## **SIEMENS**

Data sheet 3RT2016-2FB42



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 V DC, with integrated diode, auxiliary contacts: 1 NC, spring-loaded terminal, size: S00  $\,$ 

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>	4 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
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	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at DC	10,5g / 5 ms, 6,6g / 10 ms
mechanical service life (operating cycles)	
of contactor typical	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
SVHC substance name	Lead - 7439-92-1
Weight	0.315 kg
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	
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	153 kg
global warming potential [CO2 eq] during manufacturing	1.42 kg
global warming potential [CO2 eq] during operation	152 kg
global warming potential [CO2 eq] after end of life	-0.305 kg
Main 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     act AC-1	22 A
<ul> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated</li> </ul>	22 A
value — up to 690 V at ambient temperature 60 °C rated	20 A
value	
• at AC-3	9 A
— at 400 V rated value	9 A 7.7 A
— at 500 V rated value — at 690 V rated value	6.7 A
at AC-3e  ■ at AC-3e	0.1 A
— 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-4 at 400 V rated value	8.5 A
at AC-5a up to 690 V rated value	19.4 A
• at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	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
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	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	
• at 400 V rated value	4.1 A
at 690 V rated value	3.3 A
operational current	
at 1 current path at DC-1     at 24 V roted value	20 A
<ul><li>— at 24 V rated value</li><li>— at 60 V rated value</li></ul>	20 A 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
with 2 current paths in series at DC-1	
— 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		
<ul> <li>with 3 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	20 A		
— at 220 V rated value	20 A		
— at 440 V rated value	1.3 A		
— at 600 V rated value	1 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	0.5 A		
— at 110 V rated value	0.15 A		
<ul> <li>with 2 current paths in series 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	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 230 V rated value  — at 400 V rated value	4 kW		
— at 400 V rated value  — at 500 V rated value	4 kW		
— at 690 V rated value	5.5 kW		
• at AC-3e	0.0 (AM)		
— 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-			
at 400 V rated value	2 kW		
at 690 V rated value	2.5 kW		
operating apparent power at AC-6a			
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  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  up to 500 V for current peak value n=20 rated value	4.6 kVA		
·	5.9 kVA		
up to 690 V for current peak value n=20 rated value	J.J KVA		
operating apparent power at AC-6a	1.2 1//		
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			
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	155 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	111 A; Use minimum cross-section acc. to AC-1 rated value		
• limited to 10 s switching at zero current maximum	86 A; Use minimum cross-section acc. to AC-1 rated value		
• limited to 30 s switching at zero current maximum	66 A; Use minimum cross-section acc. to AC-1 rated value		
Iimited to 60 s switching at zero current maximum	55 A; Use minimum cross-section acc. to AC-1 rated value		
no-load switching frequency	22. , 222		
• at DC	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		
· were a maximum.			

at AC-4 maximum  Control circuit/ Control	750 1/h 250 1/h	
Control circuit/ Control	200 1111	
	DC	
3,1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	24 V	
operating range factor control supply voltage rated value of	4+ V	
magnet coil at DC		
• initial value	0.8	
	1.1	
	diode	
	4 W	
	4 W	
closing delay	20 400 mg	
	30 100 ms	
opening delay  • at DC	38 65 ms	
	36 05 ITS 10 15 ms	
3 3 3	Standard A1 - A2	
Auxiliary circuit		
	1	
contact		
operational current at AC-12 maximum	10 A	
operational current at AC-15		
	10 A	
	3 A	
	2 A	
	1 A	
operational current at DC-12	10.4	
	10 A 6 A	
	6 A	
	3 A	
	2 A	
	1A	
	0.15 A	
operational current at DC-13		
·	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	
	0.1 A	
	1 faulty switching per 100 million (17 V, 1 mA)	
UL/CSA ratings		
full-load current (FLA) for 3-phase AC motor		
	7.6 A	
	9 A	
yielded mechanical performance [hp]		
<ul> <li>for single-phase AC motor</li> <li>— at 110/120 V rated value</li> </ul>	0.33 hp	
	0.33 rip	
for 3-phase AC motor	· · · · · · ·	
·	2 hp	
	3 hp	
	5 hp	
	7.5 hp	
	A600 / Q600	
Short-circuit protection		
	C characteristic: 10 A; 0.4 kA	
of the auxiliary circuit up to 230 V		

design of the fuse link		
for short-circuit protection of the main circuit		
<ul> <li>— with type of coordination 1 required</li> </ul>	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)	
<ul> <li>— with type of assignment 2 required</li> </ul>	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)	
for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)	
nstallation/ 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	
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	
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	
<ul> <li>at contactor for auxiliary contacts</li> </ul>	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 mm²)	
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 2.5 mm²)	
<ul> <li>finely stranded without core end processing</li> </ul>	2x (0.5 2.5 mm²)	
for AWG cables for main contacts	2x (20 12)	
connectable conductor cross-section for main contacts		
• solid	0.5 4 mm²	
• stranded	0.5 4 mm²	
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 2.5 mm²	
finely stranded without core end processing	0.5 2.5 mm²	
connectable conductor cross-section for auxiliary contacts		
solid or stranded	0.5 4 mm²	
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 2.5 mm²	
finely stranded without core end processing	0.5 2.5 mm²	
type of connectable conductor cross-sections		
for auxiliary contacts		
— 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 stranded without core end processing</li> </ul>	2x (0.5 2.5 mm²)	
for AWG cables for auxiliary contacts	2x (20 12)	
AWG number as coded connectable conductor cross section		
for main contacts	20 12	
	20 12	

Safety related data			
product function			
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	Yes		
<ul> <li>positively driven operation according to IEC 60947-5-1</li> </ul>	No		
suitable for safety function	Yes		
suitability for use safety-related switching OFF	Yes		
service life maximum	20 a		
test wear-related service life necessary	Yes		
proportion of dangerous failures			
<ul> <li>with low demand rate according to SN 31920</li> </ul>	40 %		
<ul> <li>with high demand rate according to SN 31920</li> </ul>	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		
Approvals Certificates			



**General Product Approval** 





Confirmation



<u>KC</u>

General	Produ	uct Ap-
proval		

EMV

**Test Certificates** 

Marine / Shipping





Special Test Certificate

Type Test Certificates/Test Report





Marine / Shipping





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Confirmation

other

other

Railway

Dangerous goods

Environment

Miscellaneous

Special Test Certificate

**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=3RT2016-2FB42

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-2FB42

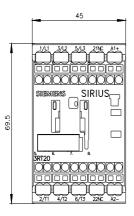
Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2FB42

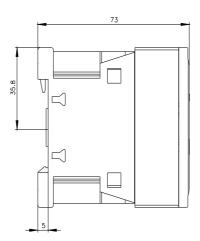
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) <a href="http://www.automation.siemens.com/bilddb/cax">http://www.automation.siemens.com/bilddb/cax</a> de.aspx?mlfb=3RT2016-2FB42&lang=en

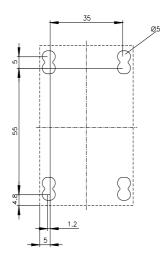
Characteristic: Tripping characteristics, I2t, Let-through current

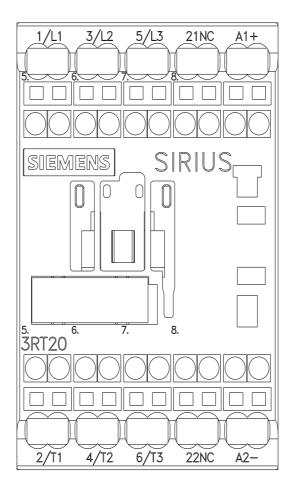
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-2FB42/char

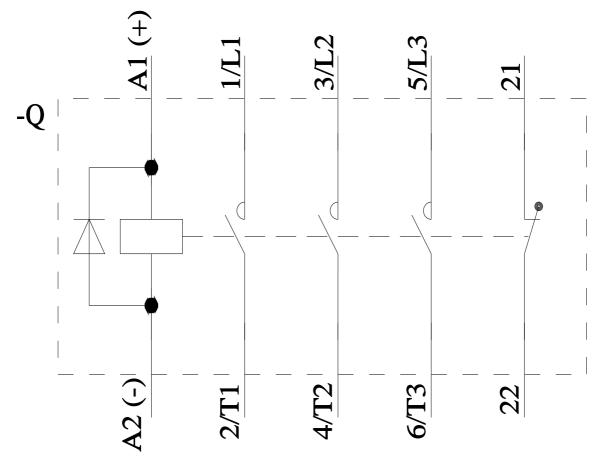
Further characteristics (e.g. electrical endurance, switching frequency)
<a href="http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-2FB42&objecttype=14&gridview=view1">http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-2FB42&objecttype=14&gridview=view1</a>











last modified: 1/24/2025 🖸