Technical specifications

Type				3TG10
General data				
Endurance				
• Mechanical		Operating cycles		3 million
• Electrical				
- AC-1 at I_e		Operating cycles		0.1 million
- AC-3 at I_e		Operating cycles		0.4 million
Rated insulation voltage U_i (degree of pollution 3)			V	400
Rated impulse withstand voltage U_{imp}			kV	4
Safe isolation between the coil and the contacts acc. to EN 60947-1, Appendix N			V	Up to 300
Permissible ambient temperature	During operation[1)]		°C	-25 ... + 55
	During storage		°C	-50 ... + 80
Degree of protection acc. to IEC 60947-1 and EN 60529 (VDE 0470 Part 1)				IP00, drive system IP20
Power consumption of the magnetic coils (when coil is cold and 1.0 x U_s)	AC operation 45 ... 450 Hz		VA	4.4
	P.f.			0.9 (hum-free)
	DC operation		W	4
Magnetic coil operating range				0.85 ... 1.1 x U_s
Operating times (Total break time = OFF-delay + Arcing time)				
• ON-delay				
- Closing NO	- DC operation		ms	11 ... 50
	- AC operation		ms	10 ... 50
- Opening NC	- DC operation		ms	21 ... 39
	- AC operation		ms	20 ... 30
• OFF-delay				
- Closing NC	- DC operation		ms	5 ... 45
	- AC operation		ms	5 ... 45
- Opening NO	- DC operation		ms	19 ... 35
	- AC operation		ms	20 ... 30
Arcing time			ms	10 ... 15
Shock resistance				
• Rectangular pulse	AC operation and DC operation		*g*/ms	5.1/5 and 3.5/10
• Sine pulse	AC operation and DC operation		*g*/ms	7.9/5 and 5.2/10
Switching frequency *z* in operating cycles/hour rated operation	Acc. to AC-1		1/h	1000
	Acc. to AC-2		1/h	500
	Acc. to AC-3		1/h	1000
	No-load switching frequency		1/h	10000
Short-circuit protection				
Fuse links gL/gG operational class LV HRC 3NA, DIAZED 5SB, NEOZED 5SE acc. to IEC 60947-4-1 (VDE 0660 Part 102)	• Type of coordination "1"		A	25
	• Type of coordination "2"		A	10
• Miniature circuit breakers	C Characteristic		A	10
AC capacity				
Utilization category AC-1, switching resistive loads				
Rated operational current I_e up to 400 V at 55 °C[1)]			A	20 for screw terminals, 16 for flat connector
Rated power U_e for AC loads with p.f. = 1, 230/220 V				
• For screw terminals			kW	7.5 (13 at 400 V)
• For flat connector			kW	6 (10 at 400 V)
Minimum conductor cross-section for load with I_e			mm^2	2.5
Utilization category AC-2 and AC-3 **Operational current for AC-3 at 400 V rated value**			A	8.4
Rated power for slipring or squirrel-cage motors with 50 Hz and 60 Hz and at 400 V			W	4000
Utilization category AC-5a (permissible nominal impedance: ≥ 0.5 Ω) **Switching gas discharge lamps**				
• Per main current path at 230 V, 50 Hz Rated power/rated operational current per lamp				
• Uncorrected	18 W	0.37 A		43
	36 W	0.43 A		37
	58 W	0.67 A		24
• Lead-lag circuit	18 W	2 x 0.11 A		2 x 81
	36 W	2 x 0.21 A		2 x 42
	58 W	2 x 0.32 A		2 x 28

[1)] If the three main current paths carry a load of 20 A, the following applies if I > 10 A for the fourth conducting path: permissible ambient temperature 40 °C.

4-pole, 4 kW

Type						3TG10
AC capacity						
Switching gas discharge lamps with correction, solid-state ballast Per main current path 230 V, 50 Hz Rated power per lamp/capacitance/rated operational current per lamp						
• Shunt compensation	L18 W	4.5 µF	0.11 A		Units	15
	L36 W	4.5 µF	0.21 A		Units	15
	L58 W	7 µF	0.32 A		Units	10
• With solid-state ballast (single lamp)	L18 W	6.8 µF	0.10 A		Units	39
	L36 W	6.8 µF	0.18 A		Units	39
	L58 W	10 µF	0.27 A		Units	26
• With solid-state ballast (two lamps)	L18 W	10 µF	0.18 A		Units	2 x 26
	L36 W	10 µF	0.35 A		Units	2 x 26
	L58 W	22 µF	0.52 A		Units	2 x 12
Utilization category AC-5b, switching incandescent lamps Per main current path at 230 V, 50 Hz					kW	1.6
Load rating with DC						
Utilization category DC-1, switching resistive load ($L/R \leq 15$ ms) **Rated operational currents I_e**						
• 1 conducting path				up to 24 V	A	16
				60 V	A	6
				110 V	A	2
				220 / 240 V	A	0.8
• 2 conducting paths in series				up to 24 V	A	16
				60 V	A	16
				110 V	A	6
				220 / 240 V	A	1.6
• 3 conducting paths in series				up to 24 V	A	18
				60 V	A	18
				110 V	A	16
				220 / 240 V	A	6
• 4 conducting paths in series				up to 24 V	A	20
				60 V	A	20
				110 V	A	20
				220 / 240 V	A	20
Utilization category DC-3 and DC-5, Shunt-wound and series-wound motors ($L/R \leq 15$ ms) **Rated operational currents I_e**						
• 1 conducting path				Up to 24 V	A	10
				60 V	A	0.5
				110 V	A	0.15
				220 / 240 V	A	0
• 2 conducting paths in series				up to 24 V	A	16
				60 V	A	5
				110 V	A	0.35
				220 / 240 V	A	0
• 3 conducting paths in series				up to 24 V	A	16
				60 V	A	16
				110 V	A	10
				220 / 240 V	A	1.75
• 4 conducting paths in series				up to 24 V	A	18
				60 V	A	16
				110 V	A	10
				220 / 240 V	A	2
Conductor cross-sections						
With screw terminals						M3
• Finely stranded with end sleeve (DIN 46228 Form A/D/C)					mm^2	2 x (0.75 ... 2.5)
• Solid					mm^2	2 x (1 ... 2.5), 1 x 4
With flat connector						
• Finely stranded 6.3 mm plug-in sleeve acc. to DIN 46245/46247						
- 6.3 ... 1					mm^2	0.5 ... 1
- 6.3 ... 2.5					mm^2	1 ... 2.5
CSA and UL rated data (screw terminals)						
Rated insulation voltage				AC	V	600
Uninterrupted current			Open and enclosed		A	20
Maximum horsepower ratings (CSA and UL approved values) Rated power for induction motors with 60 Hz						1-phase/ 3-phase
				at 115 V	hp	0.5/ --
				200 V	hp	1/ 3
				230 V	hp	1.5/ 3
				460 V	hp	0/ 5
				575 V	hp	0/ 5
				600 V	hp	0/ 5

For short-circuit protection with overload relays see Protection Equipment: Overload Relays