## **SIEMENS**

Data sheet 3RT2028-1BP40



power contactor, AC-3e/AC-3, 38 A, 18.5 kW / 400 V, 3-pole, 230 V DC, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0  $\,$ 

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 • without load current share typical 5.9 W	
Size of contactor  product extension  function module for communication  auxiliary switch  power loss [W] for rated value of the current  at AC in hot operating state  at AC in hot operating state per pole  without load current share typical  5.9 W	
size of contactor  product extension  • function module for communication • auxiliary switch  power loss [W] for rated value of the current  • at AC in hot operating state • at AC in hot operating state per pole • without load current share typical  5.9 W	
product extension  • function module for communication  • auxiliary switch  Power loss [W] for rated value of the current  • at AC in hot operating state  • at AC in hot operating state per pole  • at AC in hot operating state per pole  • without load current share typical  5.9 W	
<ul> <li>function module for communication</li> <li>auxiliary switch</li> <li>yes</li> <li>power loss [W] for rated value of the current</li> <li>at AC in hot operating state</li> <li>at AC in hot operating state per pole</li> <li>without load current share typical</li> <li>5.9 W</li> </ul>	
<ul> <li>◆ auxiliary switch</li> <li>Power loss [W] for rated value of the current</li> <li>◆ at AC in hot operating state</li> <li>◆ at AC in hot operating state per pole</li> <li>◆ without load current share typical</li> </ul> 5.9 W	
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	
<ul> <li>at AC in hot operating state</li> <li>at AC in hot operating state per pole</li> <li>without load current share typical</li> </ul> 5.9 W	
<ul> <li>at AC in hot operating state per pole</li> <li>without load current share typical</li> <li>5.9 W</li> </ul>	
without load current share typical     5.9 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	
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	
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> <li>5 000 000</li> </ul>	
• 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 95 % maximum	
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
at AC-3e rated value maximum	690 V
operational current	
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated</li> </ul>	50 A
value	
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated	50 A
value	40. A
<ul> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul>	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	2170
— at 400 V rated value	38 A
— at 500 V rated value	32 A
	21 A
<ul><li>— at 690 V rated value</li><li>• at AC-4 at 400 V rated value</li></ul>	22 A
	44 A
at AC-5a up to 690 V rated value	
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	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	20.5 A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	20.5 A
<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	21.4 A
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	21 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm <sup>2</sup>
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	1A
— 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	05 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	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
<ul> <li>at 1 current path at DC-3 at DC-5</li> </ul>	

— 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
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— 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
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— 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-2 at 400 V rated value	18.5 kW
• at AC-3	
— at 230 V rated value	11 kW
— at 400 V rated value	18.5 kW
— at 500 V rated value	18.5 kW
— at 690 V rated value	18.5 kW
• at AC-3e	10.0 KW
— at 230 V rated value	11 kW
— at 400 V rated value	18.5 kW
— at 500 V rated value	18.5 kW
— at 690 V rated value	18.5 kW
operating power for approx. 200000 operating cycles at AC-	IU.J KVV
4	
• at 400 V rated value	6 kW
• at 690 V rated value	10.3 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	12.2 kVA
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	21.3 kVA
• up to 500 V for current peak value n=20 rated value	26.6 kVA
• up to 690 V for current peak value n=20 rated value	25 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	8.1 kVA
• up to 400 V for current peak value n=30 rated value	14.2 kVA
up to 500 V for current peak value n=30 rated value	18.5 kVA
• up to 690 V for current peak value n=30 rated value	25 kVA
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>	593 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	341 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	260 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	199 A; Use minimum cross-section acc. to AC-1 rated value
• 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	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
• at AC-3e maximum	750 1/h
• at AC-4 maximum	250 1/h

Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage at DC	
• rated value	230 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	
• at DC	50 170 ms
opening delay	
• at DC	15 18 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	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 fuse link	
<ul> <li>for short-circuit protection of the main circuit</li> </ul>	

<ul> <li>— with type of coordination 1 required</li> </ul>	gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA)
with type of assignment 2 required	gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (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	107 mm
required spacing	
with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
<ul><li>for grounded parts</li><li>— forwards</li></ul>	10 mm
— iorwards — upwards	10 mm
— upwards — 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)
<ul> <li>solid or stranded</li> </ul>	2x (1 2.5 mm²), 2x (2.5 10 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²
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 mm²
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
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	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 %

T1 value for proof test interval or service life according to IEC
61508

protection class IP on the front according to IEC 60529

touch protection on the front according to IEC 60529

suitability for use

• safety-related switching OFF

Yes

Certificates/ approvals

## **General Product Approval**



Confirmation





<u>KC</u>



Functional

EMC Safety/Safety of Machinery

Declaration of Conformity
Test Certificates



Type Examination Certificate





Type Test Certificates/Test Report

Special Test Certificate

## Marine / Shipping













other Railway Dangerous Good Environment

Confirmation



Vibration and Shock

**Transport Information** 

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=3RT2028-1BP40

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-1BP40

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BP40

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

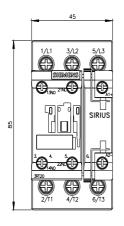
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2028-1BP40&lang=en

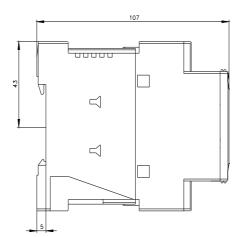
Characteristic: Tripping characteristics,  $I^2t$ , Let-through current

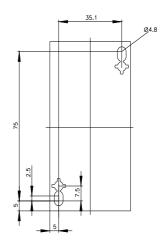
https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-1BP40/cha

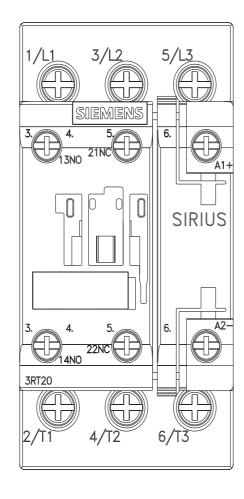
Further characteristics (e.g. electrical endurance, switching frequency)

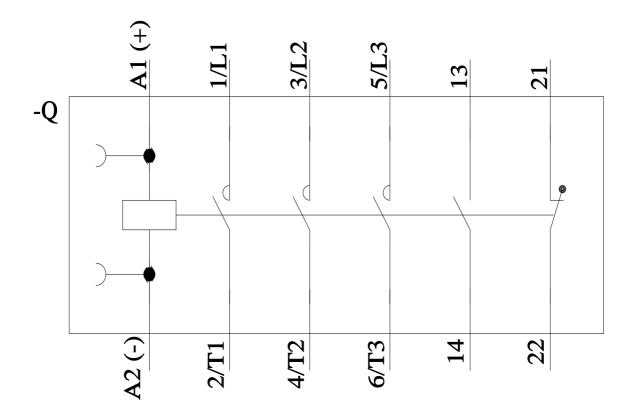
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2028-1BP40&objecttype=14&gridview=view1











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