



power contactor, AC-3e/AC-3, 51 A, 22 kW / 400 V, 1 NO + 1 NC, 220 V AC, 50 Hz / 240 V, 60 Hz, 3-pole, screw terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2

General technical data

size of contactor	S2
product extension	
• function module for communication	No
• auxiliary switch	Yes
power loss [W] for rated value of the current	
• at AC in hot operating state	12 W
• at AC in hot operating state per pole	4 W
• without load current share typical	18.5 W
insulation voltage	
• of main circuit with degree of pollution 3 rated value	690 V
• of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
• of main circuit rated value	6 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	11.8g / 5 ms, 7.4g / 10 ms
shock resistance with sine pulse	
• at AC	18.5g / 5 ms, 11.6g / 10 ms
mechanical service life (operating cycles)	
• of contactor typical	10 000 000
• of the contactor with added electronically optimized auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2014

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
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %

Main circuit

number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	
• at AC-3 rated value maximum	690 V
• at AC-3e rated value maximum	690 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	70 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	70 A
— up to 690 V at ambient temperature 60 °C rated value	60 A
• at AC-3	
— at 400 V rated value	51 A
— at 500 V rated value	51 A
— at 690 V rated value	24 A
• at AC-3e	
— at 400 V rated value	51 A
— at 500 V rated value	51 A
— at 690 V rated value	24 A
• at AC-4 at 400 V rated value	41 A
• at AC-5a up to 690 V rated value	61.6 A
• at AC-5b up to 400 V rated value	41.5 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	43.2 A
— up to 400 V for current peak value n=20 rated value	43.2 A
— up to 500 V for current peak value n=20 rated value	43.2 A
— up to 690 V for current peak value n=20 rated value	24 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	28.8 A
— up to 400 V for current peak value n=30 rated value	28.8 A
— up to 500 V for current peak value n=30 rated value	28.8 A
— up to 690 V for current peak value n=30 rated value	24 A
minimum cross-section in main circuit at maximum AC-1 rated value	25 mm ²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	24 A
• at 690 V rated value	20 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	55 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	55 A
— at 110 V rated value	45 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	55 A
— at 110 V rated value	55 A
— at 220 V rated value	45 A
— at 440 V rated value	2.9 A

— at 600 V rated value • at 1 current path at DC-3 at DC-5 — at 24 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 3 current paths in series at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value	1.4 A 35 A 1 A 0.1 A 0.06 A 55 A 25 A 5 A 0.27 A 0.16 A 55 A 55 A 25 A 0.6 A 0.35 A
operating power	
• at AC-2 at 400 V rated value • at AC-3 — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value • at AC-3e — at 400 V rated value — at 500 V rated value — at 690 V rated value	22 kW 15 kW 22 kW 30 kW 22 kW 22 kW 30 kW 22 kW
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value • at 690 V rated value	12.6 kW 18.2 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value • up to 400 V for current peak value n=20 rated value • up to 500 V for current peak value n=20 rated value • up to 690 V for current peak value n=20 rated value	17.2 kVA 29.9 kVA 37.4 kVA 28.6 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value • up to 400 V for current peak value n=30 rated value • up to 500 V for current peak value n=30 rated value • up to 690 V for current peak value n=30 rated value	11.4 kVA 19.9 kVA 24.9 kVA 28.6 kVA
short-time withstand current in cold operating state up to 40 °C	
• limited to 1 s switching at zero current maximum • limited to 5 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum	937 A; Use minimum cross-section acc. to AC-1 rated value 697 A; Use minimum cross-section acc. to AC-1 rated value 468 A; Use minimum cross-section acc. to AC-1 rated value 282 A; Use minimum cross-section acc. to AC-1 rated value 229 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	5 000 1/h
operating frequency	
• at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-3e maximum • at AC-4 maximum	1 000 1/h 600 1/h 800 1/h 800 1/h 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 • at 60 Hz rated value	220 V 240 V
operating range factor control supply voltage rated	

value of magnet coil at AC	
• at 50 Hz	0.8 ... 1.1
• at 60 Hz	0.8 ... 1.1
apparent pick-up power of magnet coil at AC	
• at 50 Hz	212 VA
• at 60 Hz	188 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.69
• at 60 Hz	0.65
apparent holding power of magnet coil at AC	
• at 50 Hz	18.5 VA
• at 60 Hz	16.5 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.36
• at 60 Hz	0.39
closing delay	
• at AC	10 ... 80 ms
opening delay	
• at AC	10 ... 18 ms
arcing time	10 ... 20 ms
control version of the switch operating mechanism	Standard A1 - A2

Auxiliary circuit

number of NC contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational 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
operational 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
operational 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 3-phase AC motor	
• at 480 V rated value	52 A
• at 600 V rated value	52 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	3 hp
— at 230 V rated value	10 hp
• for 3-phase AC motor	
— at 200/208 V rated value	15 hp
— at 220/230 V rated value	15 hp
— at 460/480 V rated value	40 hp
— at 575/600 V rated value	50 hp
contact rating of auxiliary contacts according to UL	A600 / P600

Short-circuit protection

design of the fuse link

- for short-circuit protection of the main circuit
 - with type of coordination 1 required
 - with type of assignment 2 required
- for short-circuit protection of the auxiliary switch required

gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)
gG: 80A (690V,100kA), aM: 50A (690V,100kA), BS88: 63A (415V,80kA)
gG: 10 A (500 V, 1 kA)

Installation/ mounting/ dimensions

mounting position

fastening method

- side-by-side mounting

height

width

depth

required spacing

- with side-by-side mounting
 - forwards
 - upwards
 - downwards
 - at the side
- for grounded parts
 - forwards
 - upwards
 - at the side
 - downwards
- for live parts
 - forwards
 - upwards
 - downwards
 - at the side

+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
Yes
114 mm
55 mm
130 mm

10 mm
10 mm
10 mm
0 mm

10 mm
10 mm
6 mm
10 mm

10 mm
10 mm
10 mm
6 mm

Connections/ Terminals

type of electrical connection

- for main current circuit
- for auxiliary and control circuit
- at contactor for auxiliary contacts
- of magnet coil

screw-type terminals
screw-type terminals
Screw-type terminals
Screw-type terminals

type of connectable conductor cross-sections

- for main contacts
 - solid or stranded
 - finely stranded with core end processing
- at AWG cables for main contacts

2x (1 ... 35 mm²), 1x (1 ... 50 mm²)
2x (1 ... 25 mm²), 1x (1 ... 35 mm²)
2x (18 ... 2), 1x (18 ... 1)

connectable conductor cross-section for main contacts

- finely stranded with core end processing

1 ... 35 mm²

connectable conductor cross-section for auxiliary contacts

- solid or stranded
- finely stranded with core end processing

0.5 ... 2.5 mm²
0.5 ... 2.5 mm²

type of connectable conductor cross-sections

- for auxiliary contacts
 - solid or stranded
 - finely stranded with core end processing
- at AWG cables for auxiliary contacts

2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
2x (20 ... 16), 2x (18 ... 14)

AWG number as coded connectable conductor cross section

- for main contacts
- for auxiliary contacts

18 ... 1
20 ... 14

Safety related data

product function

- mirror contact according to IEC 60947-4-1
- positively driven operation according to IEC 60947-

Yes
No

5-1

B10 value with high demand rate according to SN 31920

proportion of dangerous failures

- with low demand rate according to SN 31920
- with high demand rate according to SN 31920

failure rate [FIT] with low demand rate according to SN 31920

T1 value for proof test interval or service life according to IEC 61508

protection class IP on the front according to IEC 60529**touch protection on the front according to IEC 60529****suitability for use**

- safety-related switching OFF

1 000 000

40 %

73 %

100 FIT

20 y

IP20

finger-safe, for vertical contact from the front

Yes

Certificates/ approvals**General Product Approval**[Confirmation](#)[KC](#)

EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
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[Type Examination Certificate](#)

EG-Konf.

[Type Test Certificates/Test Report](#)[Special Test Certificate](#)**Marine / Shipping**

ABS

BUREAU
VERITAS

DNV



LRS



PRS



RINA

Marine / Shipping	other	Railway	Dangerous Good
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