## **SIEMENS**

## Data sheet

## 3RT2024-1AU20

power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NO + 1 NC, 380 V AC 50 / 60 Hz, 3-pole Size S0, screw terminal



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

General technical data	
size of contactor	SO
product extension	
<ul> <li>function module for communication</li> </ul>	No
<ul> <li>auxiliary switch</li> </ul>	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	1.5 W
• at AC in hot operating state per pole	0.5 W
power loss [W] for rated value of the current without	7.9 W
load current share typical	
surge voltage resistance	
<ul> <li>of main circuit rated value</li> </ul>	6 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>	400 V
60947-1	

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			
shock resistance with sine pulse				
• at AC	11,8g / 5 ms, 7,4g / 10 ms			
mechanical service life (switching cycles)				
<ul> <li>of contactor typical</li> </ul>	10 000 000			
<ul> <li>of the contactor with added electronics-</li> </ul>	5 000 000			
compatible auxiliary switch block typical				
• of the contactor with added auxiliary switch	10 000 000			
block typical				
reference code acc. to DIN EN 81346-2	Q			
Ambient conditions				
<ul> <li>installation altitude at height above sea level</li> </ul>	2 000 m			
maximum				
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				
<ul> <li>at AC-3 rated value maximum</li> </ul>	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	12 A			
— at 500 V rated value	12 A			
— at 690 V rated value	9 A			
• at AC-4 at 400 V rated value	12.5 A			
• at AC-5a up to 690 V rated value	35.2 A			
• at AC-5b up to 400 V rated value	9.9 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	11.4 A
rated value	
— up to 500 V for current peak value n=20 rated value	11.3 A
— up to 690 V for current peak value n=20 rated value	9 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	
<ul> <li>at 400 V rated value</li> </ul>	5.5 A
• at 690 V rated value	5.5 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
<ul> <li>with 2 current paths in series at DC-1</li> </ul>	
— 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
<ul> <li>with 3 current paths in series at DC-1</li> </ul>	
— 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
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— 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
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— 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-2 at 400 V rated value	5.5 kW
• at AC-3	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	7.5 kW
operating power for approx. 200000 operating cycles	
at AC-4	
• at 400 V rated value	2.6 kW
• at 690 V rated value	4.6 kW
operating apparent output at AC-6a	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	4.5 kV·A
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	7.8 kV·A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	9.8 kV·A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	10.7 kV·A
operating apparent output at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	3 kV·A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	5.2 kV·A

<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	6.5 kV·A				
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	9 kV·A				
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>	210 A; Use minimum cross-section acc. to AC-1 rated value				
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	210 A; Use minimum cross-section acc. to AC-1 rated value				
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	162 A; Use minimum cross-section acc. to AC-1 rated value				
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	103 A; Use minimum cross-section acc. to AC-1 rated value				
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	88 A; Use minimum cross-section acc. to AC-1 rated value				
no-load switching frequency					
• at AC	5 000 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				
control supply voltage at AC					
• at 50 Hz rated value	380 V				
• at 60 Hz rated value	380 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 V·A				
• at 60 Hz	67 V·A				
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 V·A				
● at 60 Hz	6.5 V·A				
inductive power factor with the holding power of the					
coil					

• at 50 Hz	0.25
• at 60 Hz	0.28
closing delay	
● at AC	9 38 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	
<ul> <li>instantaneous contact</li> </ul>	1
number of NO contacts for auxiliary contacts	
<ul> <li>instantaneous contact</li> </ul>	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	11 A

• at 600 V rated value

yielded mechanical performance [hp]

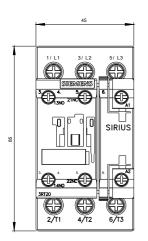
11 A

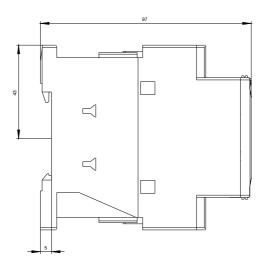
<ul> <li>for single-phase AC motor</li> </ul>					
— at 110/120 V rated value	1 hp				
— at 230 V rated value	2 hp				
<ul> <li>for three-phase AC motor</li> </ul>					
— at 200/208 V rated value	3 hp				
— at 220/230 V rated value	3 hp				
— at 460/480 V rated value	7.5 hp				
— at 575/600 V rated value	10 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>					
— 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)				
<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				
<ul> <li>side-by-side mounting</li> </ul>	Yes				
height	85 mm				
width	45 mm				
depth	97 mm				
required spacing					
<ul> <li>with side-by-side mounting</li> </ul>					
— forwards	10 mm				
— upwards	10 mm				
— downwards	10 mm				
— at the side	0 mm				
<ul> <li>for grounded parts</li> </ul>					
— forwards	10 mm				
— upwards	10 mm				
— at the side	6 mm				
— downwards	10 mm				
• for live parts					
— forwards	10 mm				
— upwards	10 mm				

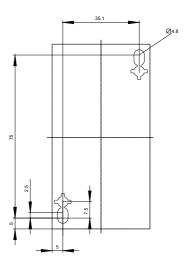
	40			
— downwards	10 mm 6 mm			
— at the side	o min			
Connections/ Terminals				
type of electrical connection				
<ul> <li>for main current circuit</li> </ul>	screw-type terminals			
<ul> <li>for auxiliary and control current circuit</li> </ul>	screw-type terminals			
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Screw-type terminals			
• of magnet coil	Screw-type terminals			
type of connectable conductor cross-sections				
<ul> <li>for main contacts</li> </ul>				
— solid	2x (1 2.5 mm²), 2x (2.5 10 mm²)			
— single or multi-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			
<ul> <li>at AWG conductors for main contacts</li> </ul>	2x (16 12), 2x (14 8)			
connectable conductor cross-section for main				
contacts				
• solid	1 10 mm²			
• stranded	1 10 mm²			
<ul> <li>finely stranded with core end processing</li> </ul>	1 10 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			
<ul> <li>type of connectable conductor cross-sections for auxiliary contacts</li> </ul>				
— single or multi-stranded	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>type of connectable conductor cross-sections 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	16 8			
<ul> <li>for auxiliary contacts</li> </ul>	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				
<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				

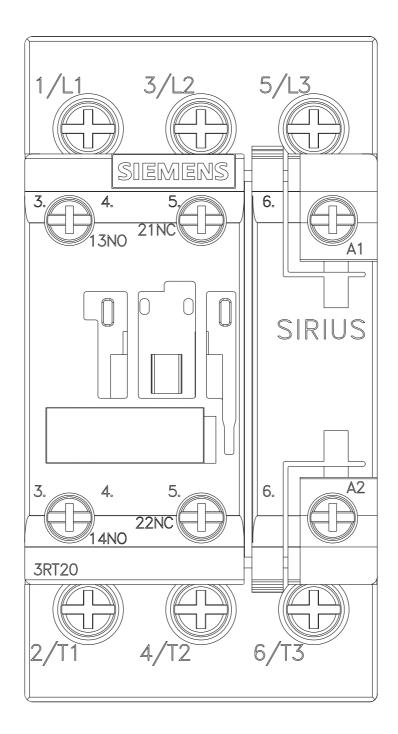
	acc. to IEC 60947-4-		Yes			
T1 value for proof tes IEC 61508	st interval or service l	life acc. to	20 y			
protection against ele	protection against electrical shock		finge	er-safe		
suitability for use safe	suitability for use safety-related switching OFF		Yes			
Certificates/ approva	als					
General Product	Approval					EMC
CCC	CSA			<u>KC</u>	EHE	RCM
Functional Safety/Safety of Machinery	Declaration of Co	onformity		Test Certificates	3	Marine / Ship- ping
Type Examination Certificate	EG-Konf.	Miscellaneo	bus	Type Test Certific- ates/Test Report	Special Test Certi- ficate	ABS
Marine / Shippin	g					other
BUREAU VERITAS	Lloyd's Kegister LRS	RINA		RMRS	DNV-GL	Confirmation
other						
VDE						
Further information	Further information Information- and Downloadcenter (Catalogs, Brochures,)					
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http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-1AU20 Service&Support (Manuals, Certificates, Characteristics, FAQs,)						
https://support.industry.	https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1AU20 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2024-1AU20⟨=en					
Characteristic: Trippi	ng characteristics, I <sup>2</sup>	t, Let-through o	current			
https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1AU20/char						

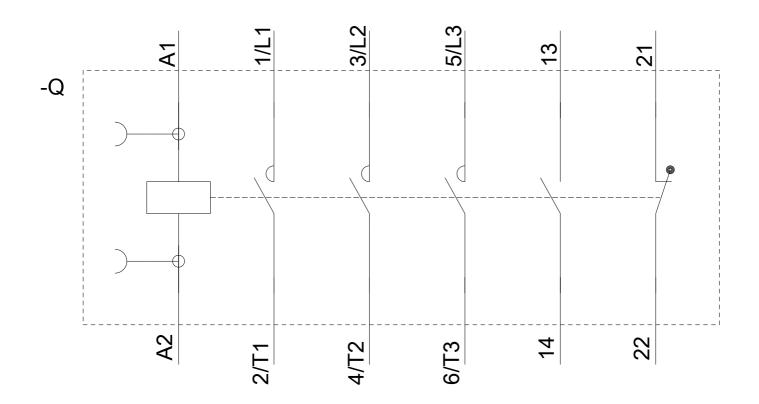
Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-1AU20&objecttype=14&gridview=view1











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