DC_{avg}:	99,0	%
d_{op}:	365	d/a (days/year)
h_{op}:	24	h/d (hours/day)
t_{cycle}:	3600	s/cycle
	≙ 1	/h (hour)

IEC/EN 62061 EN 61508		
maximum SIL:	3	EN IEC 62061
SIL	3	EN 61508
HFT*):	1	
DC:	99,0	%
PFH_D:	8,30E-11	h^{-1}
PFD_{AVG}:	9,10E-05	(Low Demand Mode)
T_1:	20	a (year)

*) HFT = Hardware-Fehlertoleranz
Hardware failure tolerance
Tolérance défauts Hardware

Anforderung seitens der Sicherheits-funktion an das Gerät im High Demand Mode		Intervall für zyklische Über-prüfung der Sicherheitsfunktion
Demand to our device based on the evaluated neccessary safety level of the application at High Demand Mode		Intervall for cyclic test of the safety function
Consigne résultante de la fonction sécuritaire de l'appareil au High Demand Mode		Intervale du contrôle cyclique de la fonction sécuritaire
nach, acc. to, selon EN ISO 13849-1	PL e with Cat. 3 or Cat. 4	einmal pro Monat once per month mensuel
	PL d with Cat. 3	einmal pro Jahr once per year annuel
nach, acc. to, selon EN IEC 62061, EN 61508	maximum SIL 3, SIL 3 with HFT = 1	einmal pro Monat once per month mensuel
	maximum SIL 2, SIL 2 with HFT = 1	einmal pro Jahr once per year annuel

Info

DE	Die angeführten Kenndaten gelten für die Standardtype. Sicherheitstechnische Kenndaten für andere Geräteausführungen erhalten Sie auf Anfrage. Die sicherheitstechnischen Kenndaten der kompletten Anlage müssen vom Anwender bestimmt werden.
EN	The values stated above are valid for the standard type. Safety data for other variants are available on request. The safety relevant data of the complete system has to be determined by the manufacturer of the system.
FR	Les valeurs données sont valables pour les produits standards. Les valeurs techniques sécuritaires pour d'autres produits spéciaux sont disponibles sur simple demande. Les données techniques sécuritaires de l'installation complète doivent être définies par l'utilisateur.

DE	**EG-Konformitätserklärung**
EN	**CE-Declaration of Conformity**
FR	**Déclaration de conformité européenne**

EG - Konformitätserklärung
Declaration of Conformity
Déclaration de conformité européenne

Hersteller:
Manufacturer: / Fabricant:
E. Dold & Söhne GmbH & Co. KG

Anschrift:
Address: / Adresse:
Bregstraße 18
78120 Furtwangen
Germany

Produktbezeichnung:	Not-Aus-Modul	**UF6925.kk/xyzccc**	mit:	kk = 02, 03, 22 x = 0, 1
Product description:	*Emergency-stop-module*		*with:*	y = 0, 1 z = 0, 1, 2
Désignation du produit:	*Module arrêt d' urgence*		*avec:*	optional ccc = /60 … / 69

Das bezeichnete Produkt stimmt mit den Vorschriften folgender europäischer Richtlinien überein:
The indicated product is in conformance with the regulations of the following european directives:
Le produit désigné est conforme aux instructions des directives européennes:

Maschinenrichtlinie: *Machinery directive: / Directives Machines:*	2006/42/EG	EU-Abl. L157/24, 09.06.2006
EMV - Richtlinie: *EMC - Directive: / Directives- CEM::*	2014/30/EU	EU-Abl. L96/79, 29.03.2014
RoHS - Richtlinie *RoHS -Directive: / Directives - RoHS:*	2011/65/EU	EU-Abl. L174/88, 01.07.2011

Prüfgrundsätze:
Basis of Testing:
Lignes de contrôle:

EN ISO 13849-1:2015
EN 61508 Parts 1-7:2010
EN 60664-1:2007
EN 61000-6-1:2007
EN 61000-6-3:2007 + A1:2011
EN IEC 62061:2021
EN 50156-2:2015
EN IEC 60664-1:2020 + AC:2020
EN 61000-6-2:2005 + AC:2005
EN 61000-6-4:2007 + A1:2011

Die Übereinstimmung eines Baumusters des bezeichneten Produktes mit der oben genannten Maschinenrichtlinie wurde bescheinigt durch:
Consistency of a production sample with the marked product in accordance to the above machiney directive has been certified by:
La conformité d'un échantillon du produit désigné aux directives machines susmentionnées a été certifiée par:

Benannte Stelle:
Certification office: / l´organisme notifié:
TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, 51105 Köln

Nummer der benannten Stelle:
Number of certification office:/ Numéro de l´organisme notifié:
0035

Nummer der Bescheinigung:
Certification number: / Numéro de certificat:
01/205/5549.02/22

Ausstelldatum :
Date of issue: / Date de délivrance:
24.10.2022

Für die Zusammenstellung der technischen Unterlagen ist bevollmächtigt:
For the compilation of technical documents is authorized:
Pour la composition des documents techniques est autorisé:

.....

Gamal Hagar, Entwicklungsleiter / R&D Manager

Rechtsverbindliche Unterschrift:
Signature of authorized person:
Signature autorisée :

ppa. A. Dold

Christian Dold, Produktmanagement / Productmanagement

Ort, Datum :
Place, Date: / Lieu, date:
Furtwangen, 26.10.2022

Diese Original - Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, beinhaltet jedoch keine Zusicherung von Eigenschaften. Die Sicherheitshinweise der Produktdokumentation sind zu beachten.
This original declaration confirms the conformity of the mentioned directives but does not comprise any guarantee of the product characteristics. The safety directives of the product documentation are to be considered.
Cette déclaration originale certifie la conformité des directives nommées mais ne comprend aucune garantie des caractéristiques du produit. Les directives de sécurité de la documentation du produit sont à considérer.

DE	**Notizen**
EN	**Notice**
FR	**Note**