

3TK28 Safety Relays

With contactor relay enabling circuits

Technical specifications

Type		3TK28 50	3TK28 51	3TK28 52	3TK28 53	3TK28 56	3TK28 57
Standards		EN 60204-1 (VDE 0113 Part 1), EN ISO 12100, EN 954-1, IEC 61508					
Category according to EN 954-1		3	3	3	4	As basic unit	As basic unit
SIL according to IEC 61508		2	2	2	3	--	--
Test certificates		TÜV, UL, CSA					
Rated insulation voltage U_i							
• For control circuit	V	50					
• For output contacts	V	690					
• For degree of pollution		3					
Rated impulse withstand voltage U_{imp}							
• for control circuit	V	500					
• For output contacts	kV	6					
Magnetic coil operating range							
• AC operation		0.85 ... 1.1 × U_s					
• DC operation		0.9 ... 1.15 × U_s					
Magnetic coil ratings							
DC/AC actuation at U_s	W	8.5					
Rated operational currents I_e							
according to IEC 60947-5-1							
• I_e / AC-15	At 230 V A	6					
• I_e / DC-13	At 24 V A	10 (auxiliary switch blocks: 6)					
Short-circuit protection		See 3RH1 Contactor Relays (see Chapter 3)					
(weld-free protection at $I_K = 1$ kA)							
Mechanical endurance		30 million operating cycles					
Electrical endurance		See Characteristic Curve for 3RH1 Contactor Relays (see Chapter 3)					
Switching frequency z							
In operating cycles/h during normal duty	1/h	1000					
Response time							
• Monitored start	ms	200	200	200	60	--	--
• Autostart	ms	300	300	300	60	--	--
Release time							
• For EMERGENCY-STOP	ms	30	30	30	50	50	50 ¹⁾ /adjustable 0.05 ... 300 s
• For mains failure	ms	100	100	100	120	120	120
Recovery time							
• For EMERGENCY-STOP	ms	20	20	20	500	500	500
• For mains failure	s	0.02	0.02	0.02	7	7	7
Bridging of mains failures	ms	5	5	5	5	5	5
Minimum command duration							
• EMERGENCY-STOP	ms	20	20	20	30	--	--
• ON button	ms	20	20	20	0.2 ... 5 s	--	--
Simultaneity		∞					
Conductor cross-sections							
• Screw terminals							
- Finely stranded with end sleeve	mm ²	2 × (0.25 ... 1), 1 × (0.25 ... 2.5)					
- Solid	mm ²	2 × (0.2 ... 1), 1 × (0.2 ... 2.5)					
- Tightening torque	Nm	0.5 ... 0.6					
• Spring-loaded terminals		(1 or 2 conductors can be connected)					
- Solid	mm ²	1 × (0.2 ... 2.5)					
- Finely stranded with end sleeve	mm ²	1 × (0.25 ... 2.5)					
- Finely stranded without end sleeve	mm ²	1 × (0.25 ... 2.5)					
- AWG conductors, solid or stranded		2 × AWG 24 ... 12					
Permissible ambient temperature							
• During operation	°C	-25 ... +60					
• During storage	°C	-40 ... +80					
Degree of protection							
according to EN 60529							
• Enclosure		IP40					
• Terminals		IP20					
Touch protection		Finger-safe					
according to DIN VDE 0106 Part 100							
Shock resistance							
Sine wave	g/ms	8/10 and 15/5					
Permissible mounting positions		Any					
PFH values		--	--	--	4.913 × 10 ⁻¹¹	9.602 × 10 ⁻¹¹	9.602 × 10 ⁻¹¹

¹⁾ For instantaneous output.