# **SIEMENS**

Data sheet 3RT2018-1AP01



power contactor, AC-3e/AC-3, 16 A, 7.5 kW / 400 V, 3-pole, 230 V AC, 50/60 Hz, auxiliary contacts: 1 NO, screw 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>	3 W		
<ul> <li>at AC in hot operating state per pole</li> </ul>	1 W		
<ul> <li>without load current share typical</li> </ul>	1.5 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		
• 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 AC	7,3g / 5 ms, 4,7g / 10 ms		
shock resistance with sine pulse			
• at AC	11,4g / 5 ms, 7,3g / 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		
Weight	0.235 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 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	
at AC-3 rated value maximum	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 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 $^{\circ}\text{C}$ rated value	20 A
• at AC-3	
— at 400 V rated value	16 A
— at 500 V rated value	12.4 A
— at 690 V rated value	8.9 A
• at AC-3e	40.4
— at 400 V rated value	16 A
— at 500 V rated value	12.4 A
<ul><li>— at 690 V rated value</li><li>at AC-4 at 400 V rated value</li></ul>	8.9 A 11.5 A
at AC-4 at 400 v rated value     at AC-5a up to 690 V rated value	19.4 A
at AC-5b up to 400 V rated value	13.2 A
• at AC-6a	10.27
— up to 230 V for current peak value n=20 rated value	9.6 A
— up to 400 V for current peak value n=20 rated value	9.6 A
— up to 500 V for current peak value n=20 rated value	9.6 A
— up to 690 V for current peak value n=20 rated value	8.9 A
• at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	6.6 A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	6.4 A
— up to 500 V for current peak value n=30 rated value	6.4 A
— up to 690 V for current peak value n=30 rated value	6.4 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	554
at 400 V rated value     at 600 V rated value	5.5 A
at 690 V rated value	4.4 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
• 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

a with 2 current noths in series at DC 4			
with 3 current paths in series at DC-1     at 24 V reted 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	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	4 kW		
— at 400 V rated value	7.5 kW		
— at 500 V rated value	7.5 kW		
— at 690 V rated value	7.5 kW		
• at AC-3e			
— at 230 V rated value	4 kW		
— at 400 V rated value	7.5 kW		
— at 500 V rated value	7.5 kW		
— at 690 V rated value	7.5 kW		
operating power for approx. 200000 operating cycles at AC-			
4	· · · ·		
• at 400 V rated value	2.5 kW		
at 690 V rated value	3.5 kW		
operating apparent power at AC-6a			
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	3.8 kVA		
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	6.6 kVA		
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	8.3 kVA		
up to 690 V for current peak value n=20 rated value	10.6 kVA		
operating apparent power at AC-6a			
• up to 230 V for current peak value n=30 rated value	2.5 kVA		
• up to 400 V for current peak value n=30 rated value	4.4 kVA		
• up to 500 V for current peak value n=30 rated value	5.5 kVA		
• up to 690 V for current peak value n=30 rated value	7.6 kVA		
short-time with stand current in cold operating state up to 40 $^{\circ}\text{C}$			
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	300 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	169 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	128 A; Use minimum cross-section acc. to AC-1 rated value		
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	92 A; Use minimum cross-section acc. to AC-1 rated value		
limited to 60 s switching at zero current maximum	74 A; Use minimum cross-section acc. to AC-1 rated value		
no-load switching frequency			
• at AC	10 000 1/h		
operating frequency			
	4 000 4 11		
at AC-1 maximum	1 000 1/h		
<ul><li>at AC-1 maximum</li><li>at AC-2 maximum</li></ul>	1 000 1/h 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	37 VA
• at 60 Hz	33 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.8
• at 60 Hz	0.75
apparent holding power of magnet coil at AC	F 7 \/A
• at 50 Hz	5.7 VA
• at 60 Hz	4.4 VA
inductive power factor with the holding power of the coil  • at 50 Hz	0.25
• at 50 Hz	0.25
• at 60 HZ closing delay	0.20
• at AC	9 35 ms
opening delay	V VV 1110
• at AC	4 15 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NO contacts for auxiliary contacts instantaneous	1
contact	
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	6.4
• at 60 V rated value	6 A
at 110 V rated value	3 A
at 125 V rated value     at 230 V rated value	2 A
at 220 V rated value     at 600 V rated value	1.4
at 600 V rated value	0.15 A
operational current at DC-13	10 A
at 24 V rated value     at 48 V rated value	10 A
<ul> <li>at 48 V rated value</li> <li>at 60 V rated value</li> </ul>	2 A 2 A
at 60 V rated value     at 110 V rated value	1.4
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
at 600 V rated value	0.3 A 0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	ridary stritoring per 100 million (17-4, 1 mile)
full-load current (FLA) for 3-phase AC motor	
at 480 V rated value	14 A
at 600 V rated value     at 600 V rated value	11 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	1 hp
at 1.0.125 Y lated Yalde	

2 hp		
3 hp		
5 hp		
10 hp		
10 hp		
A600 / Q600		
gG: 50A (690V,100kA), aM: 25A (690V,100kA), BS88: 50A (415V,80kA)		
gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)		
gG: 10 A (500 V, 1 kA)		
+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface		
Yes		
screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715		
58 mm		
45 mm		
73 mm		
10 mm		
10 mm		
10 mm		
0 mm		
10 mm		
10 mm		
6 mm		
10 mm		
10 mm		
10 mm		
10 mm		
6 mm		
screw-type terminals		
2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²		
2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²), 2x 4 mm²		
2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
2x (20 16), 2x (18 14), 2x 12		
0.5 4 mm²		
0.5 4 mm <sup>2</sup> 0.5 4 mm <sup>2</sup>		
0.5 4 mm²		
0.5 4 mm²		
0.5 4 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup>		
0.5 4 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 0.5 4 mm <sup>2</sup>		
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0.5 4 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 0.5 4 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup>		

AWG number as coded connectable conductor cross section		
<ul> <li>for main contacts</li> </ul>	20 12	
<ul> <li>for auxiliary contacts</li> </ul>	20 12	
Safety related data		
product function		
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	Yes; with 3RH29	
<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





General Product Approval	EMV	Test Certificates	Marine / Shipping
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<u>KC</u>





Type Test Certificates/Test Report

Special Test Certificate



### Marine / Shipping









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Miscellaneous Confirmation Confirmation Special Test Certific-



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=3RT2018-1AP01

#### Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2018-1AP01

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

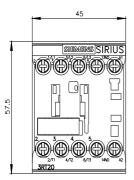
https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-1AP01

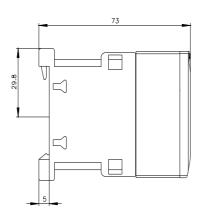
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) <a href="http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2018-1AP01&lang=en">http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2018-1AP01&lang=en</a>

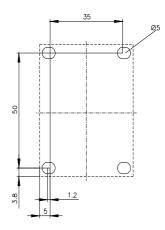
Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-1AP01/char

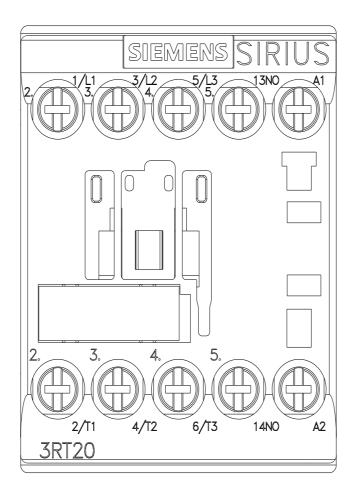
Further characteristics (e.g. electrical endurance, switching frequency)

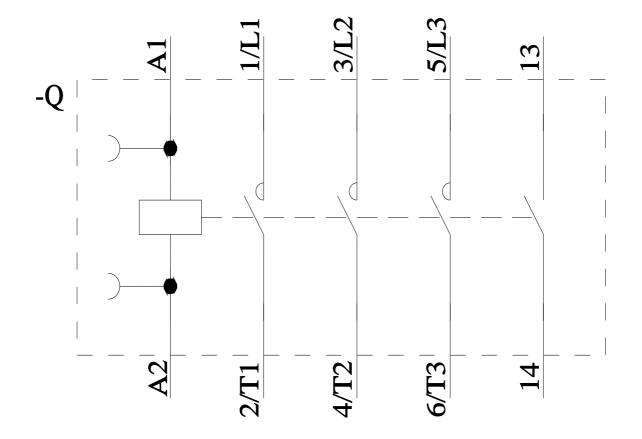
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2018-1AP01&objecttype=14&gridview=view1











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