SIEMENS

Electric Automation
Automation specialists

Reference: 3RT2023-1AL20

CONTACTOR, AC-3, 4KW/400V, 1NO +1NC, AC 230V 50/60HZ, 3-POLE, SZ S0 SCREW TERMINAL

Buy it at Electric Automation Network

product brand name	SIRIUS
Product designation	3RT2 contactor
General technical data:	
Size of contactor	S0
Product extension	
function module for communication	No
Auxiliary switch	Yes
Insulation voltage	
rated value	690 V
Degree of pollution	3
Surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
between coil and main contacts acc. to EN 60947-1	400 V
Protection class IP	
on the front	IP20
of the terminal	IP20
Shock resistance	
at rectangular impulse	
— at AC	7,5g / 5 ms, 4,7g / 10 ms
with sine pulse	
— at AC	11,8g / 5 ms, 7,4g / 10 ms

Mechanical service life (switching cycles)	
of contactor typical	10 000 000
of the contactor with atd>	5 000 000
of the contactor with atd>	10 000 000
Ambient conditions:	
Installation altitude at height above sea level maximum	2 000 m
Ambient temperature	
during operation	-25 ... +60 °C
during storage	-55 ... +80 °C
Main circuit:	
Number of NO contacts for main contacts	3
Number of NC contacts for main contacts	0
Operating voltage	
at AC-3 rated value maximum	690 V
Operating current	
at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	40 A
at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	40 A
— up to 690 V at ambient temperature 60 °C rated value	35 A
at AC-2 at 400 V rated value	9 A
at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	9 A
— at 690 V rated value	9 A
Connectable conductor cross-section in main circuit at AC-1	
at 60 °C minimum permissible	10 mm²
at 40 °C minimum permissible	10 mm²
Operating current for approx. 200000 operating cycles at AC-4	
at 400 V rated value	4.1 A
at 690 V rated value	3.3 A
Operating current	
at 1 current path at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A

— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
with 2 current paths in series at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
with 3 current paths in series at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
Operating current	
at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
with 2 current paths in series at DC-3 at DC-5	
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 24 V rated value	35 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
with 3 current paths in series at DC-3 at DC-5	
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 24 V rated value	35 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
Operating power	
at AC-1	
— at 230 V rated value	13.3 kW
— at 230 V at 60 °C rated value	13.3 kW
— at 400 V rated value	23 kW

— at 400 V at 60 °C rated value	23 kW
— at 690 V rated value	40 kW
— at 690 V at 60 °C rated value	40 kW
at AC-2 at 400 V rated value	4 kW
at AC-3	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 690 V rated value	7.5 kW
Operating power for approx. 200000 operating cycles at AC-4	
at 400 V rated value	2 kW
at 690 V rated value	2.5 kW
Thermal short-time current limited to 10 s	80 A
Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor	0.4 W
No-load switching frequency	
at AC	5 000 1/h
Operating frequency	
at AC-1 maximum	1 000 1/h
at AC-2 maximum	1 000 1/h
at AC-3 maximum	1 000 1/h
at AC-4 maximum	300 1/h
Control circuit/ Control:	
Type of voltage of the control supply voltage	AC
Control supply voltage at AC	
at 50 Hz rated value	230 V
at 60 Hz rated value	230 V
Operating range factor control supply voltage rated value of magnet coil at AC	
at 50 Hz	0.8 ... 1.1
at 60 Hz	0.85 ... 1.1
Apparent pick-up power of magnet coil at AC	
at 50 Hz	68 V·A
at 60 Hz	67 V·A
Inductive power factor with closing power of the coil	
at 50 Hz	0.72
at 60 Hz	0.74
Apparent holding power of magnet coil at AC	
at 50 Hz	7.9 V·A

at 60 Hz	6.5 V·A
Inductive power factor with the holding power of the coil	
at 50 Hz	0.25
at 60 Hz	0.28
Closing delay	
at AC	9 ... 38 ms
Opening delay	
at AC	4 ... 16 ms
Arcing time	10 ... 10 ms
Residual current of the electronics for control with signal <0>	
at AC at 230 V maximum permissible	6 mA
at DC at 24 V maximum permissible	16 mA
Auxiliary circuit:	
Number of NC contacts	
for auxiliary contacts	
— instantaneous contact	1
Number of NO contacts	
for auxiliary contacts	
— instantaneous contact	1
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
at 230 V rated value	10 A
at 400 V rated value	3 A
at 500 V rated value	2 A
at 690 V rated value	1 A
Operating current at DC-12	
at 24 V rated value	10 A
at 48 V rated value	6 A
at 60 V rated value	6 A
at 110 V rated value	3 A
at 125 V rated value	2 A
at 220 V rated value	1 A
at 600 V rated value	0.15 A
Operating current at DC-13	
at 24 V rated value	10 A
at 48 V rated value	2 A
at 60 V rated value	2 A

at 110 V rated value	1 A
at 125 V rated value	0.9 A
at 220 V rated value	0.3 A
at 600 V rated value	0.1 A
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings:	
Full-load current (FLA) for three-phase AC motor	
at 480 V rated value	7.6 A
at 600 V rated value	9 A
Yielded mechanical performance [hp]	
for single-phase AC motor	
— at 110/120 V rated value	1 hp
— at 230 V rated value	1 hp
for three-phase AC motor	
— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
Contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
Design of the fuse link	
for short-circuit protection of the main circuit	
— with type of coordination 1 required	gL/gG LV HRC 3NA, DIAZED 5SB, NEOZED 5SE: 63 A
— with type of assignment 2 required	gL/gG LV HRC 3NA, DIAZED 5SB, NEOZED 5SE: 25 A
for short-circuit protection of the auxiliary switch required	fuse gL/gG: 10 A
Installation/ mounting/ dimensions:	
Mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 50022
Side-by-side mounting	Yes
Height	85 mm
Witd>	45 mm
Depth	97 mm
Required spacing	
with side-by-side mounting	
— forwards	0 mm
— Backwards	0 mm

— upwards	0 mm
— downwards	0 mm
— at the side	0 mm
for grounded parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	0 mm
— at the side	6 mm
— downwards	0 mm
for live parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	0 mm
— downwards	0 mm
— at the side	6 mm
Connections/Terminals:	
Type of electrical connection	
for main current circuit	screw-type terminals
for auxiliary and control current circuit	screw-type terminals
Type of connectable conductor cross-sections	
for main contacts	
— solid	2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²)
— single or multi-stranded	2x (1 ... 2,5 mm²), 2x (2,5 ... 10 mm²)
— finely stranded with core end processing	2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm²
at AWG conductors for main contacts	2x (16 ... 12), 2x (14 ... 8)
Type of connectable conductor cross-sections	
for auxiliary contacts	
— single or multi-stranded	2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
at AWG conductors for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
Safety related data:	
B10 value	
with high demand rate acc. to SN 31920	1 000 000
Proportion of dangerous failures	
with low demand rate acc. to SN 31920	40 %
with high demand rate acc. to SN 31920	73 %
Failure rate [FIT]	
with low demand rate acc. to SN 31920	100 FIT

Product function	
Mirror contact acc. to IEC 60947-4-1	Yes
T1 value for proof test interval or service life acc. to IEC 61508	20 y