## **SIEMENS**

Data sheet 3RT2046-1NB34

power contactor, AC-3 95 A, 45 kW / 400 V 2 NO + 2 NC, 20-33 V AC/DC 3-pole, 3 NO, Size S3 screw terminal integrated varistor



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

General technical data	
Size of contactor	S3
Product extension	
<ul> <li>function module for communication</li> </ul>	No
Auxiliary switch	Yes
Power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	19.8 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	6.6 W
Power loss [W] for rated value of the current without	3.5 W
load current share typical	
Surge voltage resistance	
<ul> <li>of main circuit rated value</li> </ul>	8 kV
<ul> <li>of auxiliary circuit rated value</li> </ul>	6 kV
maximum permissible voltage for safe isolation	
<ul> <li>between coil and main contacts acc. to EN</li> </ul>	690 V
60947-1	

Protection class IP	
• on the front	IP20
	IP00
• of the terminal	1000
Shock resistance at rectangular impulse	0.7 = 15 == 4.0 = 140 ===
• at AC	6.7 g / 5 ms, 4.0 g / 10 ms
• at DC	6.7 g / 5 ms, 4.0 g / 10 ms
Shock resistance with sine pulse	
• at AC	10.6 g / 5 ms, 6.3 g / 10 ms
• at DC	10.6 g / 5 ms, 6.3 g / 10 ms
Mechanical service life (switching cycles)	
of contactor typical	10 000 000
<ul> <li>of the contactor with added electronics- compatible auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	К
Reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
<ul> <li>during operation</li> </ul>	-25 +60 °C
• during storage	-55 +80 °C
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	1 000 V
Operating current	
● at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	130 A
● at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	130 A
— up to 690 V at ambient temperature 60 °C rated value	110 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-2 at 400 V rated value	95 A

• at AC-3	
— at 400 V rated value	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
• at AC-4 at 400 V rated value	80 A
• at AC-5a up to 690 V rated value	114 A
• at AC-5b up to 400 V rated value	95 A
● at AC-6a	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	84.4 A
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	84.4 A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	84.4 A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	58 A
• at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	56.3 A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	56.3 A
<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	56.3 A
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	56.3 A
Minimum cross-section in main circuit	
• at maximum AC-1 rated value	50 mm²
Operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	42 A
• at 690 V rated value	30 A
Operating current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A
<ul> <li>with 2 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A

— at 600 V rated value	1 A
<ul> <li>with 3 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	80 A
— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 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
— at 220 V rated value	1 A
— at 440 V rated value	0.15 A
— at 600 V rated value	0.06 A
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 A
— at 600 V rated value	0.16 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
Operating power	
● at AC-1	
— at 230 V rated value	49 kW
— at 230 V at 60 °C rated value	42 kW
— at 400 V rated value	86 kW
— at 400 V at 60 °C rated value	72 kW
— at 690 V rated value	148 kW
— at 690 V at 60 °C rated value	125 kW
• 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	75 kW

Operating power for approx 200000 energting avales	
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	22 kW
• at 690 V rated value	27.4 kW
Short-time withstand current in cold operating state	
up to 40 °C	
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	1 725 A
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	1 297 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	946 A
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	610 A
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	486 A
No-load switching frequency	
• at AC	1 000 1/h
• at DC	1 000 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/DC
Control supply voltage at AC	
• at 50 Hz rated value	20 33 V
• at 60 Hz rated value	20 33 V
Control supply voltage at DC	
• rated value	20 33 V
Operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8
Full-scale value	1.1
Operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.8 1.1

• at 60 Hz

Inrush current peak

• at 24 V

Design of the surge suppressor

Apparent pick-up power of magnet coil at AC

0.8 ... 1.1

4.2 A

with varistor

● at 50 Hz	151 V·A
● at 60 Hz	151 V·A
Apparent holding power of magnet coil at AC	
● at 50 Hz	3.5 V·A
● at 60 Hz	3.5 V·A
Closing power of magnet coil at DC	76 W
Holding power of magnet coil at DC	2.7 W
Closing delay	
• at DC	50 70 ms
Opening delay	
• at DC	38 57 ms
Arcing time	10 20 ms
Residual current of the electronics for control with signal <0>	
• at AC at 230 V maximum permissible	20 mA
• at DC at 24 V maximum permissible	20 mA
Auxiliary circuit	
Number of NC contacts for auxiliary contacts	
• instantaneous contact	2
Number of NO contacts for auxiliary contacts	
• instantaneous contact	2
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
• at 230 V rated value	6 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

0.15 A

6 A

2 A

2 A

1 A

0.9 A

0.3 A

• at 600 V rated value

Operating current at DC-13

• at 24 V rated value

• at 48 V rated value

• at 60 V rated value

• at 110 V rated value

• at 125 V rated value

• at 220 V rated value

at 600 V rated value	0.1 A
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
Contact foliability of dustiliary contacts	riddity switching per 100 million (17 V, 1 milly)
UL/CSA ratings	
Full-load current (FLA) for three-phase AC motor	
● at 480 V rated value	96 A
• at 600 V rated value	77 A
Yielded mechanical performance [hp]	
<ul> <li>for single-phase AC motor</li> </ul>	
<ul> <li>— at 110/120 V rated value</li> </ul>	10 hp
— at 230 V rated value	20 hp
• for three-phase AC motor	
— at 200/208 V rated value	30 hp
— at 220/230 V rated value	30 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	75 hp
Contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
Design of the fuse link	
<ul> <li>for short-circuit protection of the main circuit</li> </ul>	
<ul> <li>with type of coordination 1 required</li> </ul>	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)
— with type of assignment 2 required	gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)
<ul> <li>for short-circuit protection of the auxiliary switch required</li> </ul>	gG: 10 A (500 V, 1 kA)
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 60715
Side-by-side mounting	Yes
Height	140 mm
Width	70 mm
Depth	195 mm
Required spacing	
<ul><li>with side-by-side mounting</li></ul>	
— forwards	20 mm
— upwards	10 mm

downwardsat the side

• for grounded parts

10 mm

0 mm

— forwards	20 mm
— upwards	10 mm
— at the side	10 mm
— downwards	10 mm
• for live parts	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm

Connections/ Terminals	
Type of electrical connection	
• for main current circuit	screw-type terminals
<ul> <li>for auxiliary and control current circuit</li> </ul>	screw-type terminals
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Screw-type terminals
• of magnet coil	Screw-type terminals
Type of connectable conductor cross-sections	
• for main contacts	
<ul> <li>finely stranded with core end processing</li> </ul>	2x (2.5 35 mm²), 1x (2.5 50 mm²)
<ul> <li>at AWG conductors for main contacts</li> </ul>	2x (10 1/0), 1x (10 2)
Connectable conductor cross-section for main	
contacts	
• solid	2.5 16 mm²
• stranded	6 70 mm²
<ul> <li>finely stranded with core end processing</li> </ul>	2.5 50 mm²
Connectable conductor cross-section for auxiliary contacts	
<ul> <li>single or multi-stranded</li> </ul>	0.5 2.5 mm²
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 2.5 mm²
Type of connectable conductor cross-sections	
<ul> <li>for auxiliary contacts</li> </ul>	
<ul> <li>single or multi-stranded</li> </ul>	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
<ul> <li>at AWG conductors for auxiliary contacts</li> </ul>	2x (20 16), 2x (18 14)
AWG number as coded connectable conductor cross	
section	
• for main contacts	10 2
• for auxiliary contacts	20 14

Safety related data	
B10 value	
<ul> <li>with high demand rate acc. to SN 31920</li> </ul>	1 000 000
Proportion of dangerous failures	

- ''	40 %
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	40 %
<ul> <li>with high demand rate acc. to SN 31920</li> </ul>	73 %
Failure rate [FIT]	
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	100 FIT
Product function	
<ul> <li>Mirror contact acc. to IEC 60947-4-1</li> </ul>	Yes
<ul> <li>positively driven operation acc. to IEC 60947-5-</li> </ul>	No
1	
T1 value for proof test interval or service life acc. to	20 y
IEC 61508	
Protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529

## Certificates/ approvals

General Product Approval EMC Declaration of Conformity







ABS



LRS





RINA

Declaration of	Test Certific-	Marine / Shipping			
Conformity	ates				
Miscellaneous	Special Test Certificate	THOAN BUTTON	Lloyd's Register	A STATE OF THE STA	N S S S S S S S S S S S S S S S S S S S

Marine / Ship-	other
ping	



Confirmation

## Further information

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

www.siemens.com/sirius/catalogs

Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2046-1NB34

Cax online generator

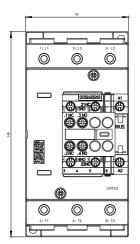
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1NB34

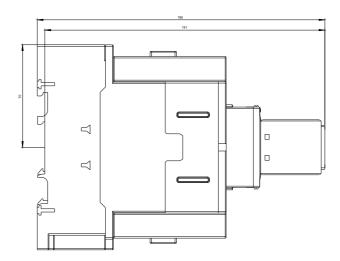
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

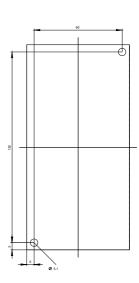
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1NB34

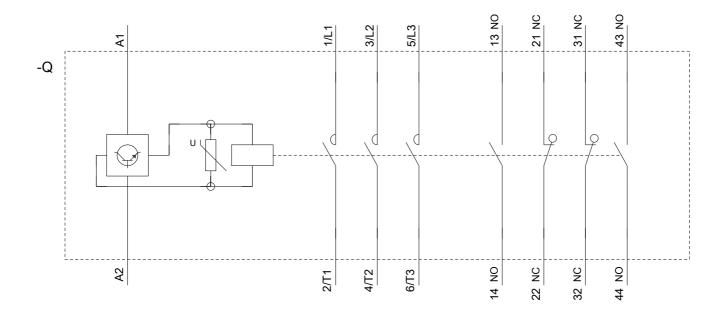
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2046-1NB34&lang=en

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1NB34&objecttype=14&gridview=view1









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