



The safety edge product line

Basic information



GELBAU

Technology that protects people.

CONTACT-DUO-PROFILES Resistance evaluator



Product description

The listed resistance evaluators are safety switching units designed for the monitoring of Gelbau Contact-Duo-Profiles equipped with an 8,2 k Ohm resistor as an electrical stop point. The safety system conforms to the safety category 1 or 3 according to EN 954-1. Related to the applications at the door, machine and industrial plant construction evaluators with different functions and different housings are available.

The listed types of evaluators represent an over view. Further types on demand.

Function

The function of the individual resistance evaluators are described at the particular circuit diagrams. The Contact-Duo-Profile connected to Z1 and Z2 respectively Z3 and Z4 is monitored with close circuit current.

Provided wiring has been executed properly, the safety contact 13, 14 respectively 23, 24 are closed and the green LEDs glow when the unit is on "ready" status.

When the Contact-Duo-Profile is activated (pressed), the relays are released and the safety contacts 13, 14 respectively 23, 24 are opened. The red LEDs glow.

If the closed circuit is interrupted between Z1 and Z2 respectively Z3 and Z4 the yellow LEDs glow. The safety contacts 13, 14 respectively 23, 24 are opened.



Resistance evaluators for the machine- and industrial plant construction

Type	Functions	Supply voltage	Type of construction	Functional diagram (see next page)
30B4.1200 30B4.1206	STOP, safety category 1	230 V AC 24 V DC	For installation in control cabinet, 22,5 mm	IV
3002.1200 3002.1206	STOP with additional two-way switch, safety category 1	230 V AC 24 V DC	For installation in control cabinet, 45 mm	I
3002.5200Z 3002.5206Z	STOP with additional two-way switch, safety category 3	230 V AC 24 V DC	For installation in control cabinet, 45 mm	III
3002.5240Z 3002.5246Z	STOP with additional two-way switch and RESET, safety category 3	230 V AC 24 V DC	For installation in control cabinet, 45 mm	VII
3002.5240Z2 3002.5246Z2	STOP with additional two-way switch and RESET, safety category 3, two safety contacts	230 V AC 24 V DC	For installation in control cabinet, 45 mm	VIII
3002.6240Z 3002.6246Z	STOP with additional two-way switch and RESET for 1 or 2 profiles, safety category 3	230 V AC 24 V DC	For installation in control cabinet, 45 mm	IX
3002.6240Z2 3002.6246Z2	Two STOP-contacts with additional two-way switch and RESET for 1 or 2 profiles, safety category 3	230 V AC 24 V DC	For installation in control cabinet, 45 mm	X

EEx ia safety barrier 650

3012.0903	For use of all Contact-Duo-Profiles in connection with a resistance evaluator in explosive risk areas, zone 1		For installation in control cabinet, 13 mm	
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Resistance evaluators for the door-industry

Type	Functions	Supply voltage	Type of construction	Functional diagram (see next page)
* 3004.1400 * 3004.1406	STOP with additional two-way switch, safety category 1	230 V AC 24 V DC	For installation in control cabinet, 22,5 mm	I
* 3003.1400 * 3003.1406	STOP with additional two-way switch, safety category 1	230 V AC 24 V DC	For surface mounting, 95 x 95 x 56 mm	I
3002.5200Z 3002.5206Z	STOP with additional two-way switch, safety category 3	230 V AC 24 V DC	For installation in control cabinet, 45 mm	III
3002.5210Z 3002.5216Z	STOP with re-raising, safety category 3	230 V AC 24 V DC	For installation in control cabinet, 45 mm	II
3003.1200 3003.1206	STOP with additional two-way switch, safety category 1	230 V AC 24 V DC	For surface mounting, 95 x 95 x 56 mm	I
3003.5200Z 3003.5206Z	STOP, safety category 3	230 V AC 24 V DC	For surface mounting, 130 x 130 x 56 mm	III
3003.5210Z	STOP, re-raising, safety category 3	230 V AC	For surface mounting, 130 x 130 x 56 mm	II
3003.5230Z	STOP, re-raising and slip door contact, safety category 3	230 V AC	For surface mounting, 130 x 130 x 56 mm	V
3003.6200Z	Double evaluator, STOP – STOP, safety category 3	230 V AC	For surface mounting, 130 x 130 x 56 mm	VI

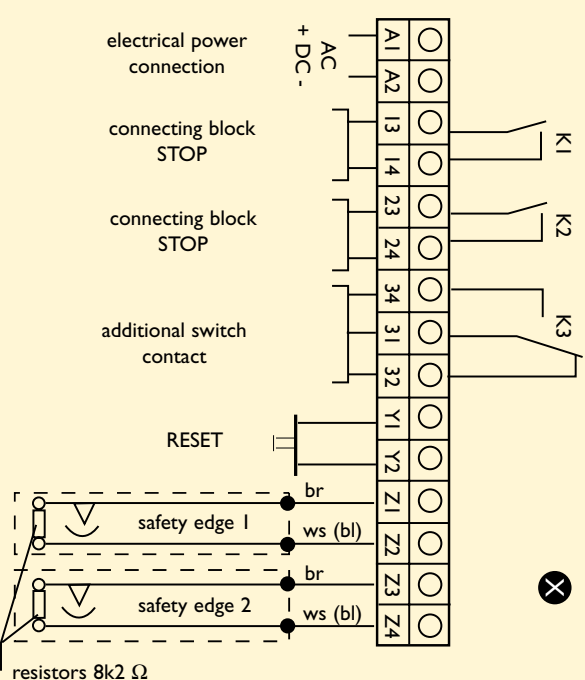
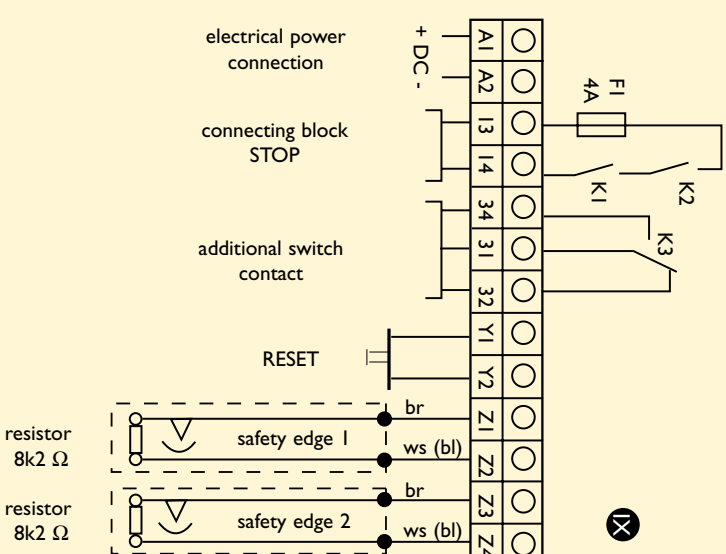
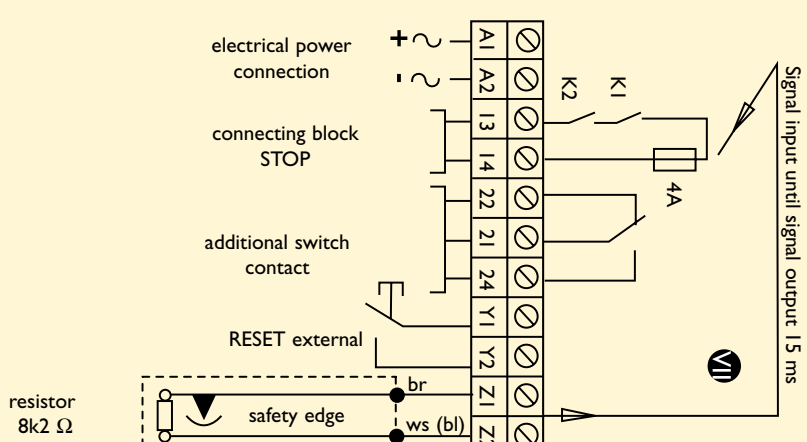
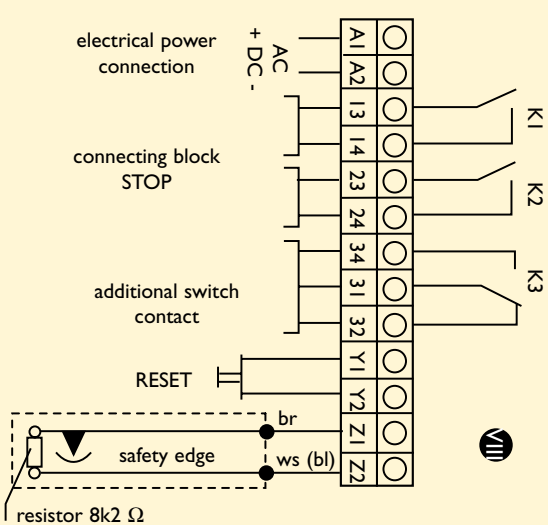
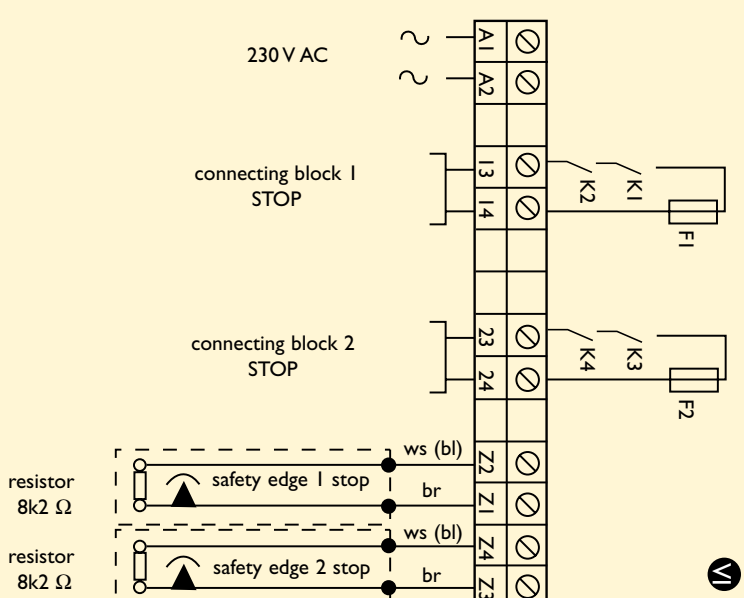
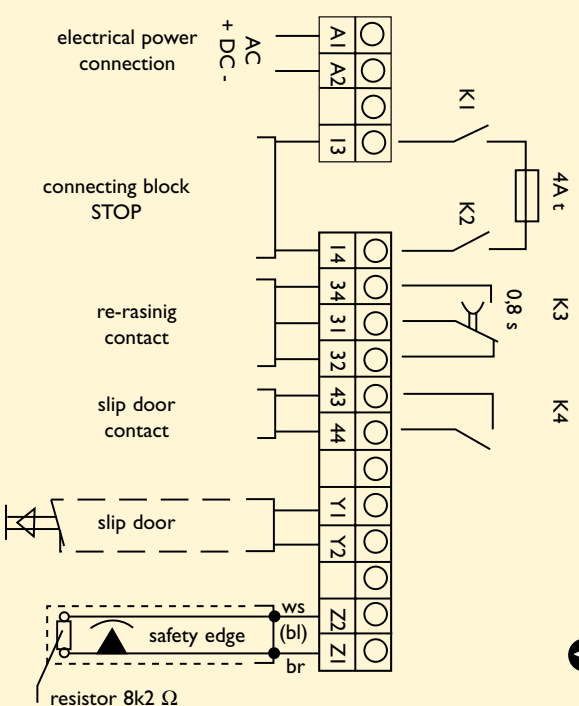
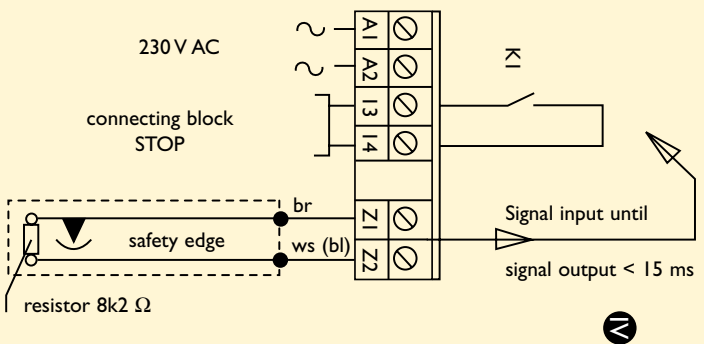
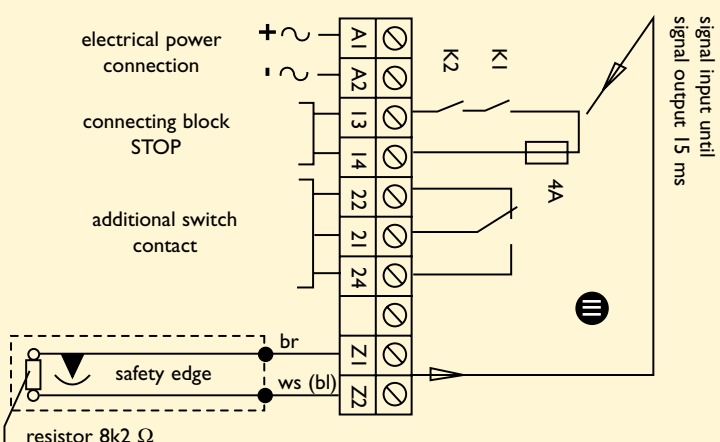
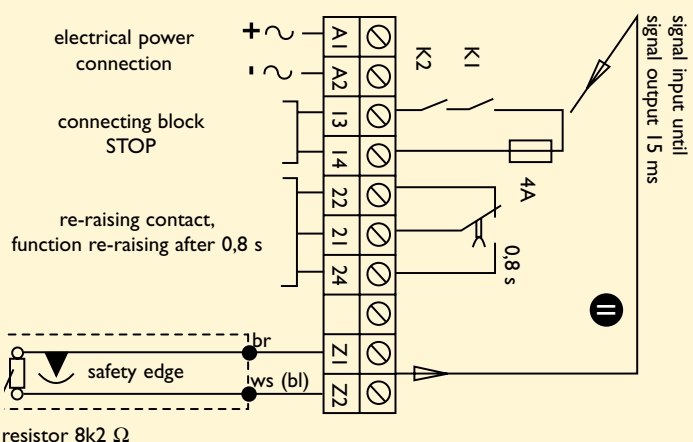
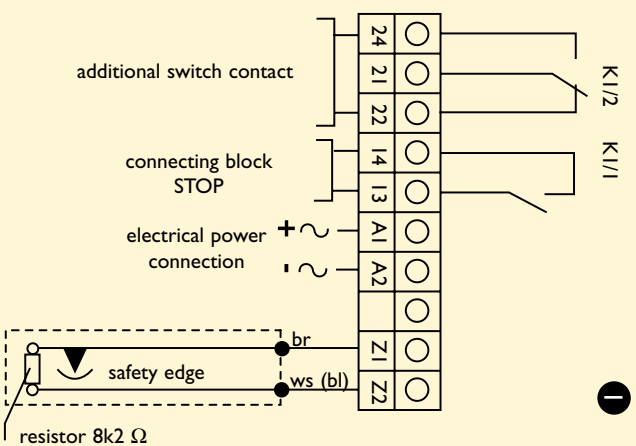
*ANTI-AQUA

CONTACT-DUO-PROFILES Resistance evaluator

Circuit diagram:

(see previous page)

Advice:
The indicated circuit diagrams are principle diagrams. The occupied terminals can vary concerning the way of construction and mounting. The priority is up to the respective assembly instructions. The installation is only allowed to be done by qualified personnel.



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CONTACT-DUO-PROFILES **Profile survey**

Product applications

The Gelbau Contact-Duo-Profiles are made to secure edges at power-driven doors and gates, shutters and barriers, passenger's doors in busses, trams and trains, movable shelves, loading platforms and safety devices on machines.

Product benefits

High flexible, one-piece rubber profiles of EPDM, which adapts excellent to the closing edge of the door resp. the machine.

High save functioning under unfavourable environmental conditions as humidity and dirt (protection IP 67) as well as to cold and heat (-20 °C to +80 °C). NBR-profiles have a higher resistance to oil and fuel.

High resistance to aging.

Easy and safe self-assembly due to screw-less needle connection. Special training on demand.

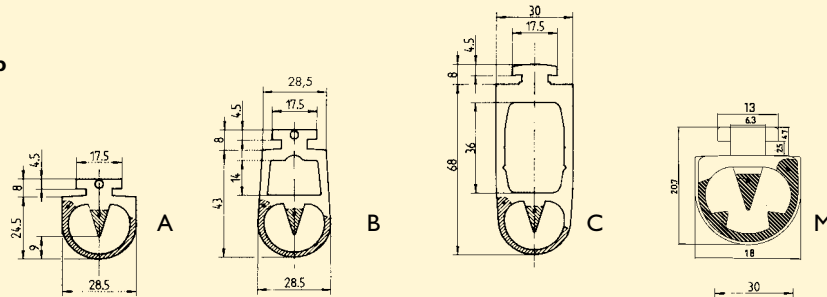
Maximum length of safety edge: 100 m.



Type	Drawing	Dimensions
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Contact-Duo-Profiles with standard base without sealing lip

3100.0110 ¹	A
3100.0110N ³	A
3100.1610	B
3100.1610N ³	B
3100.0310 I	C
3100.0118 ¹	M



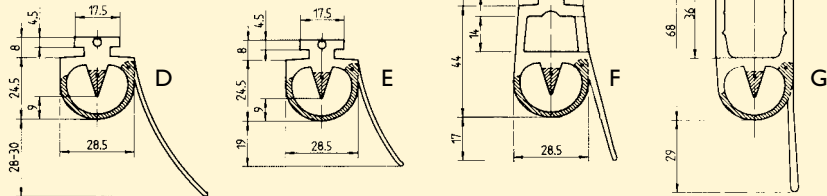
¹) Also available in white

²) Also available in red and yellow

³) Also available in NBR

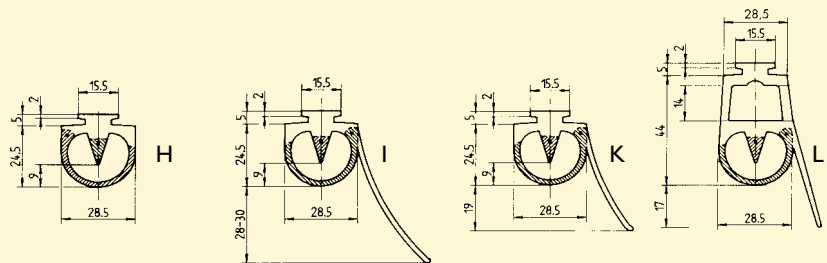
Contact-Duo-Profiles with standard base and sealing lip

3100.0510	D
3100.0610	E
3100.0804	F
3100.0210	G



Contact-Duo-Profiles with Braselmann-base

3100.0102	H
3100.0502	I
3100.0602	K
3100.0802	L



Quadro profiles

Type	Outside diameter	Application
3100.6000	18 mm	The Gelbau Quadro profile can only be used in combination with an existing sealing profile or an individual cover profile. Excellent for retrofitting pneumatic systems e.g. at folding doors. Minimum diameter required for mounting the Quadro profile: 25,5 mm (3100.8000) and 21,5 mm (3100.6000).
3100.8000	22 mm	



Notice:

The tolerance of the Contact-Duo-Profiles referring the dimensions correspond to the limit sizes acc. DIN 7715 T.3 Cl. E2 for the caouchouc industry.

CONTACT-DUO-PROFILES **Accessories**

Accessories

For the installation of the Contact-Duo-Profiles from Gelbau and for the mounting at doors a wide product line of accessories and mounting material is available.



Connector with connecting cable

Type for profiles A up to L	Type for profile M	Type for profiles 3100.6000 3100.8000	Cable length	Application
3020.1300B	3020.1180	3020.2200	0,35 m	To make a connection between the Contact-Duo-Profile and the evaluator resp. control unit.
3020.1301B	3020.1181	3020.2201	1 m	
3020.1302B	-	3020.2202	2 m	
3020.1303B	3020.1183	3020.2203	3 m	
3020.1304B	-	-	4 m	
3020.1305B	3020.1185	3020.2205	5 m	
3020.1306B	-	3020.2206	10 m	
3020.1307B	-	-	15 m	

Special lengths are possible.

Connector with resistor

Type	For profile type	Value of resistance	Application
3031.1306B	A bis L	8k2	To use as electrical termination of the Contact-Duo-Profiles in combination with a resistance evaluator.
3031.1186	M		
3031.1806	3100.6000		
3031.2206	3100.8000		

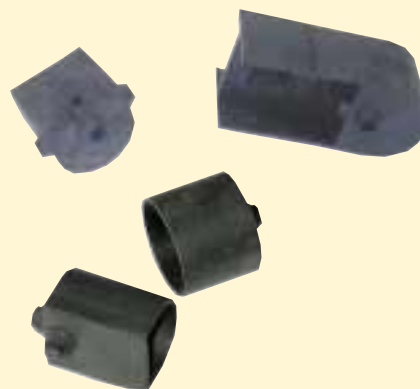
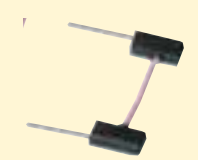
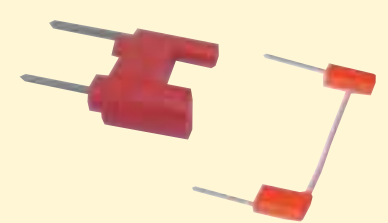
Further values of resistance on demand.

Flexible wire - connectors for the Quadro profiles

Type	For profile	Application
3031.1800	3100.6000	To make a cross-connection between the electrical conductive zones of the profile.
3031.2200	3100.8000	

Closing cap with sealing lip

Type	Fitting for following Contact-Duo-Profiles:	Application
3050.1302 ^{1,2}	For all profiles without coasting chamber (A, D, E, H, I, K)	For sealing the ends of the profiles and protect against humidity.
3050.1303	For all profiles with coasting chamber (B, C, F, G, L)	
3050.1318 ³	For profile 3100.0118	
3050.1802	For profile 3100.6000	
3050.2202	For profile 3100.8000	



Mouning material

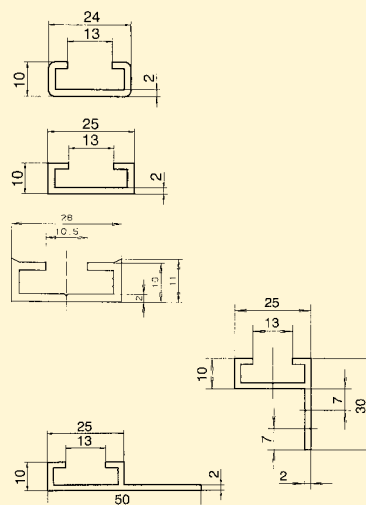
Type	Application
3057.0050	Cyanacrylate adhesive 112 Special adhesive for glueing closing caps in EPDM and NBR rubber material as well as for sealing, contents 5 g.
3057.0012	Cyanacrylate adhesive 112 As above, but: contents 20 g.
3090.0116	Connection box 116 Polycarbonate-housing (53 x 50 x 35 mm), complete with two-pole terminal, trumpet-type screw-on connector PG9 \triangle M10 with strain relief clamp for coiled cable and PG9 \triangle M10-thread.
3090.0107	Cable spacer 107 with trumpet-type connector PG11 \triangle M16.
3020.2450	Coiled cable SK 450 The ends are fitted with multicore cable ends. Cross section: 2 x 0,75 mm ² . Max. extension length: 2,5 m (for gate height up to 4,5 m).
3020.2600	Coiled cable SK 550 As above, but: max. extension length: 3 m (for gate height up to 5 m).
3020.2700	Coiled cable SK 700 As above, but: max. extension length: 3,5 m (for gate height up to 7 m).

Further cable solutions on demand.

3090.1150	Stop-buffer 115/111 Stop-buffers protect the contact strip from hitting the floor when the gate is lowered, thus significantly increasing the life of the contact strip. They are delivered as a complete mounting set incl. hammerhead bolts for fixing on the C-rail. For all Contact-Duo-Profiles except profiles with Braselmann-base. Material: EPDM, dimensions: 35 x 30 x 30 mm.
3090.1151	Stop-buffer 115/83 As above, but for use with Contact-Duo-Profiles 008.02, 008.04 and 016.10. Dimensions: 35 x 30 x 46 mm.
3090.1152	Stop-buffer 115/23 As above, but for use with Contact-Duo-Profiles 002.10 und 003.10. Dimensions: 35 x 30 x 70 mm.

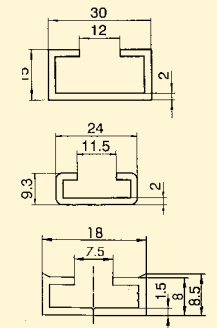
C-rails for mounting

3045.1112	C-rail 112/S Supply length: 2 m	Material: ST37 Steel, zinc coated
3045.1212	C-rail 112/A Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22
3045.1213	C-rail 112/A1 Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22
3045.1214	C-rail 112/A2 Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22
3045.1215	C-rail 112/A3 Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22



3045.1217	C-rail 112/A5 Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22
3045.1218	C-rail 112/A6 Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22
3045.1219	C-rail 112/A7 Supply length: 2 m	Material: Aluminium Al Mg Si 0,5 F22

Further C-rails on demand.



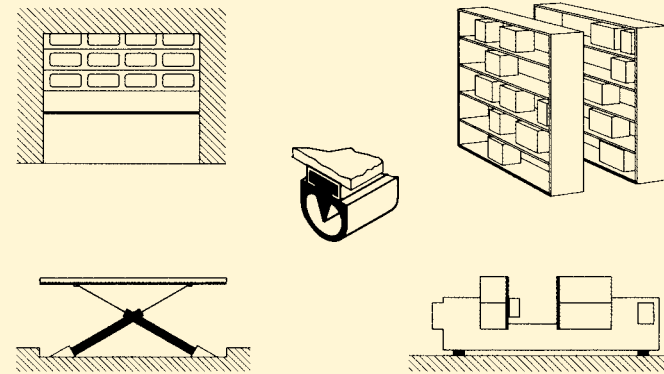
Pre-fabricated corner connectors

Type	Marking	Application
3050.0071	corner connector 90° horizontal (EPDM)	To make active corner-connections (no death zones) in combination with the Contact-Duo-Profiles 3100.01101, 3100.0110N, 3100.0110RED, 3100.0110Y, side length: 45 mm
3050.0071A	corner connector 120° horizontal (EPDM)	
3050.0071B	corner connector 135° horizontal (EPDM)	
3050.0071C	corner connector 150° horizontal (EPDM)	
3050.0071N	corner connector 90° horizontal (NBR)	
3050.0071NA	corner connector 120° horizontal (NBR)	
3050.0071NB	corner connector 135° horizontal (NBR)	
3050.0071NC	corner connector 150° horizontal (NBR)	
3050.0071R	corner connector 90° horizontal (EPDM) red	
3050.0071RA	corner connector 120° horizontal (EPDM) red	
3050.0071RB	corner connector 135° horizontal (EPDM) red	
3050.0071RC	corner connector 150° horizontal (EPDM) red	
3050.0072	corner connector 90° vertical (EPDM)	
3050.0072N	corner connector 90° vertical (NBR)	



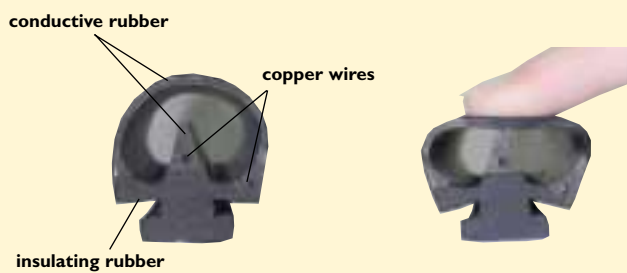
Description of system

Patented closing edges safety system to secure edges against crushing and shearing at power-driven doors and gates, in public transport vehicles, at mobile rack-systems and at machinery safety devices. The system consists essentially of two components, the Contact-Duo-Profile as the sensor and an electronic evaluation unit.

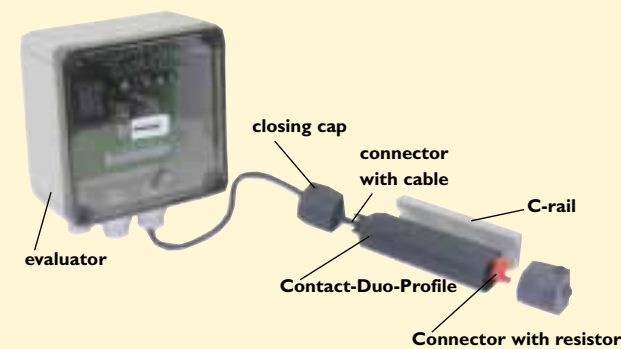


Function

The Contact-Duo-Profile accommodates two parallel electrically conductive rubber layers, insulated against each other. In each rubber layer are tinned copper wires extruded in axial direction. There is a closed circuit flowing through the conductive zone, which is monitored by the evaluation unit. By mechanical pressure on the Contact-Duo-Profile electrical contact is made, causing the potential-free safety contact at the evaluation unit to open.

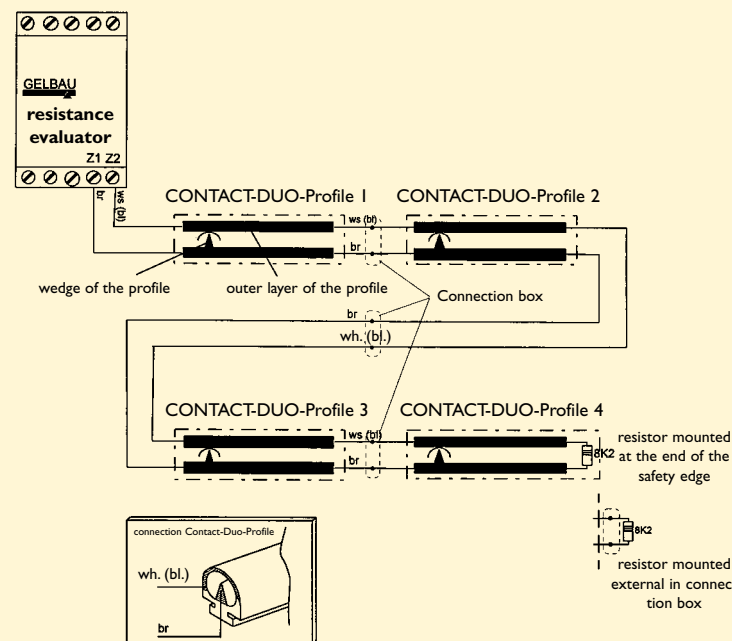


The system components

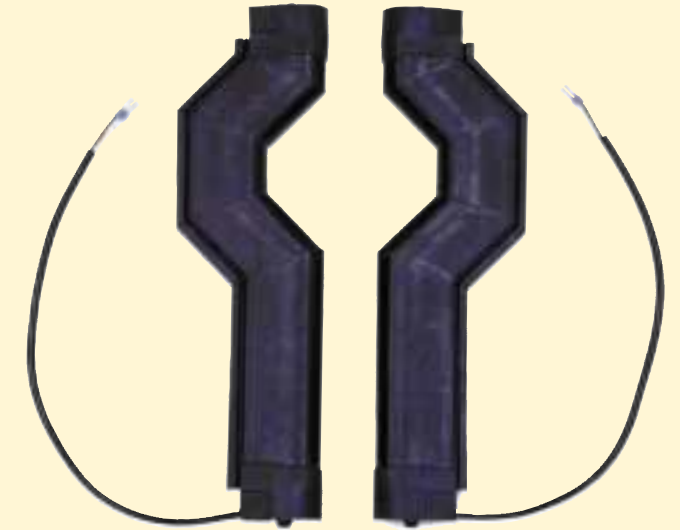


Examples for switching

Series connection of several safety edges monitored by one single evaluator.
Terminating resistor: $8k2 \Omega$
Maximum length of safety edge: 100 m



Pre-fabricated corner connectors with fixed angles (90° , 120° , 135° and 150°) are available for the profiles 3100.0110 I and 3100.0110N. Deviate angles according to customer requirements are available for all profiles for angles bigger than 90° . Therefore the safety edge can be optimal adapted to the outline of the machine. Because of this one-piece solutions with active corners (no death zones) are possible. A move into another plane is possible as well.

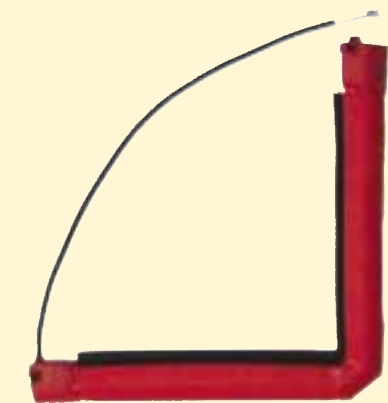
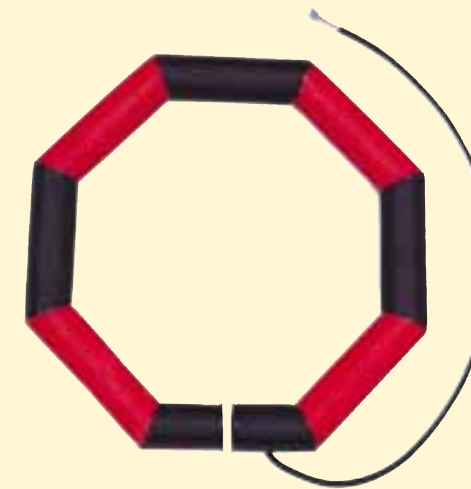


Standards

- The system meets the regulations (standards and technical specifications) as there are:
- 98/37/EG appendix I
- 73/23/EWG
- EMVG 09/98
- EN 1760-2 (03/01)
- EN 954-1 (97/03)
- DIN V 31006 part 2 (92/09)
- ZH 1/494 (89/04)
- VBG 5 (03/01)

Advice:

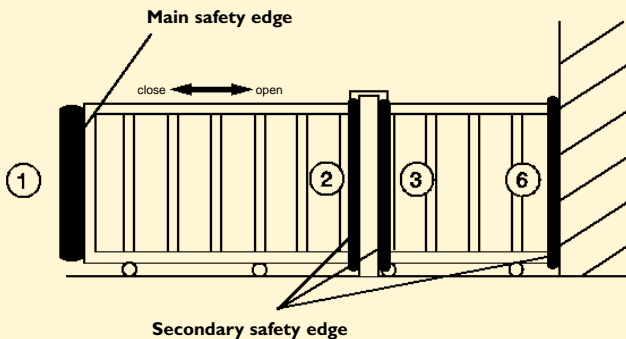
All illustrations in this brochure are examples for products and applications. They are not scale. We decline all liability for improper use and improper storage. Our products are not suitable as toys.



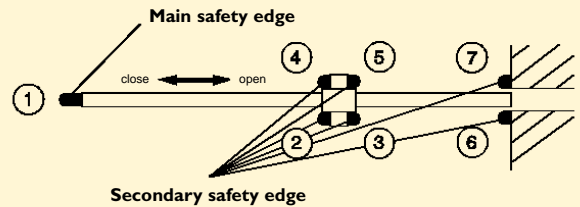
CONTACT-DUO-PROFILES Examples for application

I. Sliding gates

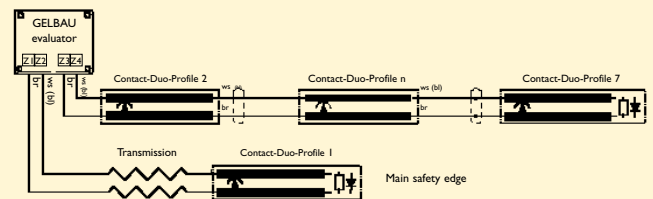
Side view:



Top view:



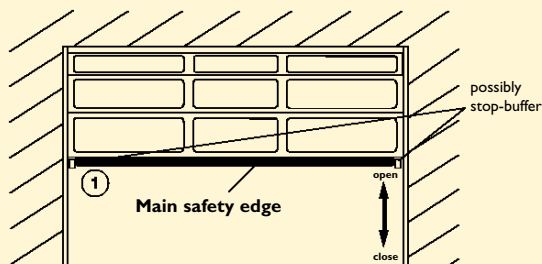
Variable wiring for Contact-Duo-Profiles:
STOP signal separate for main- and secondary safety edge



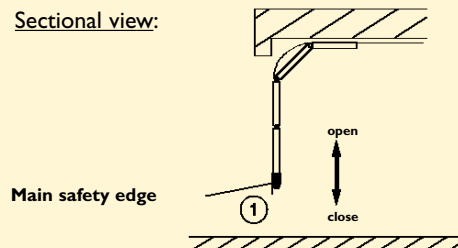
This is only one example of many possibilities to secure a sliding gate with Contact-Duo-Profiles. The way of securing depends on the local situation and the mechanical construction of the sliding gate.

2. Sectional gates

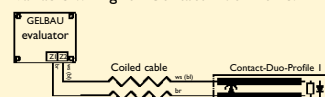
Front view:



Sectional view:



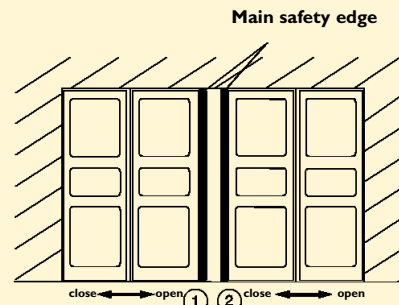
Variable wiring for Contact-Duo-Profile:



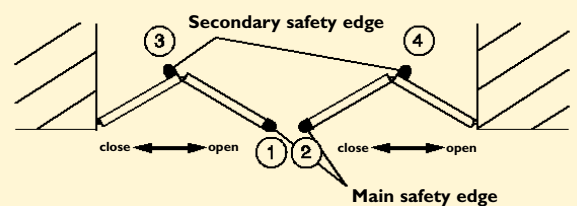
For securing sectional doors you have to choose a profile with sealing lip. To avoid that the profile is squeezed when the door is closed we recommend to fix stop-buffers at both ends.

3. Folding doors

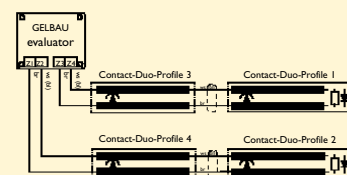
Front view:



Top view:



Variable wiring for Contact-Duo-Profiles:
STOP signal separate for both door blades



When using a synchro drive all Contact-Duo-Profiles can be connected in series. At the main safety edge we recommend to use the cover profile 3100.1111 with safety edge 016.10 for sealing the door.