

Technical specifications

Type	3TK28 10	
General data		
Standards	EN 60204-1, EN ISO 12100, EN 954-1, IEC 61508	
Test certificates	TÜV, UL, CSA	
Safety-oriented output contacts		
• Instantaneous FK_{rel}	4	
• Time-delayed $FK_{rel}(tv)$	--	
Safety-oriented semiconductor outputs		
• Instantaneous FK_{el}	--	
• Time-delayed $FK_{el}(tv)$	--	
Signaling contacts MK_{rel}	1	
Semiconductor signaling outputs MK_{rel}	2	
Sensor inputs S	1	
Cascading inputs KAS/BS	--	
Degree of protection		
acc. to EN 60529		
• Enclosures	IP40	
• Terminals	IP20	
Shock resistance sine wave	g/rms	8/10
Permissible mounting positions	Any	
Touch protection	Finger-safe	
Acc. to DIN VDE 0106 Part 100 or EN 60900		
Height	mm	106: Screw terminals; 108: Spring-loaded terminals
Width	mm	45
Depth	mm	116
Weight	g	0.500
Connection type	Screw terminals	
• Terminal screw	M 3 (standard screwdriver, size 2 and Pozidriv 2)	
• Solid	mm ²	1 x (0.5 ... 4) / 2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5) / 2 x (0.5 ... 1.5)
• AWG cables, solid or stranded	AWG	2 x (24 ... 16)
• Tightening torque	Nm	0.8 ... 1.2
Connection type	Spring-loaded terminals	
• Solid	mm ²	2 x (0.25 ... 1.5)
• Finely stranded, with end sleeves acc. to DIN 46228	mm ²	2 x (0.25 ... 1.0)
• Finely stranded	mm ²	2 x (0.25 ... 1.5)
Electrical specifications		
Rated control supply voltage U_s	V	24 DC, 230/400 AC
Operating range		
• AC operation	V	0.8 ... 1.1 × U_s
• DC operation	V	0.9 ... 1.15 × U_s
Measurement voltage	V	Max. 690
Response value U_{resp}	V	20 ... 400 adjustable
Rated insulation voltage U_i		
• For control circuit	V	300
• For outputs	V	690
Rated impulse withstand voltage U_{imp}		
• For control circuit	V	6/4
• For outputs	V	6
Rated power at U_s	W	3
Frequency ranges	Hz	50/60
Rated operational current I_e (relay outputs) at		
• AC-15 at 115 V	A	--
• AC-15 at 230 V	A	3 (NO contacts); 2 (NC contacts)
• DC-13 at 24 V	A	2
• DC-13 at 115 V	A	--
• DC-13 at 230 V	A	--
Rated operational current I_e (semiconductor outputs) at		
• DC-13 at 115 V	A	0.1
• DC-13 at 230 V	A	--
Electrical endurance	Operat- ing cycles	2 x 10 ⁵
Mechanical endurance	Operat- ing cycles	5 x 10 ⁷
Switching frequency z	1/h	1200

3TK28 Safety Relays

With special functions

Technical specifications

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Electrical specifications (continued)		
Continuous thermal current I_{th}	A	5, summation current max. 8
Continuous thermal current I_{th}		
• 1 contact	A	5
• 2 contacts	A	5
• 3 contacts	A	5
• 4 contacts	A	--
Fusing for output contacts		
Fuse links LV HRC Type 3NA, DIAZED		
Type 5SB, NEOZED Type 5SE, gL/gG operational class		
• gL/gG		--
• Quick		5
Maximum line resistance	Ω	--
Cable length from terminal to terminal	m	--
with Cu 1.5 mm ² and 150 nF/km		
Times		
Release time t_R		
• For sensor typ.	ms	--
• For sensor max.	ms	6 adjustable
• For mains failure typ.	ms	--
• For mains failure max.	ms	--
Simultaneity t_G	ms	∞
Temperatures		
Permissible ambient temperature		
• During operation	°C	-25 ... +60
• During storage	°C	-40 ... +75
Safety specifications		
Safety integrity level SIL CL		3
Acc. to EN 61508 (11.02)		
Performance level PL		--
Acc. to EN ISO 13849 (02.07)		
Safety category CAT		4
Acc. to EN 954-1		
Probability of a dangerous failure		
• Per hour (PFH _D)	1/h	1.49 x 10 ⁻⁹
• On demand (PFD)		--
Proof-test interval T1	a	20