## SIEMENS

## Data sheet

## 3RT2028-1AF00



power contactor, AC-3e/AC-3, 38 A, 18.5 kW / 400 V, 3-pole, 110 V AC, 50 Hz, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

6/13	
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
auxiliary switch	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	9.6 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	3.2 W
<ul> <li>without load current share typical</li> </ul>	2.5 W
type of calculation of power loss depending on pole	quadratic
insulation voltage	
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	690 V
<ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	690 V
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 protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	8,3g / 5 ms, 5,3g / 10 ms
shock resistance with sine pulse	
• at AC	13,5g / 5 ms, 8,3g / 10 ms
mechanical service life (operating cycles)	
<ul> <li>of contactor typical</li> </ul>	10 000 000
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2009
Weight	0.426 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
during operation	-25 +60 °C
<ul> <li>during storage</li> </ul>	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %

Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	74.2 kg
global warming potential [CO2 eq] during manufacturing	1.9 kg
global warming potential [CO2 eq] during operation	72.4 kg
global warming potential [CO2 eq] after end of life	-0.117 kg
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	
• 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 °C rated value	50 A
— up to 690 V at ambient temperature 60 °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	29.4
— at 400 V rated value	38 A 32 A
— at 500 V rated value — at 690 V rated value	21 A
at AC-4 at 400 V rated value	21 A 22 A
at AC-5a up to 690 V rated value	44 A
<ul> <li>at AC-5b up to 400 V rated value</li> </ul>	31.5 A
• at AC-6a	01.077
— 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
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	21 A
• at AC-6a	
<ul> <li>— up to 230 V for current peak value n=30 rated value</li> </ul>	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 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	
<ul> <li>at 1 current path at DC-1</li> </ul>	
— 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

	<ul> <li>with 3 current paths in series at DC-1</li> </ul>	
	-	35 A
<ul> <li>- al 400 Vraids value</li> <li>- al 600 Vraids value</li> <li>- al 20 Vraids value</li></ul>		
<ul> <li>- af 60 V rater value</li> <li>- af 61 V rater value</li> <li>- af 60 V rater value</li> <li>- a</li></ul>		
• at learned path all C-3 at DC-3- at 32V Yated value5 A- at 22V Yated value0.90 A- at 22V Yated value0.90 A- at 23V Yated value0.90 A- at 24V Yated value0.97 A- at 24V Yated value1.96 A- at 24V Yated value1.96 A- at 24V Yated value1.95 AW- at 24V Yat		
	-	20 A
- at 220 V rade value1 A- at 240 V rade value0.09 A- at 240 V rade value0.09 A- at 240 V rade value35 A- at 240 V rade value35 A- at 250 V rade value36 A- at 260 V rade value37 A- at 220 V rade value0.16 A- at 240 V rade value0.16 A- at 250 V rade value0.16 A- at 260 V rade value0.16 A- at 200 V rade value1.16 W- at 200 V rade value1.16 W </td <td></td> <td></td>		
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<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> <li>at 24 V rated value</li> <li>at 24 V rated value</li> <li>5A</li> <li>at 110 V rated value</li> <li>5A</li> <li>at 240 V rated value</li> <li>027 A</li> <li>at 240 V rated value</li> <li>05 A</li> <li>at 240 V rated value</li> <li>11 kW</li> <li>at 240 V rated value</li> <li>11 kW</li> <li>at 240 V rated value</li> <li>11 kW</li> <li>at 240 V rated value</li> <li>125 kW</li> <li>at 250 V rated value</li> <li>125 kW</li> <li>at 260 V rated value</li> <li>125 kW</li> <li>at 260 V rated value</li> <li>125 kW</li> <li>at 260 V rated value = 20 rated value</li> <li>135 kW</li> <li>at 260 V rated value = 20 rated value</li> <li>136 kW</li> <li>at 260 V rated value = 20 rated value</li> <li>130 kW</li> <li>at 260 V rated value = 20 rated value</li></ul>		
	-	35 A
	— at 60 V rated value	35 A
	— at 110 V rated value	15 A
	— at 220 V rated value	3 A
with 3 current paths in series at DC-3 at DC-5		
	— 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
operating powerat AC-3- at 230 V rated value11 kW- at 400 V rated value18.5 kW- at 500 V rated value18.5 kW- at 600 V rated value18.5 kW- at 230 V rated value18.5 kW- at 230 V rated value11 kW- at 400 V rated value18.5 kW- at 230 V rated value18.5 kW- at 600 V rated value10.5 kWoperating power for approx. 200000 operating cycles at AC-4• at 400 V rated value6 kW• at 400 V rated value10.3 kWoperating apparent power at AC-6a• up to 400 V for current peak value n=20 rated value26.6 kVA• up to 500 V for current peak value n=20 rated value26.6 kVA• up to 600 V for current peak value n=20 rated value25 kVAoperating apparent power at AC-6a8.1 kVA• up to 400 V for current peak value n=30 rated value8.1 kVA• up to 500 V for current peak value n=30 rated value25 kVAoperating apparent power at AC-6a8.1 kVA• up to 600 V for current peak value n=30 rated value25 kVAoperating apparent power at AC-6a8.1 kVA• up to 600 V for current peak value n=30 rated value25 kVAoperating apparent power at AC-6a8.1 kVA• up to 600 V for current peak value n=30 rated value14.2 kVA•	— at 440 V rated value	0.6 A
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• limited to 10 s switching at zero current maximum       260 A; Use minimum cross-section acc. to AC-1 rated value         • limited to 30 s switching at zero current maximum       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       162 A; Use minimum cross-section acc. to AC-1 rated value	<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
• limited to 30 s switching at zero current maximum       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       199 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
Imited to 60 s switching at zero current maximum     162 A; Use minimum cross-section acc. to AC-1 rated value     no-load switching frequency	<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
no-load switching frequency	<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
	<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	162 A; Use minimum cross-section acc. to AC-1 rated value
• at AC 5 000 1/h	no-load switching frequency	
	• at AC	5 000 1/h

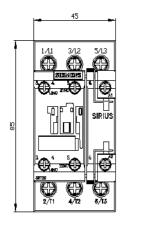
	-
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
• at AC-3e maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	250 1/11
	40
type of voltage of the control supply voltage	AC
control supply voltage at AC	
at 50 Hz rated value	110 V
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 1.1
	0.0 1.1
apparent pick-up power of magnet coil at AC	77.\/A
• at 50 Hz	77 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.82
apparent holding power of magnet coil at AC	
• at 50 Hz	9.8 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.25
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	1
contact	
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
<ul> <li>at 230 V rated value</li> </ul>	10 A
<ul> <li>at 400 V rated value</li> </ul>	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	1A
at 600 V rated value	0.15 A
operational current at DC-13	
• at 24 V rated value	10 A
at 24 V rated value     at 48 V rated value	2 A
at 40 V rated value     at 60 V rated value	2 A 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]	
<ul> <li>for single-phase AC motor</li> </ul>	

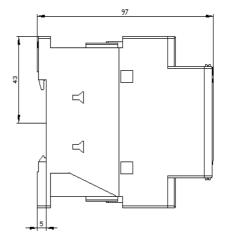
at 110/120 \/ rated value	2 hn
— at 110/120 V rated value	3 hp
— at 230 V rated value	5 hp
• for 3-phase AC motor	
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	10 hp
— at 460/480 V rated value	25 hp
— at 575/600 V rated value	25 hp
contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA
design of the fuse link	
<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 +/- $22.5^{\circ}$ 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	97 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> </ul>	
— 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	0 mm
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)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²
<ul> <li>for AWG cables 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>solid or stranded</li> </ul>	0.5 2.5 mm²
<ul> <li>finely stranded with core end processing</li> </ul>	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)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> )
<ul> <li>for AWG cables for auxiliary contacts</li> </ul>	2x (20 16), 2x (18 14)
•	

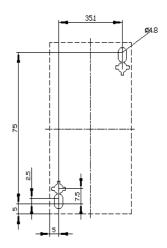
AWG number as code section	ed connectable conduct	or cross				
<ul> <li>for main contact</li> </ul>	s		16 8			
<ul> <li>for auxiliary con</li> </ul>			20 14			
Safety related data			20 11			
product function						
•	ccording to IEC 60947-4-	1	Yes			
	operation according to IE		No			
<ul> <li>suitable for safe</li> </ul>		00947-0-1	Yes			
	-		Yes			
service life maximum	y-related switching OFF		20 a			
			Yes			
test wear-related serv			res			
proportion of danger		020	40.0/			
	d rate according to SN 31		40 %			
	nd rate according to SN 3		73 %	0		
	demand rate according t		1 000 000	0		
31920	low demand rate accord	aing to SN	100 FIT			
ISO 13849						
device type accordin	g to ISO 13849-1		3			
overdimensioning ac	cording to ISO 13849-2	necessary	Yes			
IEC 61508						
safety device type ac	cording to IEC 61508-2		Type A			
Electrical Safety						
	n the front according to	IEC 60529	IP20			
-	the front according to IE		finger-sat	fe, for vertical contac	t from the front	
Approvals Certificates	÷		<u> </u>			
General Product App						
	CE EG-Konf.	UK CA		(ال س	KC	EAC
	CE EG-Konf.	UK CA			KC	EHC
CCC	EG-Konf. Test Certificates	UK CA		UL Narine / Shipping	KC	EAC
EMV ECM		UK CA Special Test Ce ate	I	Aarine / Shipping		ERC LANK
EMV EMV ECM RCM	Test Certificates	Special Test Ce	Pertific-	Aarine / Shipping		ERC
RCM	Test Certificates	Special Test Ce	Pertific-	ABS	KC WINNER WINNER Confirmation	<b>Effic</b> <b>Confirmation</b>
RCM	Test Certificates	Special Test Ce	Pertific-	ABS	BUREAU VERITAS	
Marine / Shipping	Test Certificates Type Test Certific- ates/Test Report	Special Test Ce	ertific- o Con-	ABS	BUREAU VERITAS	
Marine / Shipping         Use         Use         Use         Railway         Special Test Certificate         ate	Test Certificates Type Test Certific- ates/Test Report	Special Test Ce ate	ertific- o Con-	ABS	BUREAU VERITAS	
Karine / Shipping         Marine / Shipping         Locks         Railway         Special Test Certific- ate         Eurther information         Information on the pa https://support.industry         Information - and Dow https://support.industry         Information - and Dow https://www.siemens.cc         Industry Mall (Online	Test Certificates Type Test Test Test Test Test Test Test Tes	Special Test Ce ate	Con-	ther Miscellaneous	BUREAU VERITAS	

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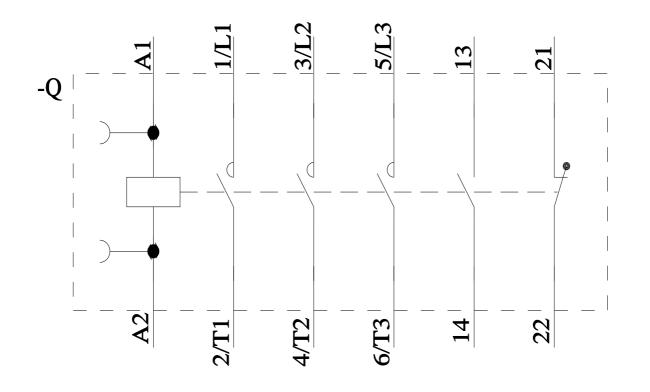
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