Balance Systems

DISPOSITIVO DI SICUREZZA – SIEMENS

SAFETY COMBINATION - SIEMENS

Modello 3TK2827
3TK2827 *Model*

Documento Nr. / *Document Nr.* Z00000000088

Safety Combination

3TK2827, 3TK2828

DIN EN 60 439 Part 1, VDE 0660 Part 500 (04.94)

Instructions Order No.: 3ZX1012-0TK28-5CA1 **English**

WARNING:

HAZARDOUS VOLTAGE CAN CAUSE ELECTRICAL SHOCK AND BURNS. DISCONNECT POWER BEFORE PROCEEDING WITH ANY WORK ON THIS EQUIPMENT.

Operation permissible in switchgear cabinet with degree of protection IP 54 only!

Application

You can use the safety combinations 3TK2827/28 in EMERGENCY STOP devices as per EN 418, in safety circuits as per VDE 0113 Part 1 (06.93) and/or EN 60 204-1 (12.97), such as for monitoring safety guards, or in circuits with controlled standstill requirement (STOP Category 1).
Depending on the external circuitry, you can use this device to install Safety Category 4 instantaneous release circuits and Safety Category 3 delayed release circuits according to DIN EN 954-1.

Functions and connections

The 3TK2827/28 safety combinations possesses two delayed and two instantaneous release circuits as NO circuits and one instantaneous signal circuit as NC circuit. Five LEDs indicate the operating status and the functions.
The redundant safety relays, the electronics and the operated motor contactors are tested for proper functioning when the EMERGENCY STOP button or the limit switch button is unlatched, and when ON circuit Y33, Y34 is closed.
On the 3TK2827 (monitored start), the ON circuit Y33, 34 is checked for short-circuit. This means that a fault ist detected when Y33, 34 is closed before the EMERGENCY STOP button is closed.

Terminal assignments	Operating voltage	A1	L/+
		A2	N/-
	Output	13, 14	Release circuit 1, instantaneous
		23, 24	Release circuit 2, instantaneous
		31, 32	Signal circuit, instantaneous
		47, 48	Release circuit 1, delayed (t)
		57, 58	Release circuit 2, delayed (t)

Function	3TK2827	3TK2827 / 3TK2828	3TK2828
1-channel	ON pushbutton at Y33, 34	Jumper from Y11 to Y12 Jumper from Y21 to Y22 EMERGENCY STOP circuits at Y10, Y11	Feedback circuit or Jumper to Y33, Y34. **Important:** Y21, 22 must close **before** or at the same time as Y11, 12
2-channel		Jumper from Y10 to Y11 EMERGENCY STOP circuits at Y11, 12 and Y21, 22	

Cable lengths for 2 x 1.5 mm² 150 nF/km — max. 1000 m (total cable length for sensors and power supply lines)

Figures
Fig. I: Dimension drawings (dimensions in mm)
Fig. II: Installation / Cage Clamp
Fig. III: Internal circuit: ① power pack, ② PTC fuse, ③ control logic, ④ Channel 1, ⑤ Channel 2 ⑥ Channel 1 (t), ⑦ Channel 2 (t)
3TK2827, Monitored start for EMERGENCY STOP
Fig. IV: Safety category 2
Fig. V: Safety category 3
3TK2828, Autostart for Guard door monitoring
Fig. VI: Safety category 2
Fig. VII: Safety category 3

Operation

LEDs					Operation			
POWER	Ch1	Ch2	Ch1 (t)	Ch2 (t)	PS	EMERGENCY STOP	ON	Release circuits
☼	☼	☼	☼	☼	ON	not activated	activated	closed
☼	●	●	●	●		activated, delay time elapsed	not activated	open
☼	●	●	●	●		not activated	not activated	open
☼	●	●	☼	☼		activated, delay time elapsed	not activated	FK 1 & 2 open, FK 1 (t) & FK2 (t) closed
					Faults			
☼	☼	●	☼	●	• Relay fusion-welded • Motor contactor fusion-welded • Defect in electronics • Short-circuit in ON circuit			open
☼	●	☼	●	☼				
☼	●	●	●	●				
●	●	●	●	●	Cross or ground faults in EMERGENCY STOP circuit (min. fault current I_{Kmin} = 0.5 A; PTC fuse trips)			

Fault clearance
1. Switch supply voltage off.
2. Clear fault or replace device.
3. Switch supply voltage back on.

Technical data

Permissible ambient temperature T_u	
Operation/storage	-25 to +60°C/-40 to +80°C
Degree of protection to EN 60 529	IP 20
Rated insulation voltage U_i	300 V
Rated impulse withstand voltage U_{imp}	4 kV
Rated control supply voltage U_S	24 V DC, 24 V AC, 115 V AC, 230 V AC
Rated power	5 W/5 VA
AC/DC operating range	0.85 to 1.1 x U_S
Shock resistance (half-sine) as per IEC 60068	8 *g*/10 ms
Weight	0.580 kg
Recovery time after EMERGENCY STOP	min. 200 ms
Release time after EMERGENCY STOP	0.05 to 3 s or 0.5 to 30 s adjustable
Response time	max. 80 ms

Utilization category as per DIN VDE 0660 Part 200, IEC 60947-5-1	**Rated operational voltage U_e** (V)	**Rated operational current I_e** on loading of instantaneous / delayed release circuits (A) 60 °C	70 °C
AC-15	230	5/3	4/3
DC-13	24	5/2	4/2
	115	0.2/0.2	0.2/0.2
	230	0.1/0.1	0.1/0.1
Continuous current I_{th}		5/5	4/4

Short-circuit protection

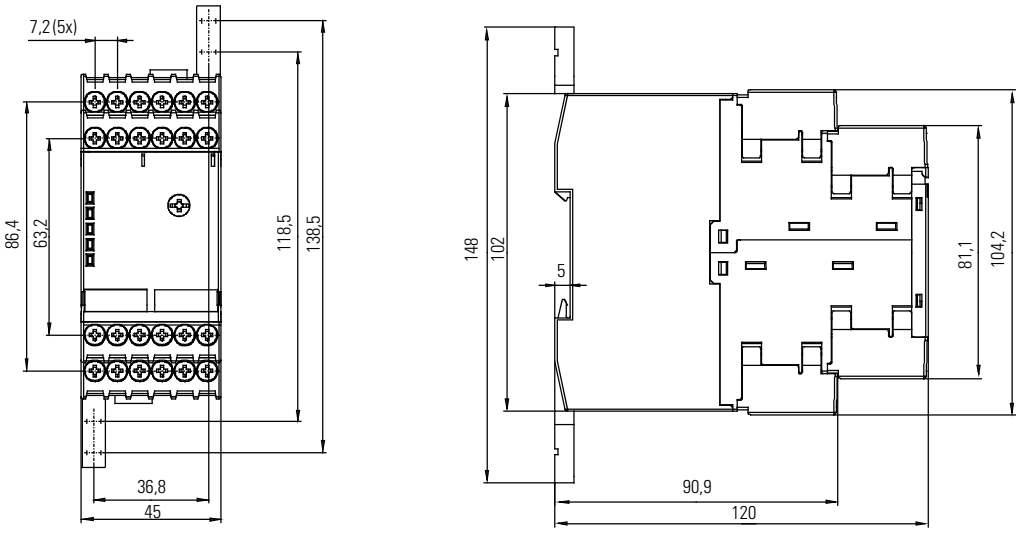
Signal circuit and release circuit	Fuse links	DIAZED
	Duty class	gL(gG) 6 A / quick response 10 A
Control supply voltage		gL(gG) 2 A

The safety combination is protected by an internal self-healing PTC fuse (multifuse).

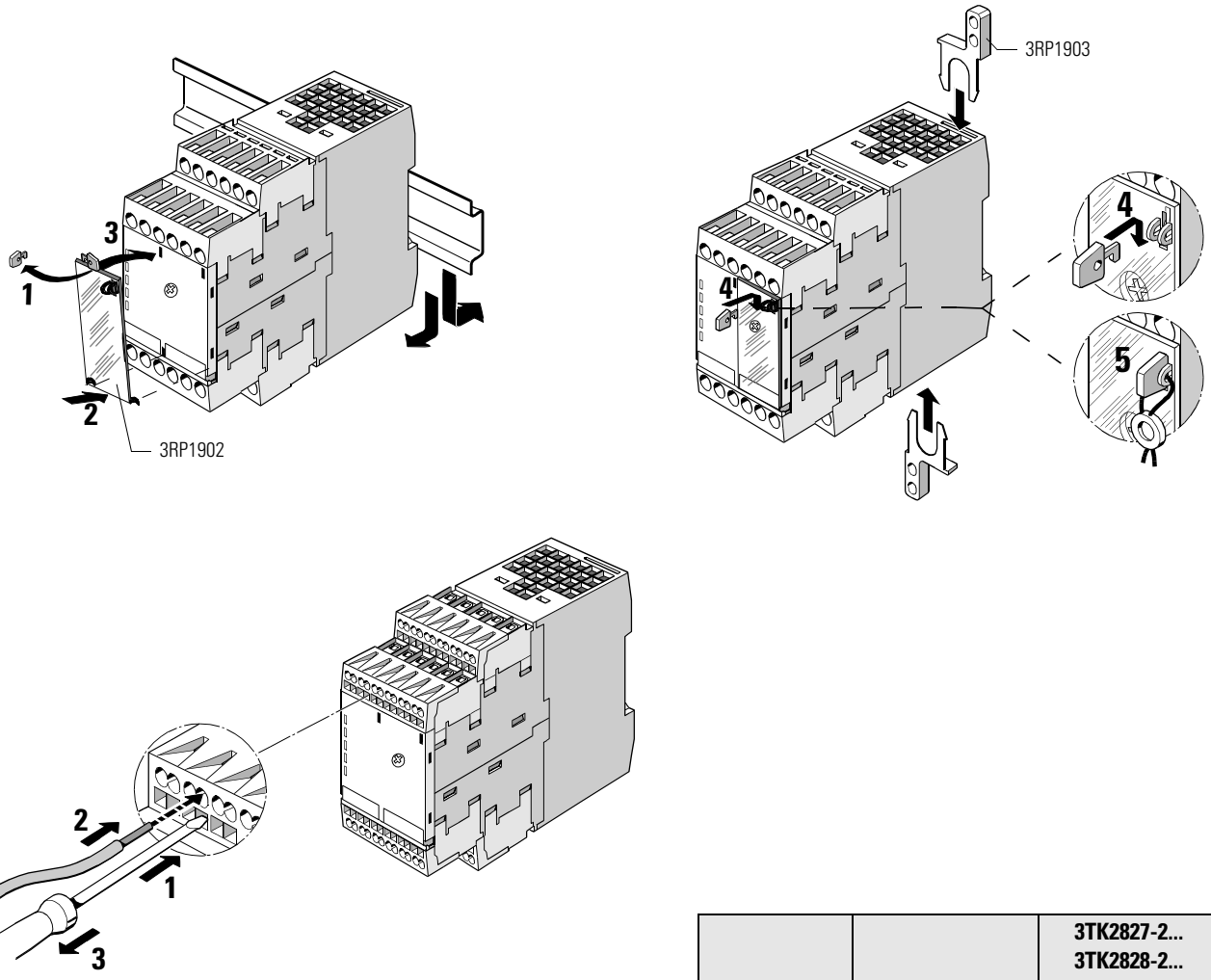
Be sure to fit the specified fuses. Otherwise safe interruption in the event of a fault cannot be guaranteed.

For further data and accessories see Catalog NS K.

I

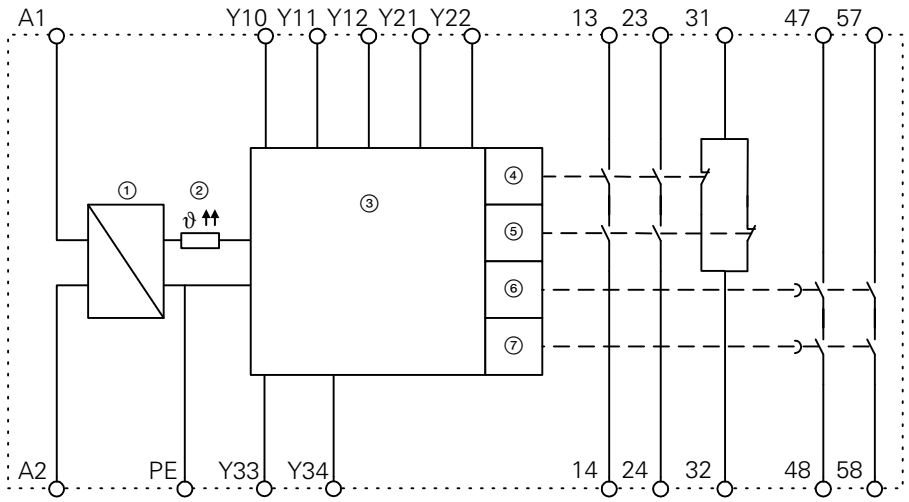


II

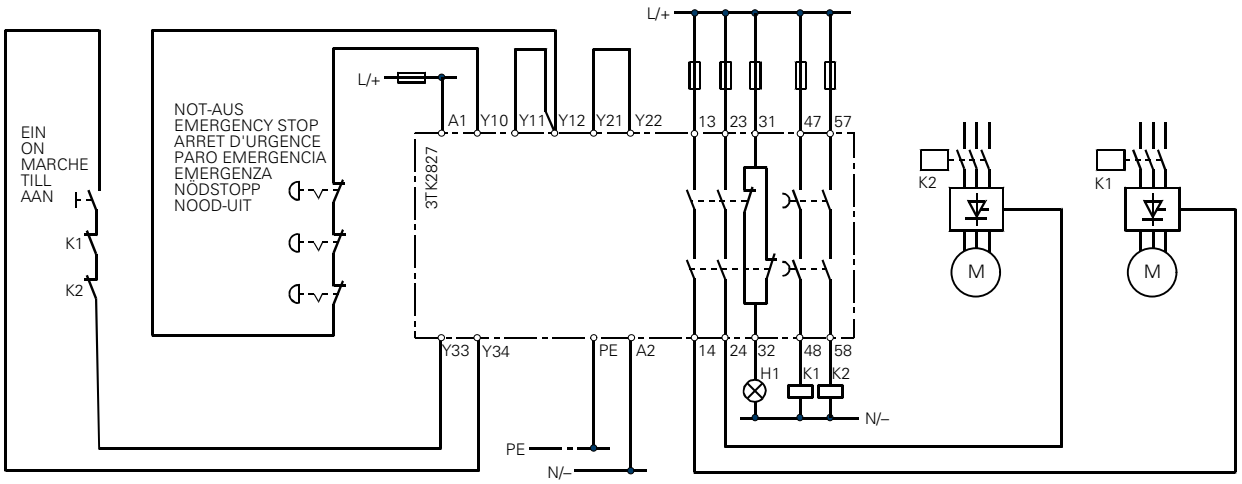


		3TK2827-2... 3TK2828-2...
M3,5	0,8 ... 1,2 Nm 7 to 10.3 LB.IN	----
10	1 x (0,5 ... 4,0) mm² 2 x (0,5 ... 2,5) mm²	2 x 0,25 ... 1,5 mm²
10	1 x (0,5 ... 2,5) mm² 2 x (0,5 ... 1,5) mm²	2 x 0,25 ... 1 mm²
AWG	2 x 20 to 14	2 x 24 to 16

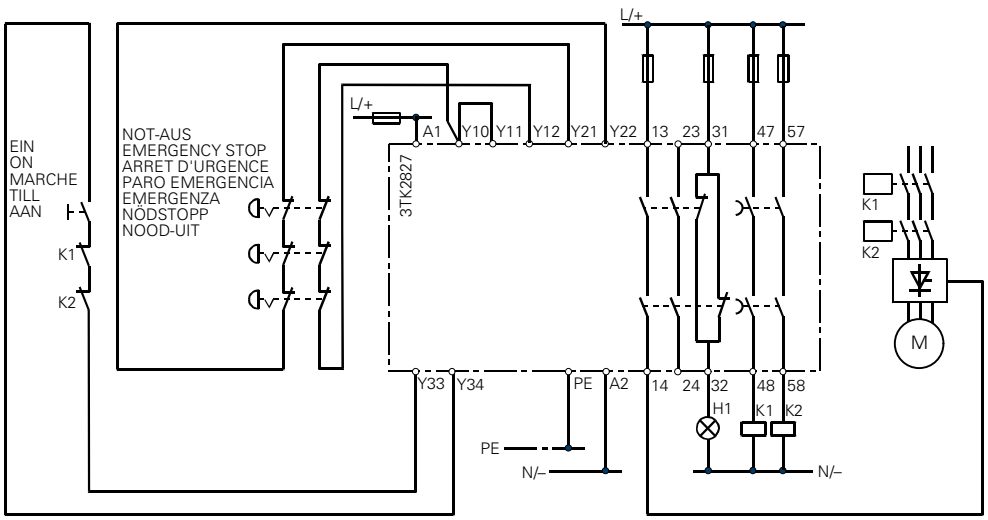
III


A1
Y10 Y11 Y12 Y21 Y22
13 23 31
47 57
①
②
③
④
⑤
⑥
⑦
A2
PE
Y33 Y34
14 24 32
48 58

IV


L/+
EIN
ON
MARCHE
TILL
AAN
K1
K2
NOT-AUS
EMERGENCY STOP
ARRET D'URGENCE
PARO EMERGENCIA
EMERGENZA
NÖDSTOPP
NOOD-UIT
3TK2827
A1 Y10 Y11 Y12 Y21 Y22
13 23 31 47 57
Y33 Y34 PE A2
14 24 32 48 58
H1 K1 K2
N/–
PE
N/–
K2
K1
M
M

V


L/+
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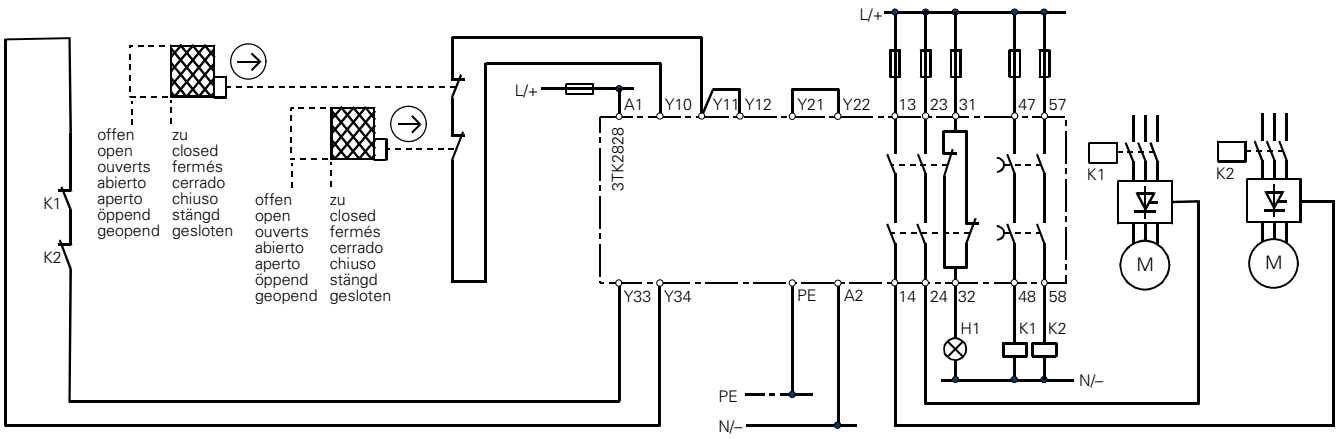
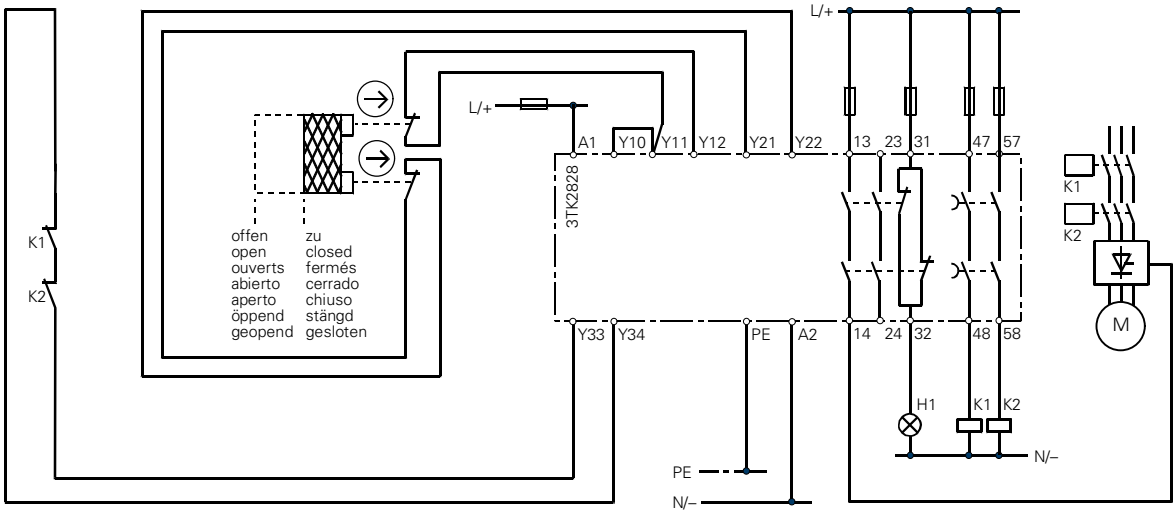
3TK2827
A1 Y10 Y11 Y12 Y21 Y22
13 23 31 47 57
Y33 Y34 PE A2
14 24 32 48 58
H1 K1 K2
PE
N/–
N/–
K1
K2
M

VI



VII



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