SIEMENS

Data sheet 3RT2024-1NF30



power contactor, AC-3e/AC-3, 12 A, $5.5\,kW$ / 400 V, 3-pole, 95-130 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

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 	0.9 W
 at AC in hot operating state per pole 	0.3 W
 without load current share typical 	1.3 W
type of calculation of power loss depending on pole	quadratic
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
• 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 (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
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
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

10 % 95 %
Yes
59.7 kg
3.7 kg
56.6 kg
-0.626 kg
3
3
690 V
690 V
40 A
40 A
35 A
12 A
12 A
9 A
12 A
12 A
9 A
12.5 A
35.2 A
9.9 A
11.4 A
11.4 A
11.3 A
9 A
7.6 A
7.6 A
7.6 A
7.6 A
10 mm²
5.5 A
5.5 A
35 A
20 A
4.5 A
1A
0.4 A
0.25 A
35 A
35 A
35 A

1000.1/	
— at 220 V rated value	5 A
— at 440 V rated value	1A
— 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 60 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
at 1 current path at DC-3 at DC-5	00 A
— at 24 V rated value	20 A
— at 60 V rated value	5 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	25 /
— at 24 v rated value — at 60 V rated value	35 A
	35 A 15 A
— at 110 V rated value— 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	0.10 A
— 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	0.0 A
• 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
• at AC-3e	
— 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 power at AC-6a	4.5.17/4
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	9.8 kVA
• up to 690 V for current peak value n=20 rated value	10.7 kVA
operating apparent power at AC-6a	2 1// /
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 up to 600 V for current peak value n=20 rated value.	6.5 kVA
up to 690 V for current peak value n=30 rated value short time withstand current in cold operating state up to	9 kVA
short-time withstand current in cold operating state up to 40 °C	
 limited to 1 s switching at zero current maximum 	210 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 5 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	170 A; Use minimum cross-section acc. to AC-1 rated value

a limited to 20 a quitable of and are are	126 At Llee minimum erece ecotion and to AC 4 anti-discharge
limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum	126 A; Use minimum cross-section acc. to AC-1 rated value 105 A; Use minimum cross-section acc. to AC-1 rated value
limited to 60 s switching at zero current maximum no-load switching frequency	100 A, USE HIIIIIIIIII GIUSS-SECIION ACC. IU ACC-1 Tateu Value
at AC	1 500 1/h
• at DC	1 500 1/h
operating frequency	1 000 1111
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
• 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	95 130 V
at 60 Hz rated value	95 130 V
control supply voltage at DC rated value	
•	95 130 V
operating range factor control supply voltage rated value of	
magnet coil at DC	
initial value	0.7
• full-scale value	1.3
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.7 1.3
• at 60 Hz	0.7 1.3
design of the surge suppressor	with varistor
inrush current peak	15 A
duration of inrush current peak	30 µs
locked-rotor current mean value	0.13 A
locked-rotor current peak	0.19 A
duration of locked-rotor current	180 ms
holding current mean value	19 mA
apparent pick-up power of magnet coil at AC	
● at 50 Hz	11.9 VA
• at 60 Hz	12 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.98
• at 60 Hz	0.98
apparent holding power	
 at minimum rated control supply voltage at DC 	1.3 VA
at maximum rated control supply voltage at DC	1.3 VA
apparent holding power	
 at minimum rated control supply voltage at AC 	
— at 50 Hz	1.6 VA
— at 60 Hz	1.8 VA
 at maximum rated control supply voltage at AC 	
— at 50 Hz	1.6 VA
— at 60 Hz	1.8 VA
apparent holding power of magnet coil at AC	
• at 50 Hz	1.6 VA
• at 60 Hz	1.8 VA
inductive power factor with the holding power of the coil	0.70
• at 50 Hz	0.79
• at 60 Hz	0.74
closing power of magnet coil at DC	10.2 W
holding power of magnet coil at DC	1.3 W
closing delay	F0 90 mg
• at AC	50 80 ms
• at DC	50 80 ms
opening delay	

• at AC	30 50 ms
• at DC	30 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
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 UL/CSA ratings	1 faulty switching per 100 million (17 V, 1 mA)
full-load current (FLA) for 3-phase AC motor • at 480 ∨ rated value	11 A
at 400 V rated value at 600 V rated value	11 A
yielded mechanical performance [hp]	IIA
• for single-phase AC motor	
— at 110/120 V rated value	1 hp
— at 230 V rated value	2 hp
• for 3-phase AC motor	
— 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	
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
height	85 mm
width	45 mm
depth	107 mm
required spacing	
with side-by-side mounting	

- Forwards		40
- downwards - at the side	— forwards	10 mm
at the side - for grounded parts - forwards - upwards - at the side - downwards 10 mm - downwards 10 mm - forwards - to twe parts - forwards - upwards - downwards 10 mm - downwards - at the side - downwards - at the side - an incompart of tout - for auxiliary and control circuit - is not auxiliary controls - for main contacts - of majoret coil - solid or stranded - finely stranded with core and processing - incomparts and control coress-section for main contacts - connectable conductor cross-section for main contacts - incomparts and control contro	— upwards	10 mm
- Forgrounded parts - Convexids - Lywards - Lywards - Convexids - Convexida -	— downwards	10 mm
flowards 10 mm	— at the side	0 mm
- upwards - at the side - downwards - forms -	for grounded parts	
of the side downwards 10 mm	— forwards	10 mm
• for live parts - forwards - upwards - upwards - downwards - downwards - downwards - downwards - at the side - for man current circuit - for auxiliary and control circuit - of auxiliary contacts - solid - of connectable conductor cross-sections - of main contacts - solid - solid or stranded - solid or stranded - finely stranded with core and processing - of AVMC cables for main contacts - solid - stranded - finely stranded with core end processing - solid or	— upwards	10 mm
- for live parts - forwards - upwards - upwards - downwards - at the side - at the side - forman current circuit - for auxiliary and control circuit - of main current circuit - of main contacts - of majnet coil - solid - solid or stranded - solid or stranded - freely standed with core end processing - freely stranded with core end processing - inference stranded - finely stranded with core end processing - inference stranded - finely stranded with core end processing - inference stranded - in	— at the side	6 mm
Forwards Unwards	— downwards	10 mm
- upwards	• for live parts	
	— forwards	10 mm
Connections/ Terminuls Pype of electrical connection • for main current circuit • at contactor for auxiliary contacts • at contactor for auxiliary contacts • for main contacts • for main contacts • for main contacts • for main contacts • solid — solid or stranded — solid or stranded with core end processing • for MVC acties for main contacts • solid • stranded inflex stranded infle	— upwards	10 mm
Somewhype terminals Type of electrical connection For main current circuit For auxiliary and control circuit For auxiliary and conductor cross-sections For amin contacts For amin contacts For AWG cables for main contacts For AWG cables for main contacts For AWG cables for main contacts For auxiliary stranded with core end processing For auxiliary stranded with core end processing For auxiliary stranded with core end processing For auxiliary contacts For auxiliary contacts For auxiliary contacts For auxiliary contacts For AWG cables for auxiliary contacts For auxiliary contacts For AWG cables for auxiliary contacts For a	— downwards	10 mm
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type of electrical connection • for main current circuit • at contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for main contacts • solid — solid contacts — solid — solid contacts — for AWG cables for main contacts • solid • stranded • for AWG cables for main contacts • solid • stranded • for awain contacts • solid • stranded • for awain conductor cross-section for main contacts • solid • stranded • for AWG cables for main contacts • solid • stranded • finely stranded with core end processing • for fawain conductor cross-section for main contacts • solid • stranded • finely stranded with core end processing • for stranded • finely stranded with core end processing • for stranded • finely stranded with core end processing • for solid or stranded • finely stranded with core end processing • for solid or stranded • finely stranded with core end processing • for solid or stranded • finely stranded with core end processing • for solid or stranded • finely stranded with core end processing • for for main contacts • for suikiliary contacts • solid or stranded • for owaitiliary contacts • for suikiliary contacts • for main contacts • for suikiliary contacts		
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solid or stranded		
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• for auxiliary contacts — solid or stranded — finely stranded with core end processing • for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 16 8 • for auxiliary contacts • for main contacts • for auxiliary contacts Safety related data product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • suitable for safety function • suitable for safety function • suitable for safety-related switching OFF yes service life maximum 20 a test wear-related service life necessary yes proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 • with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508	finely stranded with core end processing	0.5 2.5 mm²
solid or stranded finely stranded with core end processing finely stranded with core end processing finely stranded with core end processing for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts for auxiliary contacts for	type of connectable conductor cross-sections	
- finely stranded with core end processing • for AWG cables for auxiliary contacts 2x (20 15, mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14) AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts • for auxiliary contacts 20 14 Safety related data product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • positively driven operation according to FYes suitable for safety function suitablility for use safety-related switching OFF yes service life maximum 20 a test wear-related service life necessary proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 1000 000 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508	 for auxiliary contacts 	
for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts for auxiliary contacts for auxiliary c	— solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 14 Safety related data product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • suitable for safety function • suitablity for use safety-related switching OFF yes service life maximum 20 a test wear-related service life necessary yes proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 100 000 B10 value with high demand rate according to SN 31920 Failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508	 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
• for main contacts • for auxiliary contacts 20 14 Safety related data product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • suitablify for use safety-related switching OFF service life maximum 20 a test wear-related service life necessary Proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 • with high demand rate according to SN 31920 1 000 000 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508	 for AWG cables for auxiliary contacts 	2x (20 16), 2x (18 14)
• for auxiliary contacts Safety related data product function • mirror contact according to IEC 60947-4-1 • positively driven operation according to IEC 60947-5-1 • suitable for safety function suitability for use safety-related switching OFF service life maximum 20 a test wear-related service life necessary proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 • with high demand rate according to SN 31920 1000 000 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508		
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positively driven operation according to IEC 60947-5-1 suitable for safety function suitability for use safety-related switching OFF yes service life maximum 20 a test wear-related service life necessary yes proportion of dangerous failures with low demand rate according to SN 31920 with high demand rate according to SN 31920 with high demand rate according to SN 31920 1000 000 B10 value with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508	•	Yes
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test wear-related service life necessary proportion of dangerous failures • with low demand rate according to SN 31920 • with high demand rate according to SN 31920 B10 value with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508		
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 with low demand rate according to SN 31920 with high demand rate according to SN 31920 B10 value with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 31920 ISO 13849 device type according to ISO 13849-1 overdimensioning according to ISO 13849-2 necessary IEC 61508 with low demand rate according to SN 31920 1 000 000 100 FIT 3 overdimensioning according to ISO 13849-2 necessary IEC 61508 		
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device type according to ISO 13849-1 3 overdimensioning according to ISO 13849-2 necessary IEC 61508 3 Yes	31920	
overdimensioning according to ISO 13849-2 necessary IEC 61508 Yes		2
IEC 61508		
		res
sarety device type according to IEC 61508-2		Turk
	sarety device type according to IEC 61508-2	туре А

T1 value 20 a • for proof test interval or service life according to IEC 61508 **Electrical Safety** IP20 protection class IP on the front according to IEC 60529 touch protection on the front according to IEC 60529 finger-safe, for vertical contact from the front

Approvals Certificates

General Product Approval







Confirmation



<u>KC</u>

General Product Approval

EMV

Functional Saftey

Test Certificates





Type Examination Certificate

Special Test Certificate

Type Test Certificates/Test Report

Miscellaneous

Marine / Shipping









Miscellaneous

other

Confirmation

Railway other

Dangerous Good

Environment

Confirmation

Special Test Certific-<u>ate</u>

Transport Information



Environmental Confirmations

Further information

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=3RT2024-1NF30

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-1NF30

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1NF30

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

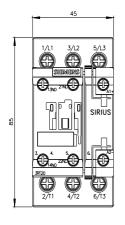
de.aspx?mlfb=3RT2024-1NF30&lang=en

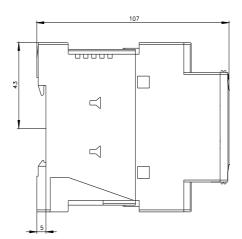
Characteristic: Tripping characteristics, I2t, Let-through current

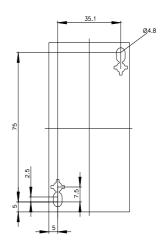
https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1NF30/char

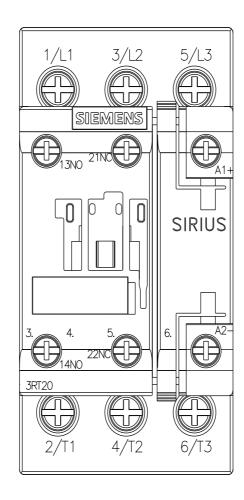
Further characteristics (e.g. electrical endurance, switching frequency)

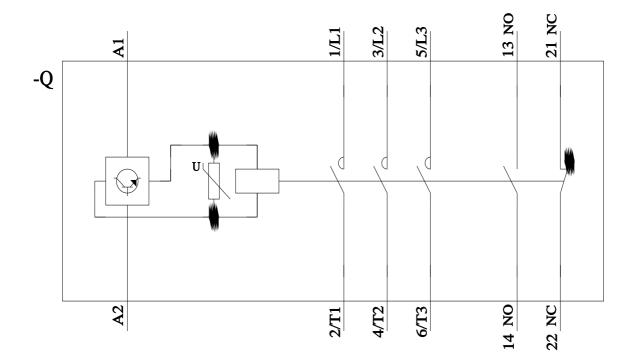
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-1NF30&objecttype=14&gridview=view1











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