

**Accessories for
Safety Applications
Magnetic Switch coded
NE 5021**

**Translation
of the original instructions**

0265984



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



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.



Storage for future reference

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 magnetic switch NE 5021 is suitable to detect the closed state of safety gates, sliding gates and removable covers also under rough ambient conditions or for special hygienic requirements. The magnetic switch can also be used at sluggish or inaccurate positioned doors.

- To be used with:
- BG 5925/920 or LG 5925/920 control unit.
Max. 6 NE 5021 and 1 E-stop button in series can be connected.
 - UG 6960 and UG 6961 multifunctional safety timer.
Max. 10 NE 5021 and 1 E-stop button in series can be connected.
 - UG 6980 multifunctional safety module.
Max. 10 NE 5021 and 1 E-stop button in series can be connected.
 - UG 6970 multifunctional safety module.
Max. 10 NE 5021 for each safety function and 1 E-stop button can be connected.
 - BH 5910 multifunctional safety module
Max. 2 x 10 NE 5021 and 1 E-stop button can be connected.

Safety Notes



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.
- 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.

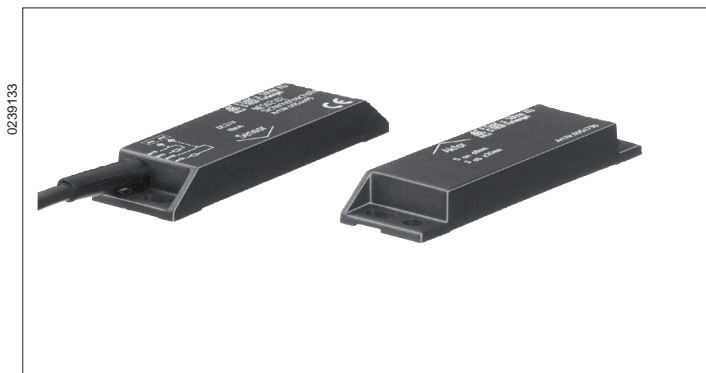


Attention!

- The NE 5021 magnetic switch has to be connected according to the application examples.
- The safety function must be triggered during commissioning.
- The code of transmitter and receiver are identically on delivery. This can be verified by a mark on the test sticker.
- The NE 5021 is connected to the control unit BG 5925/920 or LG 5925/920 according to the application example.
- Opening the device or implementing unauthorized changes voids any warranty.

Safety Technique

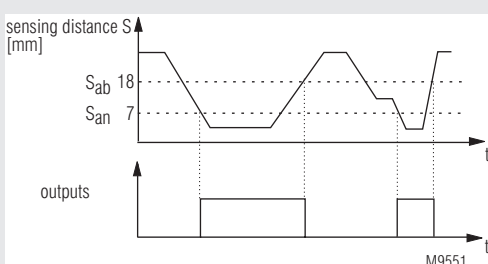
Accessories for Safety Applications Magnetic Switch coded NE 5021



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- Usable for safety application by using a correctly installed and connected, security module (e. g. BG 5925/920 or LG 5925/920)
- According to IEC/EN 60 204-1
- Standard switching distance: $S_{an} \leq 7 \text{ mm}$
 $S_{ab} \geq 18 \text{ mm}$
- Max. number of switches in series:
 - 6 NE 5021 on control unit BG 5925/920 or LG 5925/920
 - 10 NE 5021 on multifunctional safety timer UG 6960 and UG 6961
 - 10 NE 5021 on multifunctional safety module UG 6980
 - 20 NE 5021 on multifunctional safety module UG 6970
 - 20 NE 5021 on multifunctional safety module BH 5910
- 2 NO contacts / 1 NC contact
- Contacts protected against welding
- Very long service life
- Easy to mount and service
- Manipulation is difficult due to coded sensor
- Protection class IP 67

Function Diagram



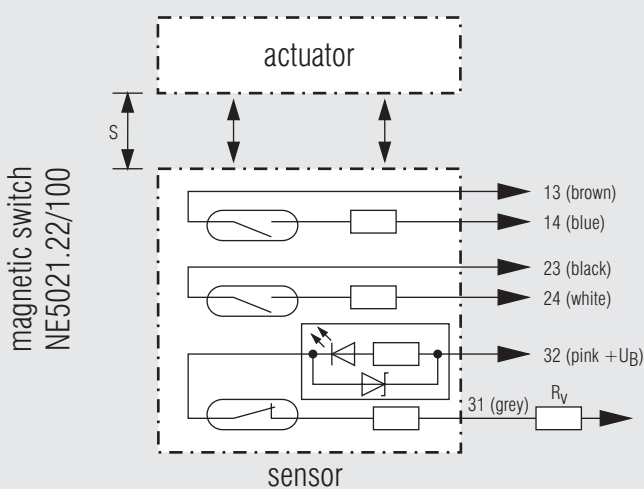
Approvals and Markings



Additional Information about this topic

- Data sheet control unit BG 5925/920 or LG 5925/920 for safety switch

Block Diagrams



Applications

The magnetic switch NE 5021 is suitable to detect the closed state of safety gates, sliding gates and removable covers also under rough ambient conditions or for special hygienic requirements. The magnetic switch can also be used at sluggish or inaccurate positioned doors.

- To be used with:
- BG 5925/920 or LG 5925/920 control unit.
Max. 6 NE 5021 and 1 E-stop button in series can be connected.
 - UG 6960 and UG 6961 multifunctional safety timer.
Max. 10 NE 5021 and 1 E-stop button in series can be connected.
 - UG 6980 multifunctional safety module.
Max. 10 NE 5021 and 1 E-stop button in series can be connected.
 - UG 6970 multifunctional safety module.
Max. 10 NE 5021 for each safety function and 1 E-stop button can be connected.
 - BH 5910 multifunctional safety module.
Max. 2 x 10 NE 5021 and 1 E-stop button can be connected.

Connections

The NE 5021 magnetic switch has to be connected according to the application examples below.

Connection Designation

Connection	Signal description
13, 14, 23, 24	Output NO
32	Output NC Connection for DC 24 V
31	Output NC Connection for R_V

Function

The magnetic switch consists of an transmitter and a receiver. The transmitter is magnetic coded. The contacts of the receiver switch when it detects the coding of the transmitter.

Manipulation with a standard magnet will not make the contact switching. The contacts are protected against short circuit currents by series resistors, so they cannot weld.

Indicators

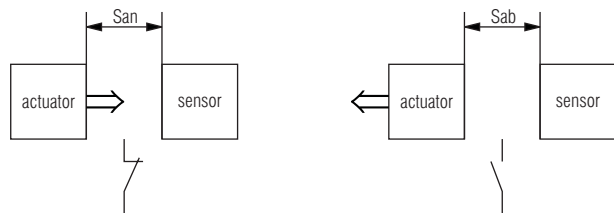
red LED: on, when NC contact not activated

Technical Data

Switching distances

Safe switching distances without mounting difference

S_{an} : $\leq 7 \text{ mm}$
 S_{ab} : $\geq 18 \text{ mm}$
 undefined situation: 7.1 ... 17.9 mm

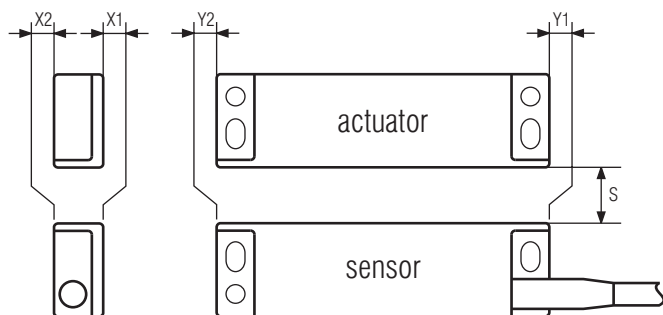


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Safe switching distances with mounting difference

The switching distance S_{an} is valid for mounting method A and B when the switch is mounted on non ferromagnetic material. The min. distance between transmitter and receiver should be 3 mm. The receiver must not be used as mechanical stop for the transmitter.

Mounting Difference / Switching Distance S_{an} Mounting Method A

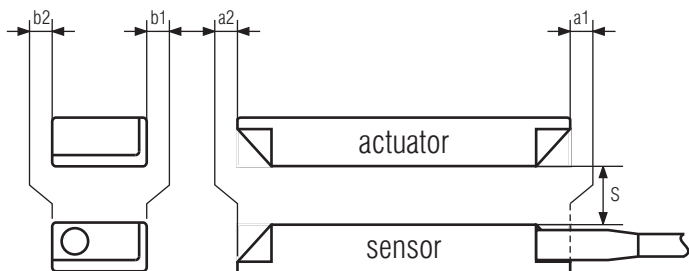


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NE 5021.22/100

Mounting diff.	S_{an}
$Y_1 = \text{max. } 7 \text{ mm}$	$\leq 9 \text{ mm}$
$Y_2 = \text{max. } 5 \text{ mm}$	$\leq 6 \text{ mm}$
$X_1 = \text{max. } 7 \text{ mm}$	$\leq 6 \text{ mm}$
$X_2 = \text{max. } 7 \text{ mm}$	$\leq 6 \text{ mm}$

Mounting Difference / Switching Distance S_{an} Mounting Method B



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NE 5021.22/100

Mounting diff.	S_{an}
$a_1 = \text{max. } 5 \text{ mm}$	$\leq 11 \text{ mm}$
$a_2 = \text{max. } 5 \text{ mm}$	$\leq 9 \text{ mm}$
$b_1 = \text{max. } 5 \text{ mm}$	$\leq 8 \text{ mm}$
$b_2 = \text{max. } 5 \text{ mm}$	$\leq 8 \text{ mm}$

Technical Data

Output

Contacts: 2 NO / 1 NC contacts
Contact type: Reed contacts
NO contact
Switching voltage: typ. DC 24 V
 max. DC 30 V
Switching current: max. 100 mA
Series resistor for contacts: 10 Ω
Electrical life: $> 2 \times 10^6$ switching cycles at DC 24 V / 100 mA

NC contact

The NC contact requires an external series resistor R_V . The connection 32 (pink) must be connected to + U_B . The connection 31 (grey) has to be connected via a series resistor R_V . The value of R_V is depending on the applied voltage.

Switching voltage U_B
 adjusted by R_V and I_n : $R_V = \frac{(U_B - 3.3) V}{I_n}$

U_B max.: DC 30 V
 I_n typ.: 6 mA
 I_n max.: 10 mA

General Data

Temperature range:

Operation: - 25 ... + 75 °C
Storage: - 40 ... + 85 °C
Altitude: < 2,000 m
Shock resistance: 30 g / 11 ms
Vibration resistance: 10 g, 10 ... 150 Hz
Protection class: IP 67 IEC/EN 60 529
Housing: Polyamid, glas-fibre reinforced with V0 behaviour according to UL subj. 94
Connection of cable: 0.25 mm² with tinned wire ends
Length of cable: 5 m
Mounting: Screw M4 with plain washer EN ISO 7092

Weight:

Transmitter: 45 g
Receiver: 120 g

Dimensions

Width x height x depth:

Transmitter: 88 x 14 x 25 mm
Receiver: 88 x 14 x 25 mm

Standard Type

NE 5021.22/100
Article number: 0054697 (for Transmitter and Receiver)

- Output: 2 NO contacts / 1 NC contact
- Connection cable: 5 m

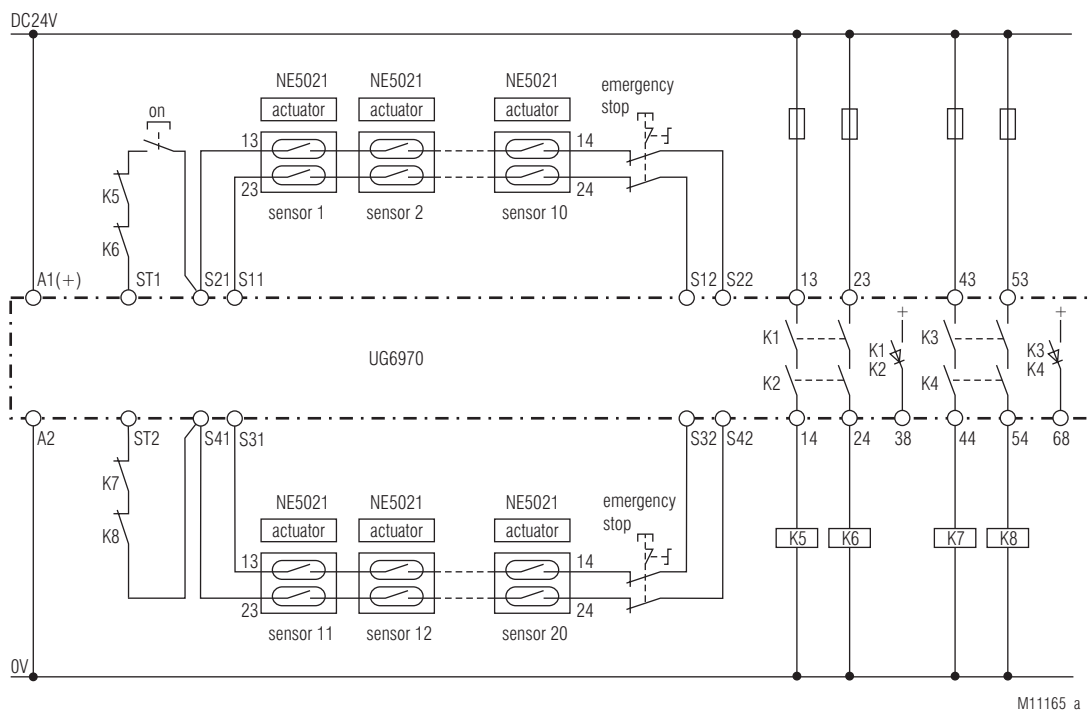
Troubleshooting

Failure	Potential cause
LED OFF	- incorrect voltage value is connected on 32 - incorrect resistance R_V is connected on 31 - Distance between transmitter and receiver to large

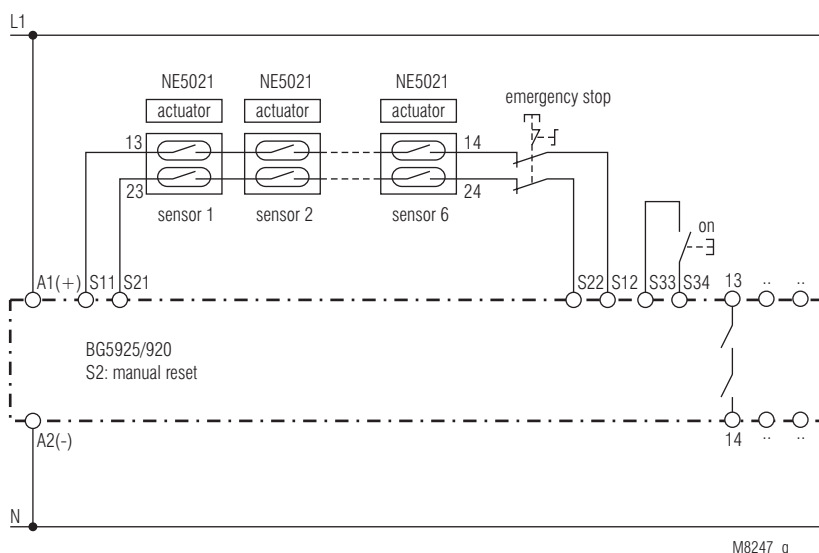
Maintenance and repairs

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

DE	Anwendungsbeispiele
EN	Application examples
FR	Exemples d'utilisation

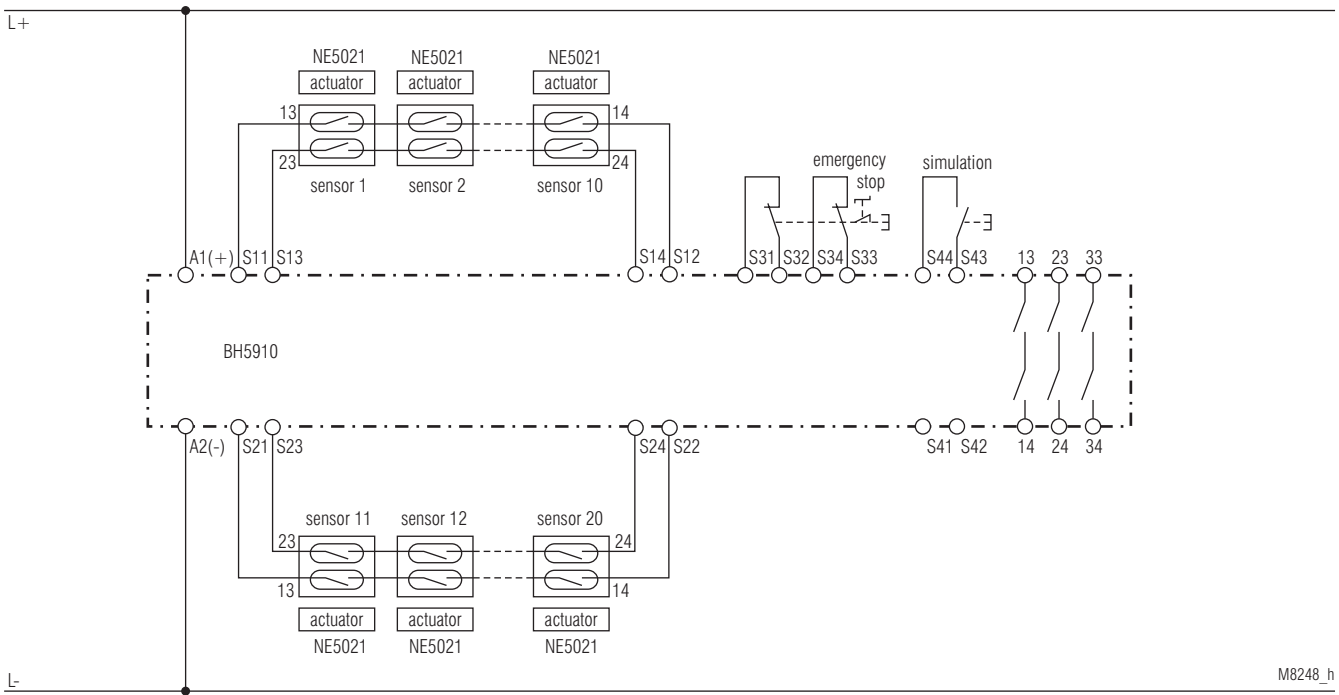


DE	je Sicherheitsfunktion 10 Magnetschalter NE 5021 + 1 Not-Aus-Taster in Reihe an Multifunktionales-Sicherheitsmodul UG6970 Betriebsarteneinstellung: 2 (Fkt1=HAND ; Fkt2=AUTO) Sicherheitsfunktion 1: Not-Aus mit Querschlusserkennung (1) , Hand-Start Sicherheitsfunktion 2: Not-Aus mit Querschlusserkennung (1) , Auto-Start
EN	Safety function each 10 magnetic switches NE 5021 +1 E-stop button in series on multifunction safety module UG6970 Operation mode: 2 (Fkt1 = MANUAL ; Fkt2 = AUTO) Safety function 1: E-stop with cross fault detection (1) , Manual-Start Safety function 2: E-stop with cross fault detection (1) , Auto-Start
FR	Par fonction de sécurité 10 interrupteurs magnétique NE 5021 + 1 A.U. en série sur le module de sécurité multifonctions UG 6970. Mode de fonctionnement: 2 (Fkt1 = MANUEL; Fkt2 = AUTO) Catégorie de sécurité 1: A.U. avec détection des courts-circuits transversaux (1), démarrage manuel Catégorie de sécurité 2: A.U. avec détection des courts-circuits transversaux (1), démarrage automatique



DE	6 Magnetschalter NE 5021 + 1 Not-Aus-Taster in Reihe an Auswertegerät BG 5925/920, mit Hand-Start.
EN	6 magnetic switches NE 5021 + 1 E-stop button in series on 1 control unit BG 5925/920, with manual reset.
FR	6 interrupteurs magnétique NE 5021 + 1 A.U. en série sur le module d'interprétation BG 5925/920 avec démarrage manuel.

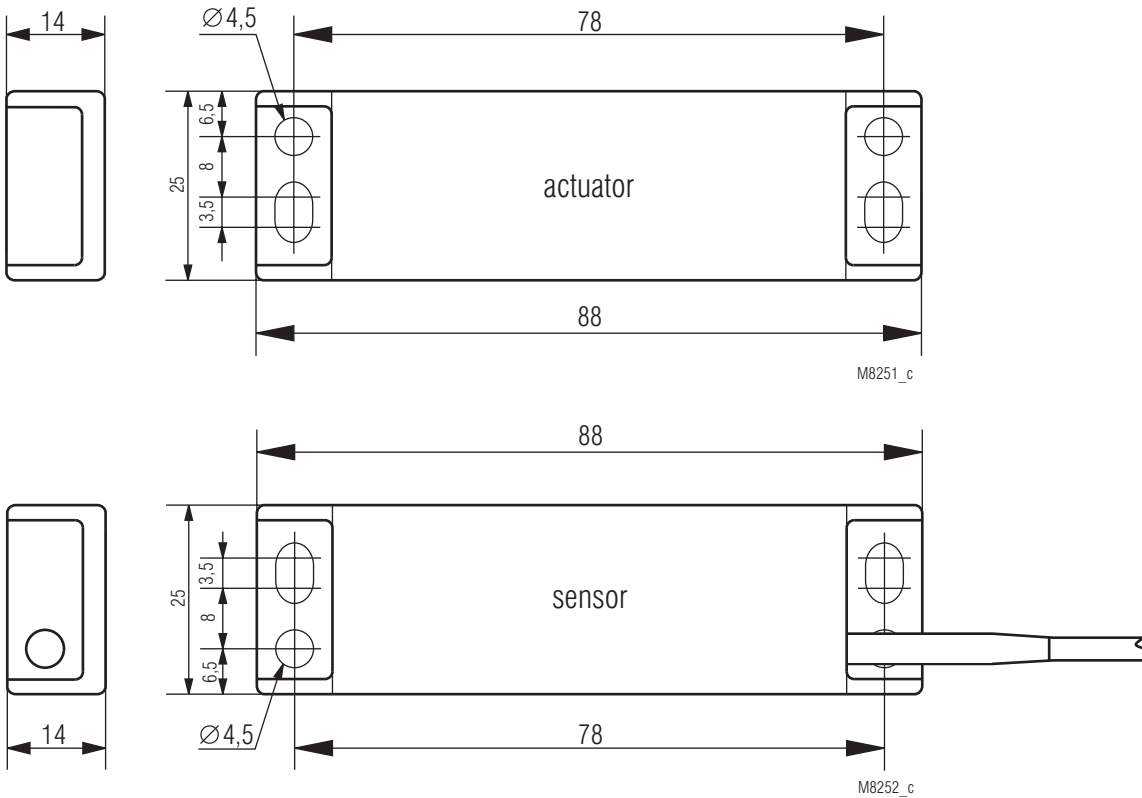
DE	Anwendungsbeispiel
EN	Application example
FR	Exemple d'utilisation



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DE	20 Magnetschalter NE 5021 + 1 Not-Aus-Taster, 1 Simulationstaster an Multifunktionales-Sicherheitsmodul BH 5910.
EN	20 magnetic switches NE 5021 + 1 E-stop button, 1 simulation button on multifunction safety module BH 5910:
FR	20 interrupteurs magnétique NE 5021 + 1 NA.U., 1 bouton de simulation sur le module de sécurité multifonctions BH 5910.

DE	Maßbilder (Maße in mm)
EN	Dimensions (dimensions in mm)
FR	Dimensions (dimensions en mm)



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M8252_c

DE	Statistische Kenndaten
EN	Statistic related data
FR	Données statistiques

λ_{total}	500	FIT
MTTF:	228,3	a (year)
d_{op} :	365	d/a (days/year)
h_{op} :	24	h/d (hours/day)
t_{cycle} :	3600	s/cycle
n_{op} :	8760	cycle/a
B_{10} :	200000	cycle

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

EG-Konformitätserklärung
Declaration of Conformity
Déclaration de conformité européenne



Hersteller: E. Dold & Söhne KG
 Manufacturer: 78120 Furtwangen
 Fabricant: Bregstraße 18
 Germany

Produktbezeichnung: **Magnetschalter, kodiert** **NE5021**
 Product description: Magnetic Switch coded
 Désignation du produit: Interrupteur magnétique, codé

Das bezeichnete Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein:

We declare that this product conformed to the following European Standards:
 Le produit désigné est conforme aux instructions des directives européennes.

Maschinenrichtlinie: 2006/42/EU EU-ABI. L157/24, 09.06.2006
 Machinery directive: / Directives Machines:

Niederspannungs-Richtlinie: 2014/35/EU EU-ABI. L96/357, 29.03.2014
 Low Voltage Directive: / Directives-basse tension:

EMV-Richtlinie: 2014/30/EU EU-ABI. L96/79, 29.03.2014
 EMC-Directive: / Directives-CEM:

RoHS-Richtlinie: 2011/65/EU EU-ABI. L174/88, 01.07.2011
 RoHS-Directive: / Directives-RoHS:

Prüfgrundsätze: EN 60947-5-1 : 2004
 Tested according to: EN 60947-5-2 : 2008
 Lignes de contrôle: EN 62061 : 2005
 EN 60204-1 : 2006
 EN ISO 14119 : 2013
 EN ISO 13849-1 : 2016

Aussteller: E. Dold & Söhne KG
 Executor: Bregstraße 18
 Souscripteur: D-78120 Furtwangen

Ort, Datum: Furtwangen, 27.11.2018
 Place, Date:
 Lieu, date:

Rechtsverbindliche

Unterschrift:

Signature of
 authorized person:
 Signature du PDG:

ppa. 
 Christian Dold -Produktmanagement-

Diese Original - Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, beinhaltet jedoch keine Zusicherung von Eigenschaften. Die Hinweise 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 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 la documentation du produit sont à considérer.