

Reference: 3RT1046-1AL20

CONTACTOR, AC-3 45 KW/400 V, AC
230V 50/60HZ 3-POLE, SIZE S3, SCREW
CONNECTION

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product brand name	SIRIUS
Product designation	power contactor
General technical data:	
Size of contactor	S3
Insulation voltage	
rated value	1 000 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	690 V
Protection class IP	
on the front	IP00
of the terminal	IP00
Shock resistance	
at rectangular impulse	
— at AC	6,8g / 5 ms, 4g / 10 ms
with sine pulse	
— at AC	10,6g / 5 ms, 6,2g / 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 current	
at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	120 A
at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	120 A
— up to 690 V at ambient temperature 60 °C rated value	100 A
— up to 1000 V at ambient temperature 40 °C rated value	70 A
— up to 1000 V at ambient temperature 60 °C rated value	60 A
at AC-3	
— at 400 V rated value	95 A
— at 690 V rated value	58 A
— at 1000 V rated value	30 A
Connectable conductor cross-section in main circuit at AC-1	
at 60 °C minimum permissible	35 mm ²
at 40 °C minimum permissible	50 mm ²
Operating current for approx. 200000 operating cycles at AC-4	
at 400 V rated value	42 A
at 690 V rated value	27 A
Operating current	
at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	9 A
with 2 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
with 3 current paths in series at DC-1	

— at 24 V rated value	100 A
— at 110 V rated value	100 A
Operating current	
at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 110 V rated value	2.5 A
with 2 current paths in series at DC-3 at DC-5	
— at 110 V rated value	100 A
— at 24 V rated value	100 A
with 3 current paths in series at DC-3 at DC-5	
— at 110 V rated value	100 A
— at 24 V rated value	100 A
Operating power	
at AC-1	
— at 230 V at 60 °C rated value	38 kW
— at 400 V rated value	66 kW
— at 690 V rated value	114 kW
— at 690 V at 60 °C rated value	114 kW
— at 1000 V at 60 °C rated value	98 W
at AC-2 at 400 V rated value	45 kW
at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	55 kW
— at 1000 V rated value	37 W
Operating power for approx. 200000 operating cycles at AC-4	
at 400 V rated value	22 kW
at 690 V rated value	25.4 kW
Thermal short-time current limited to 10 s	760 A
Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor	10.8 W
No-load switching frequency	
at AC	5 000 1/h
Operating frequency	
at AC-1 maximum	900 1/h
at AC-2 maximum	350 1/h
at AC-3 maximum	850 1/h

at AC-4 maximum	250 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
Control supply voltage frequency 1 rated value	50 Hz
Control supply voltage frequency 2 rated value	60 Hz
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	298 V·A
Inductive power factor with closing power of the coil	0.7
Apparent holding power of magnet coil at AC	27 V·A
Inductive power factor with the holding power of the coil	0.29
Closing delay	
at AC	17 ... 90 ms
Opening delay	
at AC	10 ... 25 ms
Arcing time	10 ... 15 ms
Auxiliary circuit:	
Number of NC contacts	
for auxiliary contacts	
— instantaneous contact	0
Number of NO contacts	
for auxiliary contacts	
— instantaneous contact	0
Operating current at AC-12 maximum	
Operating current at AC-15	
at 230 V rated value	6 A
at 400 V rated value	3 A
Operating current at DC-12	
at 60 V rated value	6 A
at 110 V rated value	3 A
at 220 V rated value	1 A
Operating current at DC-13	
at 24 V rated value	10 A

at 60 V rated value	2 A
at 110 V rated value	1 A
at 220 V rated value	0.3 A
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings:	
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	fuse gL/gG: 250 A
— with type of assignment 2 required	fuse gL/gG: 160 A
for short-circuit protection of the auxiliary switch required	fuse gL/gG: 10 A
Installation/ mounting/ dimensions:	
Mounting type	screw and snap-on mounting onto 35 mm and 75 mm standard mounting rail
Side-by-side mounting	Yes
Height	146 mm
Witd>	70 mm
Depth	139 mm
Required spacing	
for grounded parts	
— 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 (2.5 ... 16 mm ²)
— stranded	2x (10 ... 50 mm ²)
— single or multi-stranded	2x (2,5 ... 16 mm ²)
— finely stranded with core end processing	2x (2.5 ... 35 mm ²)
— finely stranded without core end processing	2x (10 ... 35 mm ²)
at AWG conductors for main contacts	2x (10 ... 1/0)
Type of connectable conductor cross-sections	
for auxiliary contacts	
— solid	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²), max. 2x (0.75 ... 4 mm ²)

— finely stranded with core end processing	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
at AWG conductors for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14), 1x 12