## SIEMENS

## Data sheet

## 3RT2016-2AP02



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 230 V AC, 50/60 Hz, auxiliary contacts: 1 NC, spring-loaded terminal, size: S00

200 - 200 - 43	
product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
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>	0.9 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	0.3 W
<ul> <li>without load current share typical</li> </ul>	1.1 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	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at AC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (operating cycles)	
<ul> <li>of contactor typical</li> </ul>	30 000 000
<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	0.25 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
<ul> <li>during operation</li> </ul>	-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	39.6 kg
global warming potential [CO2 eq] during manufacturing	1.18 kg
global warming potential [CO2 eq] during operation	38.5 kg
global warming potential [CO2 eq] after end of life	-0.155 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
<ul> <li>at AC-3e rated value maximum</li> </ul>	690 V
operational current	
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated value</li> <li>at AC-1</li> </ul>	22 A
up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
• at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
- at 690 V rated value	6.7 A
<ul> <li>at AC-4 at 400 V rated value</li> <li>at AC 5a up to 690 V rated value</li> </ul>	8.5 A 19.4 A
<ul> <li>at AC-5a up to 690 V rated value</li> <li>at AC-5b up to 400 V rated value</li> </ul>	19.4 A 7.4 A
<ul> <li>at AC-6a</li> </ul>	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	5.3 A
— up to 400 V for current peak value n=20 rated value	5.3 A
— up to 500 V for current peak value n=20 rated value	5.3 A
— up to 690 V for current peak value n=20 rated value	5 A
● at AC-6a	
— up to 230 V for current peak value n=30 rated value	3.5 A
— up to 400 V for current peak value n=30 rated value	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 mm <sup>2</sup>
operational current for approx. 200000 operating cycles at AC-4	
<ul> <li>at 400 V rated value</li> <li>at 690 V rated value</li> </ul>	4.1 A 3.3 A
operational current	
• at 1 current path at DC-1	
- at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
<ul> <li>with 2 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A

with 3 current paths in series at DC-1	20.4
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1 A
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 60 V rated value	0.5 A
— at 110 V rated value	0.15 A
• with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 60 V rated value	5 A
— at 110 V rated value	0.35 A
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	1.5 A
— at 440 V rated value	0.2 A
— at 600 V rated value	0.2 A
operating power	
• at AC-3	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
• at AC-3e	
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5.5 kW
operating power for approx. 200000 operating cycles at AC-	
4	0.1444
at 400 V rated value	2 kW
• at 690 V rated value	2.5 kW
operating apparent power at AC-6a	0.11/4
• up to 230 V for current peak value n=20 rated value	2 kVA
up to 400 V for current peak value n=20 rated value	3.6 kVA
• up to 500 V for current peak value n=20 rated value	4.6 kVA
up to 690 V for current peak value n=20 rated value	5.9 kVA
operating apparent power at AC-6a	4.013/4
up to 230 V for current peak value n=30 rated value	1.3 kVA
up to 400 V for current peak value n=30 rated value	2.4 kVA
up to 500 V for current peak value n=30 rated value	3.1 kVA
up to 690 V for current peak value n=30 rated value	4 kVA
short-time withstand current in cold operating state up to 40 °C	
Imited to 1 s switching at zero current maximum	155 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 5 s switching at zero current maximum	111 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 10 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 30 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value
Imited to 60 s switching at zero current maximum	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	10 000 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
<ul> <li>at AC-3e maximum</li> </ul>	750 1/h

• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
at 50 Hz rated value	230 V
at 60 Hz rated value	230 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	27 VA
• at 60 Hz	24.3 VA
inductive power factor with closing power of the coil	0.0
• at 50 Hz	0.8
• at 60 Hz	0.75
apparent holding power of magnet coil at AC • at 50 Hz	4.2 VA
• at 50 Hz	4.2 VA 3.3 VA
inductive power factor with the holding power of the coil	
at 50 Hz	0.25
• at 60 Hz	0.25
closing delay	
• at AC	9 35 ms
opening delay	
• at AC	4 15 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC 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	1A
at 600 V rated value	0.15 A
operational current at DC-13	10.4
at 24 V rated value	10 A 2 A
at 48 V rated value     at 60 V rated value	2 A 2 A
<ul> <li>at 60 V rated value</li> <li>at 110 V rated value</li> </ul>	1 A
at 125 V rated value	0.9 A
at 125 V rated value     at 220 V rated value	0.3 A
at 600 V rated value	0.1 A
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	
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	7.6 A
• at 600 V rated value	9 A
yielded mechanical performance [hp]	

for single-phase AC motor	
— at 110/120 V rated value	0.33 hp
— at 230 V rated value	1 hp
• for 3-phase AC motor	r np
- at 200/208 V rated value	2 hp
— at 220/230 V rated value	
	3 hp
- at 460/480 V rated value	5 hp
— at 575/600 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL Short-circuit protection	A600 / Q600
design of the fuse link	
for short-circuit protection of the main circuit	
- with type of coordination 1 required	aC: 354 (600)/ 100k4) aM: 204 (600)/ 100k4) BS88: 354 (415)/ 80k4)
	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)
— with type of assignment 2 required	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (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
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	70 mm
width	45 mm
depth	73 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
— downwards	10 mm
— at the side	6 mm
Connections/ Terminals	
type of electrical connection	
for main current circuit	spring-loaded terminals
<ul> <li>for auxiliary and control circuit</li> </ul>	spring-loaded terminals
at contactor for auxiliary contacts	Spring-type terminals
of magnet coil	Spring-type terminals
type of connectable conductor cross-sections	
for main contacts	
— solid	2x (0.5 4 mm²)
— solid or stranded	2x (0.5 4 mm <sup>2</sup> )
<ul> <li>— finely stranded with core end processing</li> </ul>	2x (0.5 2.5 mm <sup>2</sup> )
<ul> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul>	2x (0.5 2.5 mm <sup>2</sup> )
for AWG cables for main contacts	2x (0.5 2.5 mm <sup>-</sup> ) 2x (20 12)
connectable conductor cross-section for main contacts	
	0.5 4 mm <sup>2</sup>
• solid	0.5 4 mm <sup>2</sup>
stranded	0.5 4 mm <sup>2</sup>
• finely stranded with core end processing	0.5 2.5 mm <sup>2</sup>
finely stranded without core end processing	0.5 2.5 mm <sup>2</sup>
connectable conductor cross-section for auxiliary contacts	
<ul> <li>solid or stranded</li> </ul>	
	0.5 4 mm <sup>2</sup>
<ul> <li>finely stranded with core end processing</li> <li>finely stranded without core end processing</li> </ul>	0.5 4 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup>

type of connectable c					
	onductor cross-section	ns			
<ul> <li>for auxiliary containing</li> </ul>	acts				
— solid or stranded		2x (0,5 4 mm²)			
<ul> <li>finely stranded with core end processing</li> </ul>		2x (0.5 2.5 mm²)			
<ul> <li>finely strand</li> </ul>	ded without core end pro	ocessing	2x (0.5 2.5 mm²)		
<ul> <li>for AWG cables f</li> </ul>	for auxiliary contacts		2x (20 12)		
AWG number as code section	d connectable conduc	tor cross			
			20 10		
for main contacts			20 12		
<ul> <li>for auxiliary containing</li> </ul>	acts		20 12		
afety related data					
product function					
<ul> <li>mirror contact according to IEC 60947-4-1</li> <li>positively driven operation according to IEC 60947-5-1</li> </ul>		Yes			
<ul> <li>positively driven operation according to IEC 60947-5-1</li> <li>switchle for apfatu function</li> </ul>		No			
suitable for safety function		Yes			
suitability for use safety-related switching OFF		Yes			
service life maximum			20 a		
test wear-related serv	-		Yes		
proportion of dangero					
	rate according to SN 31		40 %		
<ul> <li>with high demand</li> </ul>	d rate according to SN 3	1920	73 %		
B10 value with high d	emand rate according	to SN 31920	1 000 000		
failure rate [FIT] with I 31920	ow demand rate accor	ding to SN	100 FIT		
ISO 13849					
device type according	j to ISO 13849-1		3		
overdimensioning acc	cording to ISO 13849-2	necessary	Yes		
	cording to IEC 61508-2		Туре А		
Electrical Safety			.),,		
•	the front according to	IEC 60529	IP20		
-	ne front according to I		finger-safe, for vertical contact	from the front	
Approvals Certificates					
General Product App	roval				
Contrain rounder App	oval				
(m)	()	UK	Confirmation	Ē	<u>KC</u>
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ccc	EC North			UL	
	EG-Konf.				
	EG-Kont.				
	EG-Konf.				
General Product Approval	EG-Kont.	Test Certificate		Marine / Shipping	
proval		Test Certificate	25	Marine / Shipping	<u>A a a</u>
proval			ss iffic- Special Test Certific-	Marine / Shipping	
		Test Certificate	ss	Marine / Shipping	
proval		Test Certificate	ss	Marine / Shipping	BUREAU
proval		Test Certificate	ss	Marine / Shipping	BUREAU VERITAS
FRE		Test Certificate	ss	Marine / Shipping	BUREAU VERITAS
proval		Test Certificate	ss	Marine / Shipping	<b>EUREAU</b> VERITAS
FRE		Test Certificate	ss	Marine / Shipping	other
FRE		Test Certificate	ss	Marine / Shipping	
FRE		Test Certificate	ss	Marine / Shipping	other
FRE		Test Certificate	ss	Marine / Shipping	other
Marine / Shipping	EMV RCM	Test Certificate	ss	Marine / Shipping	other
Marine / Shipping	EMV RCM	Test Certificate	ss	Marine / Shipping	other
Marine / Shipping	EMV RCM	Test Certificate	ss	Marine / Shipping	other
proval EEEE Marine / Shipping	EMV ECM	Test Certificate	es tific- tort Special Test Certific- ate Special Test	ABS	other
proval EEEE Marine / Shipping	EMV RCM	Test Certificate	es tific- tort Special Test Certific- ate Special Test	Marine / Shipping	other
proval EEEE Marine / Shipping	EMV ECM	Test Certificate	es tific- tort Special Test Certific- ate Special Test	ABS ABS	other
proval EERE Marine / Shipping	EMV ECM	Test Certificate	es tific- tort Special Test Certific- ate Special Test	ABS ABS	other

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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=3RT2016-2AP02

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-2AP02

Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2AP02

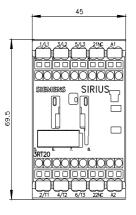
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

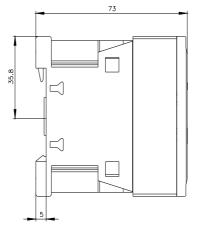
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2016-2AP02&lang=en

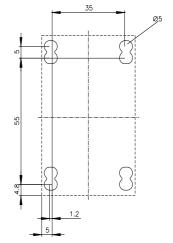
Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

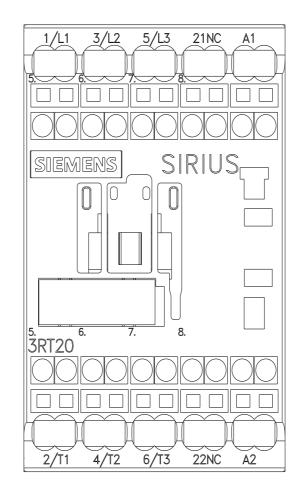
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2AP02/char

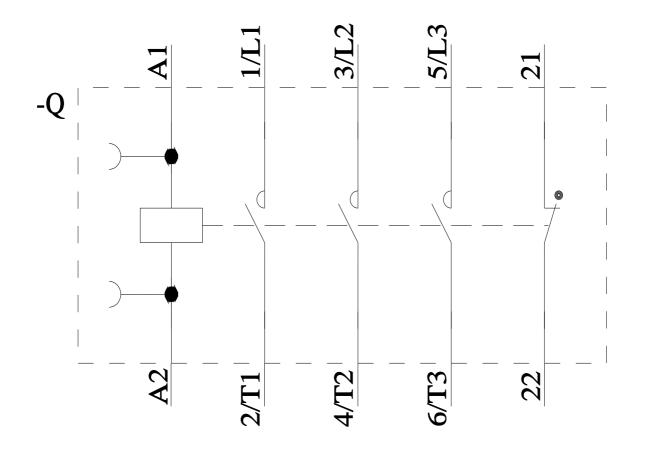
Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-2AP02&objecttype=14&gridview=view1











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