SIEMENS

Data sheet 3RT2025-2NP30

power contactor, AC-3 17 A, 7.5 kW / 400 V 1 NO + 1 NC, AC (50-60 Hz) DC operation 200-280 V AC/DC, 3-pole, Size S0, Spring-type terminal

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

General technical data	
size of contactor	S0
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	2.7 W
• at AC in hot operating state per pole	0.9 W
power loss [W] for rated value of the current without load current share typical	4.3 W
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 acc. to EN 60947-1	400 V

protection class IP	
• on the front	IP20
• of the terminal	IP20
shock resistance at rectangular impulse	
• at AC	7,5g / 5 ms, 4,7g / 10 ms
• at DC	10g / 5 ms, 7,5g / 10 ms
shock resistance with sine pulse	
• at AC	11,8g / 5 ms, 7,4g / 10 ms
• at DC	15g / 5 ms, 10g / 10 ms
mechanical service life (switching cycles)	
• of contactor typical	10 000 000
• of the contactor with added electronics-compatible auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
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	690 V
operating current	
• at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	40 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	40 A
— up to 690 V at ambient temperature 60 °C rated value	35 A
• at AC-3	
— at 400 V rated value	17 A
— at 500 V rated value	17 A
— at 690 V rated value	13 A
• at AC-4 at 400 V rated value	15.5 A
• at AC-5a up to 690 V rated value	35.2 A
• at AC-5b up to 400 V rated value	14.1 A

• at AC-6a	
— up to 230 V for current peak value n=20 rated value	11.4 A
— up to 400 V for current peak value n=20 rated value	11.4 A
— up to 500 V for current peak value n=20 rated value	11.4 A
— up to 690 V for current peak value n=20 rated value	11.3 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	7.6 A
— up to 400 V for current peak value n=30 rated value	7.6 A
— up to 500 V for current peak value n=30 rated value	7.6 A
— up to 690 V for current peak value n=30 rated value	7.6 A
minimum cross-section in main circuit	
• at maximum AC-1 rated value	10 mm²
operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	7.7 A
• at 690 V rated value	7.7 A
operating current	
• at 1 current path at DC-1	
— at 24 V rated value	35 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	35 A
— at 110 V rated value	35 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	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A

operating current	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 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	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 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	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
operating power	
• at AC-3	
— at 230 V rated value	4 kW
— at 400 V rated value	7.5 kW
— at 500 V rated value	7.5 kW
— at 690 V rated value	11 kW
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	3.5 kW
• at 690 V rated value	6 kW
operating apparent output at AC-6a	
• up to 230 V for current peak value n=20 rated value	4.5 kV·A
• up to 400 V for current peak value n=20 rated value	7.8 kV·A
• up to 500 V for current peak value n=20 rated value	9.9 kV·A
• up to 690 V for current peak value n=20 rated value	13.6 kV·A
operating apparent output at AC-6a	
• up to 230 V for current peak value n=30 rated value	3 kV·A
• up to 400 V for current peak value n=30 rated value	5.2 kV·A

• up to 500 V for current peak value n=30 rated value	6.6 kV·A
• up to 690 V for current peak value n=30 rated value	9.1 kV·A
short-time withstand current in cold operating state up to 40 °C	
• limited to 1 s switching at zero current maximum	225 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 5 s switching at zero current maximum	225 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 10 s switching at zero current maximum	180 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 30 s switching at zero current maximum	115 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum	96 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	1 500 1/h
• at DC	1 500 1/h
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	1 000 1/h
• at AC-3 maximum	1 000 1/h
• at AC-4 maximum	300 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	200 ... 280 V
• at 60 Hz rated value	200 ... 280 V
control supply voltage at DC	
• rated value	200 ... 280 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.7
• full-scale value	1.1
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.7 ... 1.1
• at 60 Hz	0.7 ... 1.1
design of the surge suppressor	with varistor
inrush current peak	25 A
duration of inrush current peak	30 µs
starting current average value	0.1 A

Peak starting current	0.13 A
Duration of starting current	180 ms
Holding current average value	17 mA
apparent pick-up power of magnet coil at AC	
• at 50 Hz	12.7 V·A
• at 60 Hz	14.7 V·A
inductive power factor with closing power of the coil	
• at 50 Hz	0.98
• at 60 Hz	0.98
apparent holding power of magnet coil at AC	
• at 50 Hz	3.9 V·A
• at 60 Hz	4.3 V·A
inductive power factor with the holding power of the coil	
• at 50 Hz	0.51
• at 60 Hz	0.56
closing power of magnet coil at DC	14.3 W
holding power of magnet coil at DC	1.9 W
closing delay	
• at AC	60 ... 80 ms
• at DC	50 ... 75 ms
opening delay	
• at AC	35 ... 45 ms
• at DC	40 ... 50 ms
arcing time	10 ... 10 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
operating current at AC-12 maximum	10 A
operating 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
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
• at 600 V rated value	0.15 A
operating 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 three-phase AC motor	
• at 480 V rated value	14 A
• at 600 V rated value	17 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	1 hp
— at 230 V rated value	3 hp
• for three-phase AC motor	
— at 200/208 V rated value	3 hp
— at 220/230 V rated value	5 hp
— at 460/480 V rated value	10 hp
— at 575/600 V rated value	15 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: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)
— with type of assignment 2 required	gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)
• for short-circuit protection of the auxiliary switch required	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	102 mm
width	45 mm
depth	107 mm
required spacing	
• with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
• for grounded parts	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
• for live parts	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm

Connections/ Terminals

type of electrical connection	
• for main current circuit	spring-loaded terminals
• for auxiliary and control current circuit	spring-loaded terminals
• at contactor for auxiliary contacts	Spring-type terminals
• of magnet coil	Spring-type terminals
type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (1 ... 10 mm²)
— single or multi-stranded	2x (1 ... 10 mm²)
— finely stranded with core end processing	2x (1 ... 6 mm²)
— finely stranded without core end processing	2x (1 ... 6 mm²)
• at AWG conductors for main contacts	2x (18 ... 8)
connectable conductor cross-section for main contacts	
• solid	1 ... 10 mm²
• stranded	1 ... 10 mm²
• finely stranded with core end processing	1 ... 6 mm²
• finely stranded without core end processing	1 ... 6 mm²
connectable conductor cross-section for auxiliary contacts	
• single or multi-stranded	0.5 ... 2.5 mm²

• finely stranded with core end processing	0.5 ... 1.5 mm²
• finely stranded without core end processing	0.5 ... 2.5 mm²
• type of connectable conductor cross-sections for auxiliary contacts	
— single or multi-stranded	2x (0.5 ... 2.5 mm²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm²)
— finely stranded without core end processing	2x (0.5 ... 2.5 mm²)
• type of connectable conductor cross-sections at AWG conductors for auxiliary contacts	2x (20 ... 14)
AWG number as coded connectable conductor cross section	
• for main contacts	18 ... 8
• for auxiliary contacts	20 ... 14

Safety related data

B10 value	
• with high demand rate acc. to SN 31920	1 000 000
proportion of dangerous failures	
• with low demand rate acc. to SN 31920	40 %
• with high demand rate acc. to SN 31920	73 %
failure rate [FIT]	
• with low demand rate acc. to SN 31920	100 FIT
product function	
• mirror contact acc. to IEC 60947-4-1	Yes
T1 value for proof test interval or service life acc. to IEC 61508	20 y
protection against electrical shock	finger-safe
suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval					EMC
CCC	CSA	UL	KC	EAC	RCM

Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates		Marine / Shipping
Type Examination Certificate	EG-Konf.	Miscellaneous	Type Test Certificates/Test Report	Special Test Certificate	ABS

Marine / Shipping					
BUREAU VERITAS	LRS	PRS	RINA	RMRS	DNV·GL

other	
Confirmation	VDE

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=3RT2025-2NP30

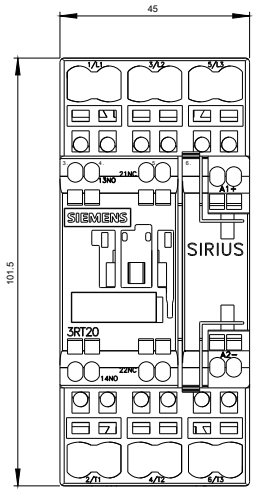
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2025-2NP30

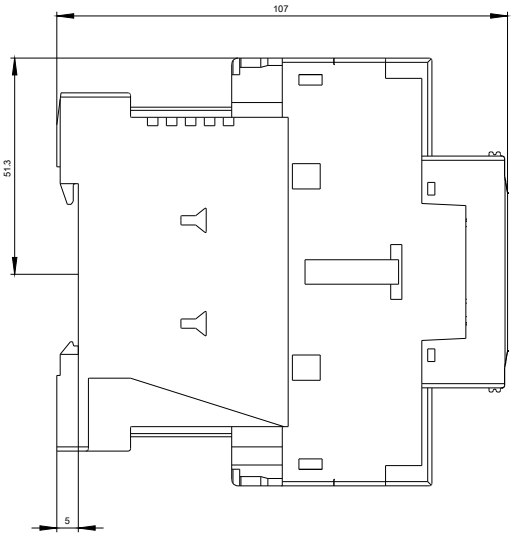
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RT2025-2NP30

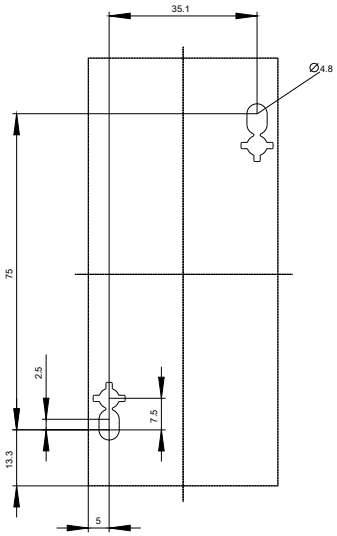
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2025-2NP30&lang=en

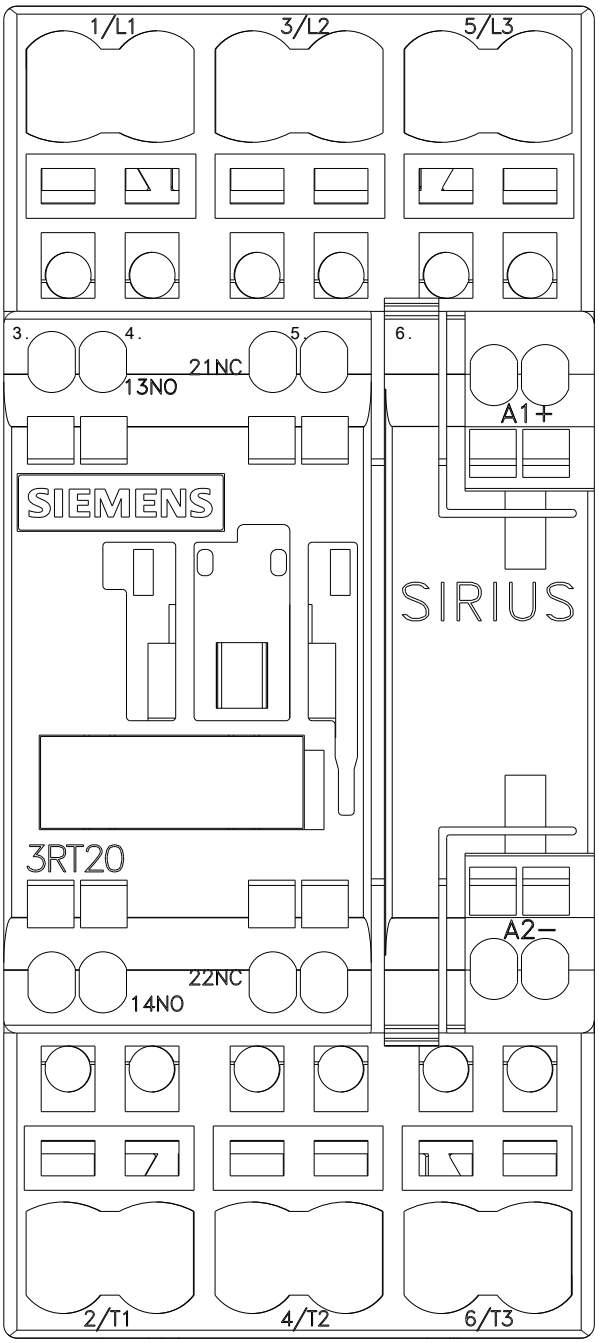
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RT2025-2NP30/char

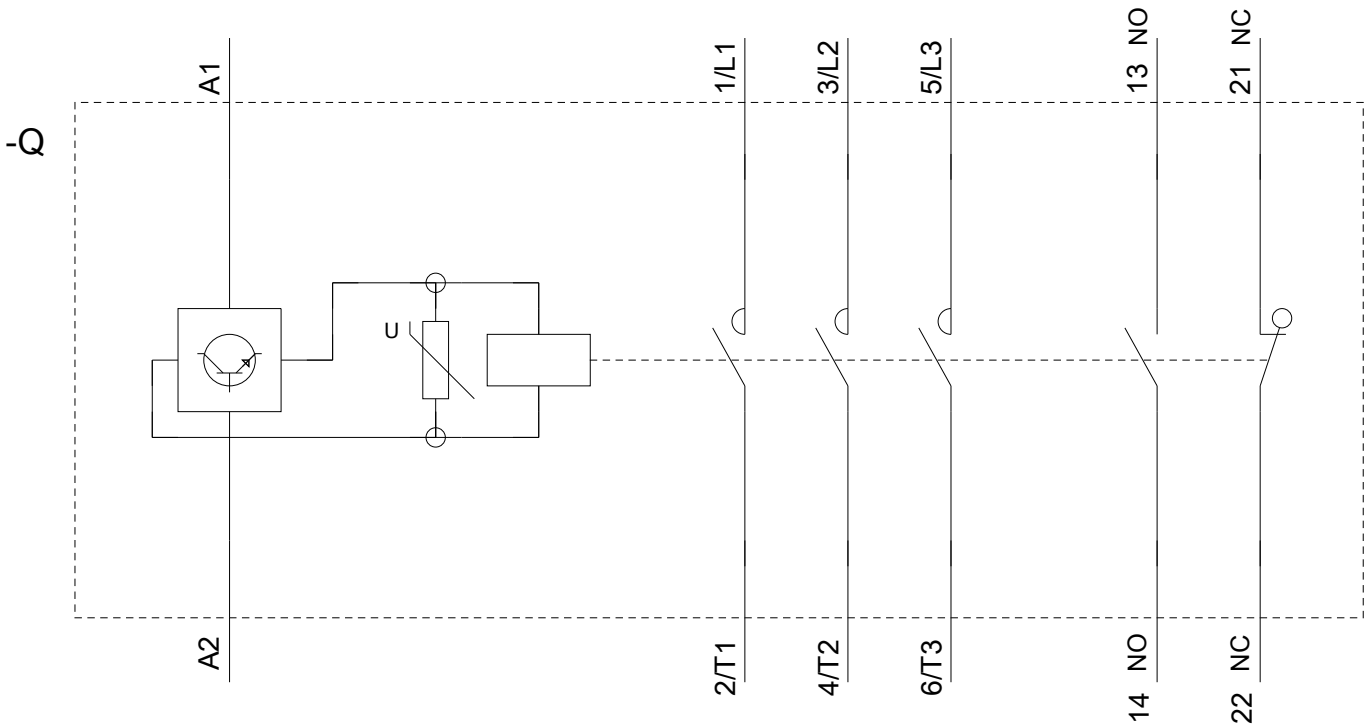
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2025-2NP30&objecttype=14&gridview=view1











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