# **SIEMENS**

3RT2047-1NB30 Data sheet

> Power contactor, AC-3 115 A, 55 kW / 400 V 1 NO + 1 NC, 20-33 V AC/DC 3-pole, 3 NO, Size S3 screw terminals integrated varistor



Figure similar

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
Surge voltage resistance	
of main circuit rated value	8 kV
<ul> <li>of auxiliary circuit rated value</li> </ul>	6 kV
maximum permissible voltage for safe isolation	
• between coil and main contacts acc. to EN	690 V
60947-1	
Protection class IP	
• on the front	IP20
of the terminal	IP00

Shock resistance at rectangular impulse	
• 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-</li> </ul>	5 000 000
compatible auxiliary switch block typical	
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
Reference code acc. to DIN 40719 extended	К
according to IEC 204-2 acc. to IEC 750	
Reference code acc. to DIN EN 81346-2	Q
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 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 °C rated value	130 A
— up to 690 V at ambient temperature 60 °C	110 A
rated value	
• at AC-2 at 400 V rated value	110 A
• at AC-3	
— at 400 V rated value	110 A
— at 500 V rated value	110 A
— at 690 V rated value	98 A
<ul><li>— at 690 V rated value</li><li>• at AC-4 at 400 V rated value</li></ul>	98 A 97 A
<ul> <li>— at 690 V rated value</li> <li>• at AC-4 at 400 V rated value</li> <li>Connectable conductor cross-section in main circuit</li> </ul>	

• at 60 °C minimum permissible	35 mm²
at 40 °C minimum permissible	50 mm²
Operating current for approx. 200000 operating	
cycles at AC-4	
● at 400 V rated value	46 A
● at 690 V rated value	36 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
• with 2 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	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	55 kW
• at AC-3	
— at 230 V rated value	30 kW
— at 400 V rated value	55 kW
— at 500 V rated value	75 kW
— at 690 V rated value	90 kW
Operating power for approx. 200000 operating cycles	
at AC-4	
• at 400 V rated value	24.3 kW
at 690 V rated value	32.9 kW
Thermal short-time current limited to 10 s	880 A
Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor	7.9 W
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	200 1/h
Control circuit/ Control  Type of voltage of the control supply voltage	AC/DC
Control supply voltage at AC	1.0,00
• 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

1.1
0.8 1.1
0.8 1.1
with varistor
4.2 A
163 V·A
163 V·A
3.5 V·A
3.5 V·A
76 W
2.7 W
50 70 ms
38 57 ms
10 20 ms
Standard A1 - A2
20 mA
20 mA
1
1
1
1 10 A
1 10 A 6 A
1 10 A 6 A 3 A
1 10 A 6 A 3 A 2 A
1 10 A 6 A 3 A
1 10 A 6 A 3 A 2 A 1 A
1 10 A 6 A 3 A 2 A 1 A
1 10 A 6 A 3 A 2 A 1 A
1 10 A 6 A 3 A 2 A 1 A

Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
• at 600 V rated value	0.1 A
• at 220 V rated value	0.3 A
• at 125 V rated value	0.9 A
• at 110 V rated value	1 A
• at 60 V rated value	2 A
• at 48 V rated value	2 A
• at 24 V rated value	10 A
Operating current at DC-13	
• at 600 V rated value	0.15 A
• at 220 V rated value	1 A
at 125 V rated value	2 A

UL/CSA ratings	
Full-load current (FLA) for three-phase AC motor	
• at 480 V rated value	96 A
• at 600 V rated value	99 A
Yielded mechanical performance [hp]	
<ul> <li>for single-phase AC motor</li> </ul>	
— at 110/120 V rated value	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	40 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	100 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	gG: 250A (690V,100kA), aM: 160A (690V,100kA), BS88: 200A (415V,80kA)
— with type of assignment 2 required	gG: 200A (690V,100kA), aM: 100A (690V,100kA), BS88: 160A (415V,80kA)
<ul> <li>for short-circuit protection of the auxiliary switch required</li> </ul>	fuse gG: 10 A

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	152 mm
Required spacing	
<ul><li>with side-by-side mounting</li></ul>	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
<ul><li>for grounded parts</li></ul>	
— 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
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	
• single or multi-stranded	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	
• for auxiliary contacts	
	0 (0.5, 4.5, 3) 0 (0.75, 0.5, 3)

— single or multi-stranded

- finely stranded with core end processing

• at AWG conductors for auxiliary contacts

11.1.1.1.4

2x (20 ... 16), 2x (18 ... 14)

2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²)

2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)

# 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
Performance level (PL) acc. to EN ISO 13849-1	С
Category acc. to EN ISO 13849-1	2
Stop category acc. to DIN EN 60204-1	0
Proportion of dangerous failures	
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	40 %
• with high demand rate acc. to SN 31920	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
• positively driven operation acc. to IEC 60947-5-	No
1	
PFHD with high demand rate acc. to EN 62061	0.00000045 1/h
PFDavg with low demand rate acc. to IEC 61508	0.007
MTBF	75 y
Hardware fault tolerance acc. to IEC 61508	0
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













	A 110	
LAct	Certifi	catac
1 691	OCI UII	vaics

other

Railway

Type Test
Certificates/Test
Report

Special Test Certificate Confirmation

Vibration and Shock

#### urther information

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

http://www.siemens.com/industrial-controls/catalogs

#### Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2047-1NB30

#### Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2047-1NB30

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1NB30

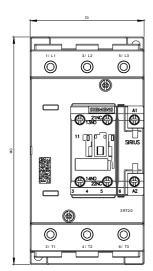
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2047-1NB30&lang=en

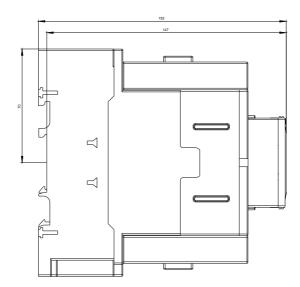
# Characteristic: Tripping characteristics, I2t, Let-through current

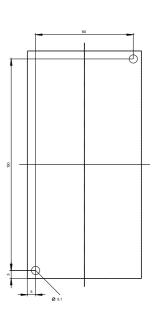
https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1NB30/char

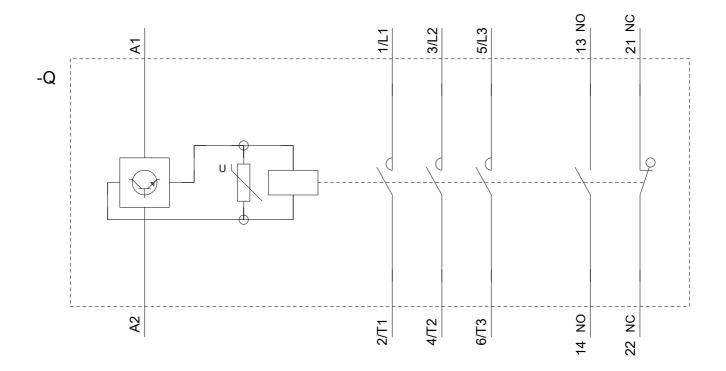
# Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2047-1NB30&objecttype=14&gridview=view1









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