SIEMENS

Data sheet

3RT2028-1BF40-0JA0



power contactor, AC-3e/AC-3, 38 A, 18.5 kW / 400 V, 3-pole, 110 V DC, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0, India 40 A, Tu max. 50 $^{\circ}$ C

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 	9.6 W
 at AC in hot operating state per pole 	3.2 W
 without load current share typical 	5.9 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 DC	10g / 5 ms, 7,5g / 10 ms
shock resistance with sine pulse	
• 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
Weight	0.602 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
 during operation 	-25 +50 °C
during storage	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %

ain 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
 at AC-3e rated value maximum 	690 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	50 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	50 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	42 A
• at AC-3	
— at 400 V rated value	38 A
— at 500 V rated value	32 A
— at 690 V rated value	21 A
• at AC-3e	
— at 400 V rated value	38 A
— at 500 V rated value	32 A
— at 690 V rated value	21 A
• at AC-4 at 400 V rated value	22 A
• at AC-5a up to 690 V rated value	44 A
• at AC-5b up to 400 V rated value	31.5 A
• at AC-6a	
 up to 230 V for current peak value n=20 rated value 	30.8 A
— up to 400 V for current peak value n=20 rated value	30.8 A
— up to 500 V for current peak value n=20 rated value	30.8 A
 up to 690 V for current peak value n=20 rated value 	21 A
• at AC-6a	
 up to 230 V for current peak value n=30 rated value 	20.5 A
— up to 400 V for current peak value n=30 rated value	20.5 A
— up to 500 V for current peak value n=30 rated value	21.4 A
 up to 690 V for current peak value n=30 rated value 	21 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	12 A
at 690 V rated value	12 A
operational current	
at 1 current path at DC-1	
— at 24 V rated value	35 A
— at 60 V rated value	20 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 60 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 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 600 V rated value	13.0
		20. A
	— at 110 V rated value	
	— at 220 V rated value	1 A
- with 2 current paths in series at DC-3 at DC-5 - at 24 V rated value - at 10 V rated value - at 10 V rated value - at 440 V rated value - at 440 V rated value - at 440 V rated value - at 50 V rated value - at 60 V rat	— at 440 V rated value	0.09 A
= 14 AV rated value	— 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
a		
with 3 current paths in series at DC-3 at DC-5		
		0.10 A
	•	0F A
at 220 V rated value		
Departing power Section Sectio	— at 220 V rated value	10 A
Section Sect	— at 440 V rated value	0.6 A
	— at 600 V rated value	0.6 A
	operating power	
- at 230 V rated value	at AC-2 at 400 V rated value	18.5 kW
- at 400 V rated value	• at AC-3	
- at 500 V rated value - at 690 V rated value - at 230 V rated value - at 230 V rated value - at 400 V rated value - at 500 V rated value - at 690 V rated value - at 500 V rated value - at 690 V rated value - at 400 V rated value - at 400 V rated value - at 690 V rated value - at 690 V rated value - at 400 V rated value - at 690 V rated value	— at 230 V rated value	11 kW
- at 500 V rated value - at 690 V rated value - at 230 V rated value - at 230 V rated value - at 400 V rated value - at 500 V rated value - at 690 V rated value - at 500 V rated value - at 690 V rated value - at 400 V rated value - at 400 V rated value - at 690 V rated value - at 690 V rated value - at 400 V rated value - at 690 V rated value		
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at AC-3e — at 230 V rated value — at 400 V rated value — at 690 V rated value — at 400 V rated value — at 690 V rated value — at 600 V r		
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 up to 500 V for current peak value n=30 rated value up to 690 V for current peak value n=30 rated value short-time withstand current in cold operating state up to 40 °C limited to 1 s switching at zero current maximum limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching frequency at DC 1 500 1/h operating frequency at AC-1 maximum at AC-2 maximum 750 1/h 	 up to 230 V for current peak value n=30 rated value 	8.1 kVA
 up to 690 V for current peak value n=30 rated value short-time withstand current in cold operating state up to 40 °C limited to 1 s switching at zero current maximum limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 10 s	 up to 400 V for current peak value n=30 rated value 	14.2 kVA
short-time withstand current in cold operating state up to 40 °C • limited to 1 s switching at zero current maximum • limited to 5 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum • limited to 60 s switching at zero current maximum 199 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value 163 A; Use minimum cross-section acc. to AC-1 rated value 164 A; Use minimum cross-section acc. to AC-1 rated value 165 A; Use minimum cross-section acc. to AC-1 rated value 166 A; Use minimum cross-section acc. to AC-1 rated value	 up to 500 V for current peak value n=30 rated value 	18.5 kVA
Ilimited to 1 s switching at zero current maximum Ilimited to 5 s switching at zero current maximum Ilimited to 10 s switching at zero current maximum Ilimited to 10 s switching at zero current maximum Ilimited to 30 s switching at zero current maximum Ilimited to 60 s switching at zero current maximum Ilimited	 up to 690 V for current peak value n=30 rated value 	25 kVA
 limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 40-1 rated value limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 40-1 rated value <l< td=""><td></td><td></td></l<>		
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 limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum limited to 60 s switching at zero current maximum 199 A; Use minimum cross-section acc. to AC-1 rated value 162 A; Use minimum cross-section acc. to AC-1 rated value no-load switching frequency at DC 1 500 1/h operating frequency at AC-1 maximum 1 000 1/h 750 1/h 		
 limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum 162 A; Use minimum cross-section acc. to AC-1 rated value no-load switching frequency at DC 1 500 1/h operating frequency at AC-1 maximum at AC-2 maximum 1 000 1/h 750 1/h 		
 limited to 60 s switching at zero current maximum no-load switching frequency at DC 1 500 1/h operating frequency at AC-1 maximum at AC-2 maximum 750 1/h 	-	
no-load switching frequency • at DC 1 500 1/h operating frequency • at AC-1 maximum • at AC-2 maximum 750 1/h	-	
● at DC 1 500 1/h operating frequency ● at AC-1 maximum 1 000 1/h ● at AC-2 maximum 750 1/h		1027, 000 minimum orous social acceptation to No-1 fated value
operating frequency		1 500 1/h
• at AC-1 maximum • at AC-2 maximum 750 1/h		1 500 1/11
• at AC-2 maximum 750 1/h		1,000,4/b
• at AC-3 maximum 750 1/h		
	• at AC-3 maximum	/50 1/1

at AC-3e maximum	750 1/h
at AC-3e maximum at AC-4 maximum	250 1/h
• at AC-4 maximum Control circuit/ Control	200 1/11
	20
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	110 V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8
full-scale value	1.1
closing power of magnet coil at DC	5.9 W
holding power of magnet coil at DC	5.9 W
closing delay	3.9 VV
• at DC	50 170 ms
	30 170 IIIS
opening delay	15 18 ms
• at DC	10 10 ms
arcing time	Standard A1 - A2
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 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	1A
at 600 V rated value	0.15 A
operational current at DC-13	6.1071
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	1A
at 110 V rated value at 125 V rated value	0.9 A
at 125 V rated value at 220 V rated value	0.9 A 0.3 A
	0.3 A 0.1 A
at 600 V rated value contact rollability of auxiliary contacts	
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	24.6
at 480 V rated value	34 A
• at 600 V rated value	27 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	3 hp
— at 230 V rated value	5 hp
• for 3-phase AC motor	
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	10 hp
— at 460/480 V rated value	25 hp
— at 575/600 V rated value	25 hp
contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
design of the miniature circuit breaker for short-circuit protection	C characteristic: 10 A; 0.4 kA
of the auxiliary circuit up to 230 V	

of the fuse link for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
stallation/ mounting/ dimensions	30. 10. 1 (1000 t), 1 10 t)
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
fastening method side-by-side mounting	Yes
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	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
onnections/ 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
for AWG cables for main contacts	2x (16 12), 2x (14 8)
connectable conductor cross-section for main contacts	
• solid	1 10 mm²
• stranded	1 10 mm²
finely stranded with core end processing	1 10 mm²
connectable conductor cross-section for auxiliary contacts	
solid or stranded	0.5 2.5 mm ²
finely stranded with core end processing	0.5 2.5 mm²
type of connectable conductor cross-sections	
for auxiliary contacts	
— solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
 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 (20 16), 2x (18 14)
AWG number as coded connectable conductor cross section	
for main contacts	16 8
for auxiliary contacts	20 14
afety related data	
product function	V
mirror contact according to IEC 60947-4-1	Yes
	No No
mirror contact according to IEC 60947-4-1	

test wear-related service life necessary	Yes
proportion of dangerous failures	
 with low demand rate according to SN 31920 	40 %
 with high demand rate according to SN 31920 	73 %
B10 value with high demand rate according to SN 31920	1 000 000
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
ISO 13849	
device type according to ISO 13849-1	3
overdimensioning according to ISO 13849-2 necessary	Yes
IEC 61508	
safety device type according to IEC 61508-2	Type A
Electrical Safety	
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
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)

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1BF40-0JA0

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BF40-0JA0

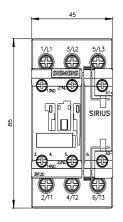
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-1BF40-0JA0&lang=en

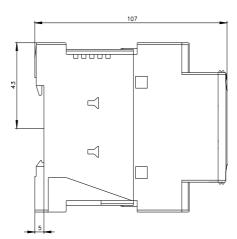
Characteristic: Tripping characteristics, I2t, Let-through current

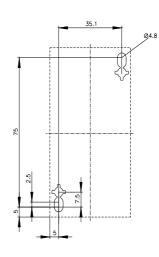
https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BF40-0JA0/char

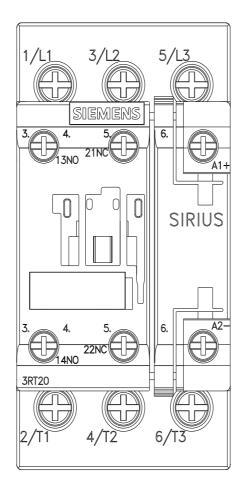
Further characteristics (e.g. electrical endurance, switching frequency)

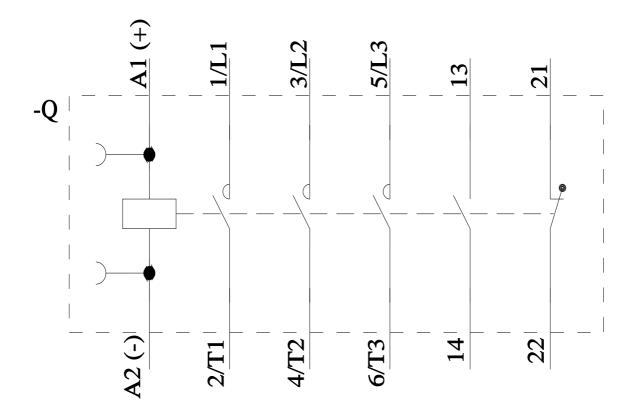
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1BF40-0JA0&objecttype=14&gridview=view1











last modified:

4/17/2025