

power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NO, 24 V DC 3-pole,  
Size S00 screw terminal



Product brand name	SIRIUS
Product designation	Power contactor
Product type designation	3RT2
General technical data	
Size of contactor	S00
Product extension	
• function module for communication	No
• Auxiliary switch	Yes
Surge voltage resistance	
• of main circuit rated value	6 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation	
• between coil and main contacts acc. to EN 60947-1	400 V
Protection class IP	
• on the front	IP20
• of the terminal	IP20
Shock resistance at rectangular impulse	
• at DC	7.3g / 5 ms, 4.7g / 10 ms

<b>Shock resistance with sine pulse</b>	
• at DC	11,4g / 5 ms, 7,3g / 10 ms
<b>Mechanical service life (switching cycles)</b>	
• of contactor typical	30 000 000
• of the contactor with added electronics-compatible auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
<b>Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750</b>	K
<b>Reference code acc. to DIN EN 81346-2</b>	Q

#### Ambient conditions

<b>Installation altitude at height above sea level</b>	
• maximum	2 000 m

#### Main circuit

<b>Number of poles for main current circuit</b>	3
<b>Number of NO contacts for main contacts</b>	3
<b>Operating voltage</b>	
• at AC-3 rated value maximum	690 V
<b>Operating current</b>	
• at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	22 A
• at AC-1	
— 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-2 at 400 V rated value	12 A
• at AC-3	
— at 400 V rated value	12 A
— at 500 V rated value	9.2 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	9.9 A
• at AC-6a	
— up to 230 V at current peak n=20 rated value	7.2 A
— up to 400 V at current peak n=20 rated value	7.2 A
— up to 500 V at current peak n=20 rated value	7.2 A

<ul style="list-style-type: none"> <li>— up to 690 V at current peak n=20 rated value</li> </ul>	6.7 A
<ul style="list-style-type: none"> <li>• at AC-6a <ul style="list-style-type: none"> <li>— up to 230 V at current peak n=30 rated value</li> <li>— up to 400 V at current peak n=30 rated value</li> <li>— up to 500 V at current peak n=30 rated value</li> <li>— up to 690 V at current peak n=30 rated value</li> </ul> </li> </ul>	4.8 A 4.8 A 4.8 A 4.8 A
<b>Minimum cross-section in the main circuit</b>	
<ul style="list-style-type: none"> <li>• at maximum AC-1 rated value</li> </ul>	4 mm <sup>2</sup>
<b>Operating current for approx. 200000 operating cycles at AC-4</b>	
<ul style="list-style-type: none"> <li>• at 400 V rated value</li> <li>• at 690 V rated value</li> </ul>	4.1 A 3.3 A
<b>Operating current</b>	
<ul style="list-style-type: none"> <li>• at 1 current path at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>• with 2 current paths in series at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> <li>• with 3 current paths in series at DC-1 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> <li>— at 600 V rated value</li> </ul> </li> </ul>	20 A 2.1 A 0.8 A 0.6 A 0.6 A  20 A 12 A 1.6 A 0.8 A 0.7 A  20 A 20 A 20 A 1.3 A 1 A
<b>Operating current</b>	
<ul style="list-style-type: none"> <li>• at 1 current path at DC-3 at DC-5 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> <li>— at 110 V rated value</li> </ul> </li> <li>• with 2 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> <li>— at 24 V rated value</li> </ul> </li> </ul>	20 A 0.1 A  20 A

— at 110 V rated value	0.35 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 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
<b>Operating power</b>	
• at AC-1	
— at 230 V rated value	7.5 kW
— at 230 V at 60 °C rated value	7.5 kW
— at 400 V rated value	13 kW
— at 400 V at 60 °C rated value	13 kW
— at 690 V rated value	22 kW
— at 690 V at 60 °C rated value	22 kW
• at AC-2 at 400 V rated value	5.5 kW
• at AC-3	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	5.5 kW
<b>Operating power for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	2 kW
• at 690 V rated value	2.5 kW
<b>Thermal short-time current limited to 10 s</b>	90 A
<b>Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor</b>	1.2 W
<b>No-load switching frequency</b>	
• at DC	10 000 1/h
<b>Operating frequency</b>	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
• at AC-4 maximum	250 1/h
<b>Control circuit/ Control</b>	
<b>Type of voltage of the control supply voltage</b>	DC
<b>Control supply voltage at DC</b>	
• rated value	24 V
<b>Operating range factor control supply voltage rated value of magnet coil at DC</b>	
• initial value	0.8

• Full-scale value	1.1
<b>Closing power of magnet coil at DC</b>	4 W
<b>Holding power of magnet coil at DC</b>	4 W
<b>Closing delay</b>	
• at DC	30 ... 100 ms
<b>Opening delay</b>	
• at DC	7 ... 13 ms
<b>Arcing time</b>	10 ... 15 ms
<b>Control version of the switch operating mechanism</b>	Standard A1 - A2

#### Auxiliary circuit

<b>Number of NO contacts for auxiliary contacts</b>	
• instantaneous contact	1
<b>Operating current at AC-12 maximum</b>	10 A
<b>Operating current at AC-15</b>	
• 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
<b>Operating current at DC-12</b>	
• 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
<b>Operating current at DC-13</b>	
• 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
<b>Contact reliability of auxiliary contacts</b>	1 faulty switching per 100 million (17 V, 1 mA)

#### UL/CSA ratings

<b>Full-load current (FLA) for three-phase AC motor</b>	
• at 480 V rated value	11 A
• at 600 V rated value	11 A
<b>Yielded mechanical performance [hp]</b>	
• for single-phase AC motor	

— at 110/120 V rated value	0.5 hp
— at 230 V rated value	2 hp
• for three-phase AC motor	
— at 200/208 V rated value	3 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	7.5 hp
— at 575/600 V rated value	10 hp
<b>Contact rating of auxiliary contacts according to UL</b>	A600 / Q600

## Short-circuit protection

<b>Design of the fuse link</b>	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 50A (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)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)

## Installation/ mounting/ dimensions

<b>Mounting position</b>	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
<b>Mounting type</b>	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• Side-by-side mounting	Yes
<b>Height</b>	58 mm
<b>Width</b>	45 mm
<b>Depth</b>	73 mm
<b>Required spacing</b>	
• with side-by-side mounting	
— 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






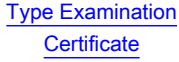
<b>Type of electrical connection</b> <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control current circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>	screw-type terminals screw-type terminals Screw-type terminals Screw-type terminals
<b>Type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for main contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for main contacts</li> </ul>	2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), 2x 4 mm <sup>2</sup> 2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> ), 2x 4 mm <sup>2</sup> 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) 2x (20 ... 16), 2x (18 ... 14), 2x 12
<b>Connectable conductor cross-section for main contacts</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> <li>• finely stranded with core end processing</li> </ul>	0.5 ... 4 mm <sup>2</sup> 0.5 ... 4 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup>
<b>Connectable conductor cross-section for auxiliary contacts</b> <ul style="list-style-type: none"> <li>• single or multi-stranded</li> <li>• finely stranded with core end processing</li> </ul>	0.5 ... 4 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup>
<b>Type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for auxiliary contacts <ul style="list-style-type: none"> <li>— single or multi-stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG conductors for auxiliary contacts</li> </ul>	2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> ), 2x 4 mm <sup>2</sup> 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) 2x (20 ... 16), 2x (18 ... 14), 2x 12
<b>AWG number as coded connectable conductor cross section</b> <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• for auxiliary contacts</li> </ul>	20 ... 12 20 ... 12




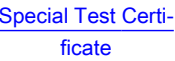


## Safety related data







<b>B10 value</b> <ul style="list-style-type: none"> <li>• with high demand rate acc. to SN 31920</li> </ul>	1 000 000
<b>Proportion of dangerous failures</b> <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> <li>• with high demand rate acc. to SN 31920</li> </ul>	40 % 73 %
<b>Failure rate [FIT]</b> <ul style="list-style-type: none"> <li>• with low demand rate acc. to SN 31920</li> </ul>	100 FIT
<b>Product function</b> <ul style="list-style-type: none"> <li>• Mirror contact acc. to IEC 60947-4-1</li> </ul>	Yes; with 3RH29



T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe
Suitability for use <ul style="list-style-type: none"> <li>• safety-related switching on</li> <li>• safety-related switching OFF</li> </ul>	No No

#### Certificates/approvals

General Product Approval	Functional Safety/Safety of Machinery
 CCC  CSA  UL  KC 	 Type Examination Certificate

Declaration of Conformity	Test Certificates	Marine / Shipping
 EG-Konf.  Miscellaneous	 Type Test Certificates/Test Report  Special Test Certificate  Miscellaneous	 ABS

Marine / Shipping
 BUREAU VERITAS  LRS  PRS  RINA  RMRS  DNV-GL

other
 Confirmation  VDE

#### Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

<http://www.siemens.com/industrial-controls/catalogs>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2017-1BB41>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2017-1BB41>

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

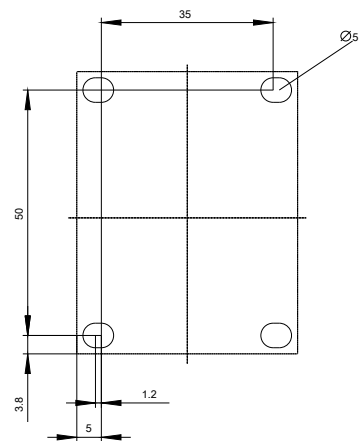
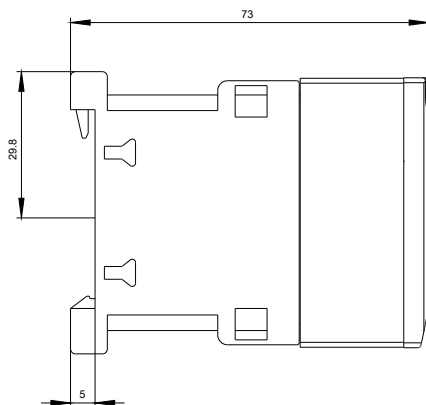
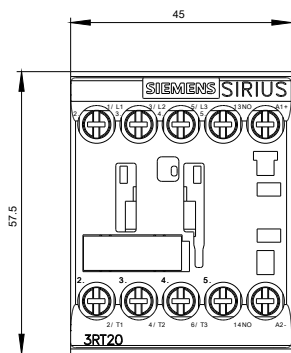
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2017-1BB41>

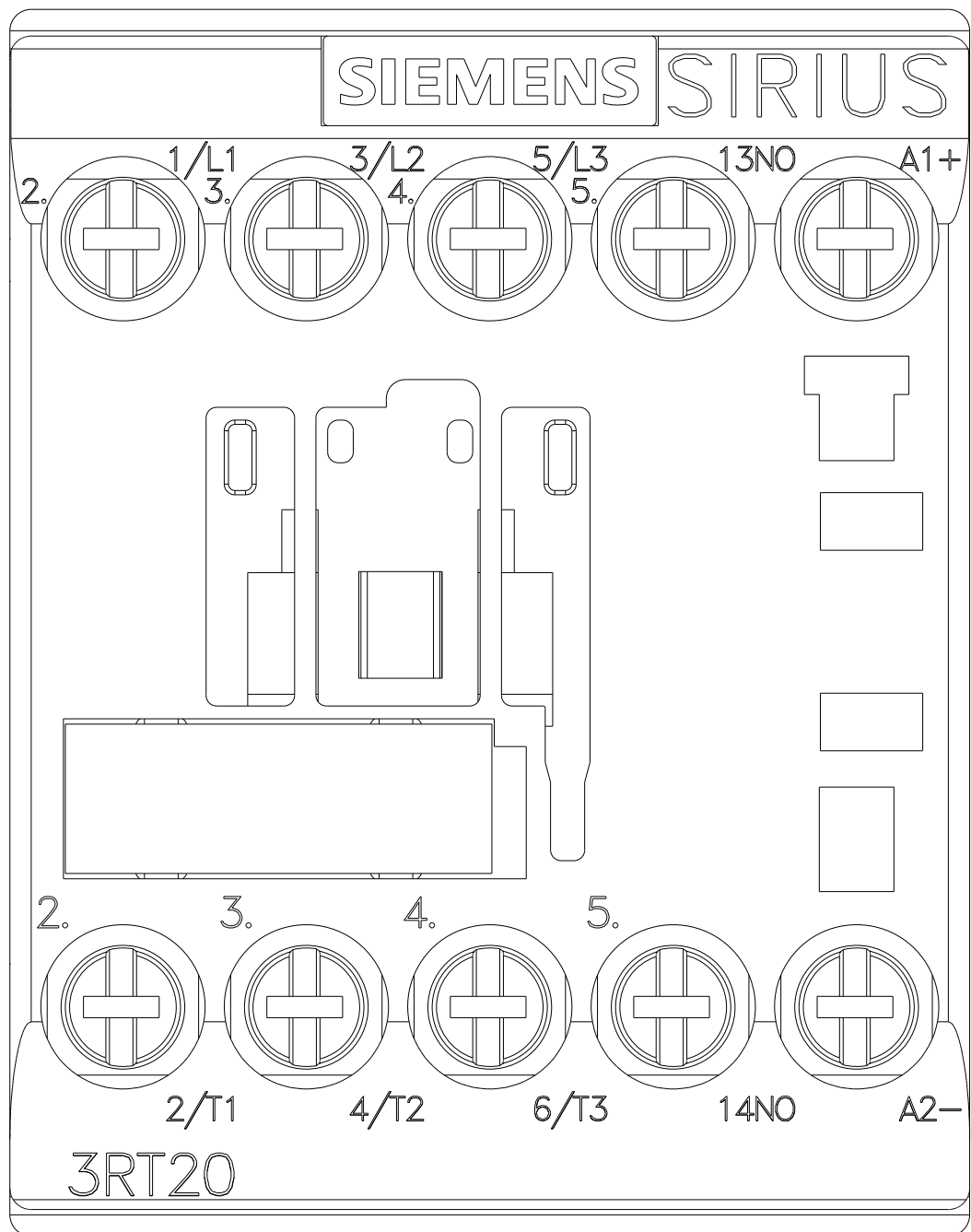


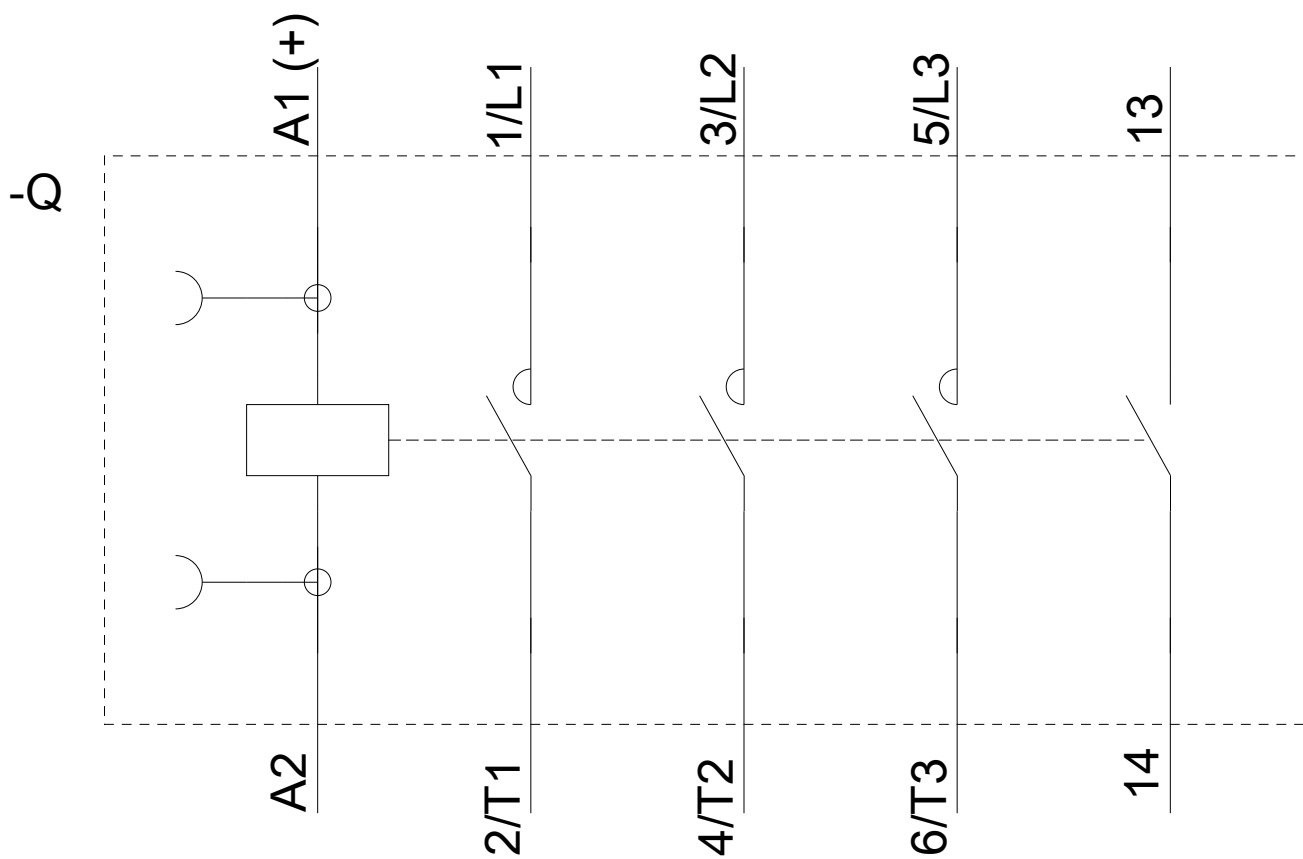
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2017-1BB41&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2017-1BB41&lang=en)

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2017-1BB41/char>

Further characteristics (e.g. electrical endurance, switching frequency)  
<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2017-1BB41&objecttype=14&gridview=view1>







last modified:

05/14/2019