SIEMENS

Data sheet 3RT2025-1AN20



power contactor, AC-3e/AC-3, 17 A, 7.5 kW / 400 V, 3-pole, 220 V AC, 50/60 Hz, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

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	1.8 W
at AC in hot operating state per pole	0.6 W
without load current share typical	2 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 protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	7,5g / 5 ms, 4,7g / 10 ms
shock resistance with sine pulse	
• at AC	11,8g / 5 ms, 7,4g / 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)	10/01/2009
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

3
690 V
690 V
40 A
40 A
35 A
17 A
17 A
13 A
17 A
17 A
13 A
15.5 A
35.2 A
14.1 A
11.4 A
11.4 A
11.4 A
11.3 A
7.6 A
7.6 A
7.6 A
7.6 A
10 mm²
7.7 A
7.7 A
35 A
20 A
20 A 4.5 A
4.5 A
4.5 A 1 A 0.4 A
4.5 A 1 A
4.5 A 1 A 0.4 A 0.25 A
4.5 A 1 A 0.4 A 0.25 A
4.5 A 1 A 0.4 A 0.25 A 35 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A 35 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A 5 A 1 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A 35 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A 5 A 1 A 0.8 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 35 A 5 A 1 A 0.8 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 36 A 37 A 38
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 36 A 5 A 1 A 0.8 A 35 A 35 A 35 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 36 A 1 A 0.8 A 35 A 35 A 35 A 35 A 35 A
4.5 A 1 A 0.4 A 0.25 A 35 A 35 A 36 A 5 A 1 A 0.8 A 35 A 35 A 35 A

at OA V asta d walks	00.4
— at 24 V rated value	20 A
— at 60 V rated value	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 60 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 60 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
• at AC-3e	
— 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 power at AC-6a	
 up to 230 V for current peak value n=20 rated value 	4.5 kVA
 up to 400 V for current peak value n=20 rated value 	7.8 kVA
 up to 500 V for current peak value n=20 rated value 	9.9 kVA
up to 690 V for current peak value n=20 rated value	13.6 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	3 kVA
• up to 400 V for current peak value n=30 rated value	5.2 kVA
• up to 500 V for current peak value n=30 rated value	6.6 kVA
up to 690 V for current peak value n=30 rated value	9.1 kVA
short-time withstand current in cold operating state up to	
40 °C	205 A. Hear minimum areas or this area to A.O. 4 and J. H.
Iimited to 1 s switching at zero current maximum	225 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 5 s switching at zero current maximum	225 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 10 s switching at zero current maximum	189 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 30 s switching at zero current maximum	140 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 60 s switching at zero current maximum	115 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	7.00.40
• at AC	5 000 1/h
operating frequency	1000
• 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-3e maximum	1 000 1/h 1 000 1/h
at AC-3e maximumat AC-4 maximum	1 000 1/h
• at AC-3e maximum	1 000 1/h 1 000 1/h

control supply voltage at AC	
• at 50 Hz rated value	220 V
at 60 Hz rated value	220 V
operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.8 1.1
• at 60 Hz	0.85 1.1
apparent pick-up power of magnet coil at AC	
● at 50 Hz	68 VA
• at 60 Hz	67 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.72
• at 60 Hz	0.74
apparent holding power of magnet coil at AC	
• at 50 Hz	7.9 VA
• at 60 Hz	6.5 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.25
• at 60 Hz	0.28
closing delay	
• at AC	8 40 ms
opening delay	
• at AC	4 16 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
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	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 3-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		
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715		
• side-by-side mounting	Yes		
height	85 mm		
width	45 mm		
depth	97 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	screw-type terminals		
 for auxiliary and control circuit 	screw-type terminals		
 at contactor for auxiliary contacts 	Screw-type terminals		
of magnet coil	Screw-type terminals		
type of connectable conductor cross-sections for main contacts			
• solid	2x (1 2.5 mm²), 2x (2.5 10 mm²)		
solid or stranded	2x (1 2.5 mm²), 2x (2.5 10 mm²)		
finely stranded with core end processing	2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²		
connectable conductor cross-section for main contacts	4 40 mm²		
• solid	1 10 mm²		
stranded finally stranded with core and processing.	1 10 mm²		
finely stranded with core end processing connectable conductor cross-section for auxiliary contacts	1 10 mm²		
connectable conductor cross-section for auxiliary contacts • solid or stranded	0.5 2.5 mm²		
solid of stranded finely stranded with core end processing	0.5 2.5 mm ²		
type of connectable conductor cross-sections	V.O 2.0 IIIIII		
for auxiliary contacts			
solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
Solid of stranded finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
for AWG cables for auxiliary contacts	2x (0.5 1.5 Hilli-), 2x (0.75 2.5 Hilli-) 2x (20 16), 2x (18 14)		
AWG number as coded connectable conductor cross section	LA (20 10); 2A (10 17)		
• for main contacts	16 8		

• for auxiliary contacts	20 14
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	Yes
suitability for use safety-related switching OFF	Yes
B10 value with high demand rate according to SN 31920	450 000
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 a
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

Certificates/ approvals

General Product Approval





Confirmation



<u>KC</u>



EMC Sa	Functional Safety/Safety of Ma- chinery	Declaration of Conformity	Test Certificates
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Type Examination Certificate





Special Test Certificate

Type Test Certificates/Test Report

Marine / Shipping













other	Railway	Environment
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Confirmation



Confirmation

Vibration and Shock

Environmental Confirmations

Further information

Siemens has decided to exit the Russian market (see here).

https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT2025-1AN20

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2025-1AN20

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

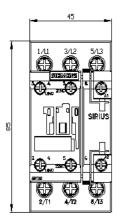
https://support.industry.siemens.com/cs/ww/en/ps/3RT2025-1AN20

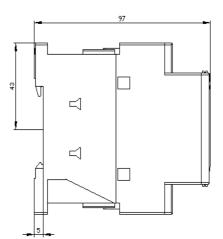
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

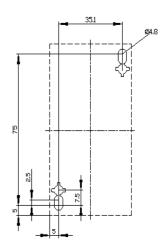
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2025-1AN20&lang=en

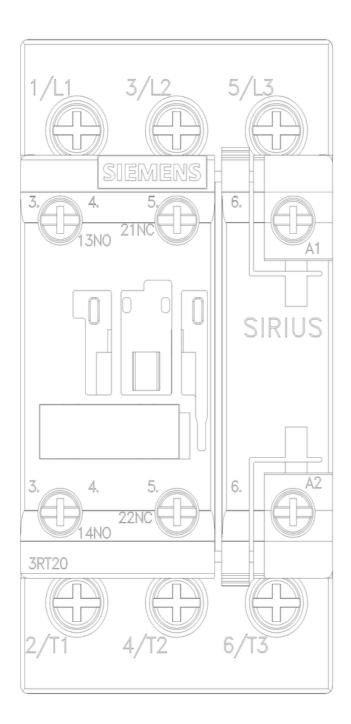
Characteristic: Tripping characteristics, I²t, Let-through current

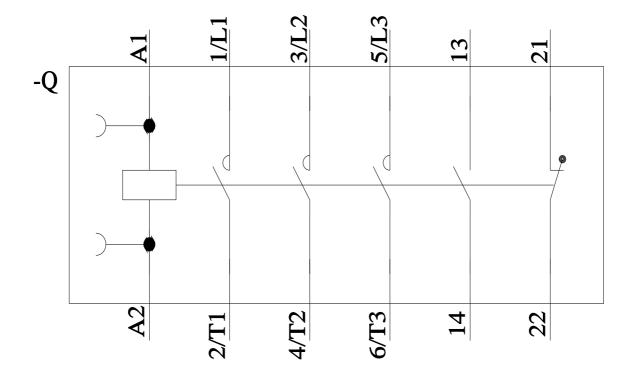
https://support.industry.siemens.com/cs/ww/en/ps/3RT2025-1AN20/char Further characteristics (e.g. electrical endurance, switching frequency)











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