SIEMENS

Data sheet 3RT2016-2BE42



Power contactor, AC-3 9 A, 4 kW / 400 V 1 NC, 60 V DC, 3-pole, Size S00 Spring-type terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
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 	0.9 W
 at AC in hot operating state per pole 	0.3 W
without load current share typical	4 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 DC	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at DC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (switching cycles)	
 of contactor typical 	30 000 000
 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)	10/01/2009
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	22 A
• at AC-1	
 up to 690 V at ambient temperature 40 °C rated value 	22 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	20 A
• at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-4 at 400 V rated value	8.5 A
• at AC-5a up to 690 V rated value	19.4 A
at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	
up to 230 V for current peak value n=20 rated value	5.3 A
 up to 400 V for current peak value n=20 rated value 	5.3 A
 up to 500 V for current peak value n=20 rated value 	5.3 A
 up to 690 V for current peak value n=20 rated value at AC-6a 	5 A
— up to 230 V for current peak value n=30 rated value	3.5 A
 up to 400 V for current peak value n=30 rated value 	3.5 A
 up to 500 V for current peak value n=30 rated value 	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated value operational current for approx. 200000 operating	4 mm ²
cycles at AC-4	
at 400 V rated value	4.1 A
• at 690 V rated value	3.3 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
with 2 current paths in series at DC-1	
— at 24 V rated value	20 A
— at 24 V rated value — at 110 V rated value	12 A
— at 110 V rated value — at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
 with 3 current paths in series at DC-1 	

— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1 A
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	0.1 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 110 V rated value	0.35 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	1.5 A
— at 440 V rated value	0.2 A
— at 600 V rated value	0.2 A
operating power	
• at AC-3	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
• at AC-3e	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	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
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	2 kVA
• up to 400 V for current peak value n=20 rated value	3.6 kVA
• up to 500 V for current peak value n=20 rated value	4.6 kVA
• up to 690 V for current peak value n=20 rated value	5.9 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	1.3 kVA
• up to 400 V for current peak value n=30 rated value	2.4 kVA
up to 500 V for current peak value n=30 rated value	3.1 kVA
up to 690 V for current peak value n=30 rated value	4 kVA
short-time withstand current in cold operating state	
up to 40 °C	
 limited to 1 s switching at zero current maximum 	155 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	66 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 60 s switching at zero current maximum	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at DC	10 000 1/h
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
	750 1/h
 at AC-3e maximum 	
at AC-3e maximumat AC-4 maximum	250 1/h
	250 1/h
at AC-4 maximum	250 1/h DC

rated value	60 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8
• full-scale value	1.1
closing power of magnet coil at DC	4 W
holding power of magnet coil at DC	4 W
closing delay	7 **
• at DC	30 100 ms
opening delay	30 100 III3
• at DC	7 13 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
	Standard AT - AZ
Auxiliary circuit	4
number of NC contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	1071
• at 230 V rated value	10 A
at 400 V rated value	3 A
at 500 V rated value at 500 V rated value	2 A
at 690 V rated value at 690 V rated value	1 A
operational current at DC-12	1/1
• at 24 V rated value	10 A
	10 A
• at 48 V rated value	
at 60 V rated value at 110 V rated value	6 A 3 A
at 110 V rated value	
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	40.4
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 	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 	0.33 hp
— at 230 V rated value	1 hp
• for 3-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	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)
— with type of assignment 2 required	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V,
•	
	80kA)
 for short-circuit protection of the auxiliary switch required 	80kA) gG: 10 A (500 V, 1 kA)

# 180° rotation possible on vertical mounting surface; can be littled forward and bedoward by + 1/2 25° on vertical mounting surface; can be littled forward and bedoward by + 1/2 25° on vertical mounting surface; can be littled forward and bedoward by + 1/2 25° on vertical mounting rail according to DNE N 60715 # 150° mm	nstallation/ mounting/ dimensions	
side-by-side mounting Yes helight At mm width deptn required spacing with side-by-side mounting —forwards — ownwards — ownwards — ownwards — of the side — for grounded parts — forwards — 10 mm — ownwards — ownwar	mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
Meditable	fastening method	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
width depth	• side-by-side mounting	Yes
Tequired spacing Forwards 10 mm	height	70 mm
veluired spacing veluir side-by-side mounting	width	45 mm
with side-by-side mounting — forwards — upwards — downwards — at the side — for grounded parts — for grounded parts — puwards — upwards — downwards — downwards — for like parts — for wards — upwards —	depth	73 mm
forwards upwards 10 mm 10 mm 11 m	required spacing	
- upwards - downwards - at the side • for grounded parts - forwards - upwards - downwards - downwards - for live parts - forwards - upwards - upw	 with side-by-side mounting 	
- downwards - at the side	— forwards	10 mm
- at the side	— upwards	10 mm
• for grounded parts	— downwards	10 mm
- forwards - upwards - upwards - at the side - downwards - for live parts - forwards - upwards - for live parts - forwards - upwards - for live parts - forwards - upwards - downwards - downwards - downwards - at the side - for man contacts - for auxiliary and control circuit - for auxiliary contacts - for main contacts - solid - solid - solid - stranded - finely stranded with core end processing - finely stranded without core end processing - at AWG cables for main contacts - solid - stranded - finely stranded with core end processing - finely stranded without core end processing - fi	— at the side	0 mm
- upwards - at the side - downwards • for live parts - forwards - upwards - upwards - upwards - upwards - downwards - upwards - at the side - downwards - at the side - at the	for grounded parts	
- at the side - downwards - for live parts - forwards - upwards - upwards - downwards - downwards - at the side - downwards - do	— forwards	10 mm
- downwards • for live parts - forwards - upwards - upwards - at the side - at the side - at the side - at the side - an expression of the side - an expre	— upwards	10 mm
• for live parts — forwards — upwards — upwards — downwards — at the side — at the side — one mections/ Terminals type of electrical connection • for main current circuit • for main current circuit • for main current circuit • at contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for mini contacts — solid — solid or stranded — finely stranded with core end processing — at AWG cables for main contacts • solid • stranded • finely stranded with core end processing • solid • stranded • finely stranded with core end processing • solid • soli	— at the side	6 mm
forwards upwards upwards downwards at the side downwards for main current circuit for auxiliary and control circuit for auxiliary and control circuit of auxiliary and control circuit of auxiliary contacts of magnet coil of main contacts solid of main contacts solid solid or stranded finely stranded with core end processing finely stranded with core end processing at AWG cables for main contacts solid or stranded solid or str	— downwards	10 mm
- upwards - downwards - downwards - at the side onnections/ Terminals type of electrical connection • for main current circuit • at contactor for auxiliary contacts • of magnification stranded - finely stranded with core end processing • finely stranded without core end processing • for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts AWG number as coded connectable conductor cross section	• for live parts	
- downwards - at the side 6 mm connections/ Terminals type of electrical connection • for main current circuit spring-loaded terminals • at contactor for auxillary contacts • of magnet coil spring-loaded terminals • sp	— forwards	10 mm
- at the side connections/ Terminals type of electrical connection	— upwards	10 mm
type of electrical connection • for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for main contacts — solid — solid or stranded — finely stranded without core end processing • finely stranded with core end processing • solid or stranded • finely stranded with core end processing • solid or stranded • finely stranded with core end processing • finely stranded with core end processing • finely stranded with core end processing • finely stranded without core end processing • finely stranded with core end processing • for auxiliary contacts — solid or stranded — finely stranded with core end processing • finely stranded with core end processing • for auxiliary contacts — solid or stranded — finely stranded with core end processing • for auxiliary contacts — solid or stranded — finely stranded with core end processing • for auxiliary contacts	— downwards	10 mm
type of electrical connection • for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for main contacts — solid — solid or stranded with core end processing — finely stranded without core end processing • sfinely stranded with core end processing • stranded • finely stranded with core end processing • at AWG cables for main contacts • solid • stranded • finely stranded with core end processing • finely stranded without core end processing • solid or stranded • finely stranded without core end processing • for ouxiliary contacts — solid or stranded — finely stranded with core end processing • for ouxiliary contacts — solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded AWG number as coded connectable conductor cross section • for auxiliary contacts	— at the side	6 mm
type of electrical connection • for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for main contacts — solid — solid or stranded with core end processing — finely stranded without core end processing • sfinely stranded with core end processing • stranded • finely stranded with core end processing • at AWG cables for main contacts • solid • stranded • finely stranded with core end processing • finely stranded with core end processing • finely stranded without core end processing • for ouxiliary contacts — solid or stranded — finely stranded with core end processing • for auxiliary contacts — solid or stranded — finely stranded with core end processing • for auxiliary contacts — solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded AWG number as coded connectable conductor cross section • for auxiliary contacts	onnections/ Terminals	
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AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 12 20 12	 finely stranded without core end processing 	2x (0.5 2.5 mm²)
AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 12 20 12	 at AWG cables for auxiliary contacts 	2x (20 12)
• for auxiliary contacts 20 12	AWG number as coded connectable conductor cross	
·	• for main contacts	20 12
afety related data	for auxiliary contacts	20 12
	afety related data	

 mirror contact according to IEC 60947-4-1 	Yes
B10 value with high demand rate according to SN 31920	1 000 000
proportion of dangerous failures	
 with low demand rate according to SN 31920 	40 %
 with high demand rate according to SN 31920 	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to IEC 61508	20 y
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
suitability for use	
 safety-related switching OFF 	Yes

Certificates/ approvals

General Product Approval





Confirmation



<u>KC</u>



EMC

Functional Safety/Safety of Machinery

Declaration of Conformity

Test Certificates



Type Examination Certificate



Special Test Certificate

Type Test Certificates/Test Report

Marine / Shipping













Marine / Shipping

other

Dangerous Good



Confirmation



Transport Information

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

https://www.siemens.com/ic10

Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2016-2BE42

Cax online generator

 $\underline{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT2016-2BE42}$

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2BE42

 $Image\ database\ (product\ images, 2D\ dimension\ drawings, 3D\ models, device\ circuit\ diagrams,\ EPLAN\ macros,\ ...)$

 $\underline{\text{http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-2BE42\&lang=en}$

Characteristic: Tripping characteristics, I2t, Let-through current

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2BE42/char

Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-2BE42&objecttype=14&gridview=view1

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