

Contactor, AC-3, 37 kW / 400 V, 1 NO + 1 NC, 110 V AC, 50 Hz / 120 V, 60 Hz, 3-pole, Size S2, screw terminal



Product brand name	SIRIUS
Product designation	Power contactor
Product type designation	3RT2

General technical data	
Size of contactor	S2
Product extension	
<ul style="list-style-type: none"> <li>function module for communication</li> </ul>	No
<ul style="list-style-type: none"> <li>Auxiliary switch</li> </ul>	Yes
Surge voltage resistance	
<ul style="list-style-type: none"> <li>of main circuit rated value</li> </ul>	6 kV
<ul style="list-style-type: none"> <li>of auxiliary circuit rated value</li> </ul>	6 kV
maximum permissible voltage for safe isolation	
<ul style="list-style-type: none"> <li>between coil and main contacts acc. to EN 60947-1</li> </ul>	400 V
Protection class IP	
<ul style="list-style-type: none"> <li>on the front</li> </ul>	IP20
<ul style="list-style-type: none"> <li>of the terminal</li> </ul>	IP00
Shock resistance at rectangular impulse	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	11.8g / 5 ms, 7.4g / 10 ms

<b>Shock resistance with sine pulse</b>	
<ul style="list-style-type: none"> <li>• at AC</li> </ul>	18.5g / 5 ms, 11.6g / 10 ms
<b>Mechanical service life (switching cycles)</b>	
<ul style="list-style-type: none"> <li>• of contactor typical</li> </ul>	10 000 000
<ul style="list-style-type: none"> <li>• of the contactor with added electronics-compatible auxiliary switch block typical</li> </ul>	5 000 000
<ul style="list-style-type: none"> <li>• of the contactor with added auxiliary switch block typical</li> </ul>	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>	
<ul style="list-style-type: none"> <li>• maximum</li> </ul>	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>	
<ul style="list-style-type: none"> <li>• at AC-3 rated value maximum</li> </ul>	690 V
<b>Operating current</b>	
<ul style="list-style-type: none"> <li>• at AC-1 at 400 V <ul style="list-style-type: none"> <li>— at ambient temperature 40 °C rated value</li> </ul> </li> </ul>	90 A
<ul style="list-style-type: none"> <li>• at AC-1 <ul style="list-style-type: none"> <li>— up to 690 V at ambient temperature 40 °C rated value</li> <li>— up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> </ul>	90 A 80 A
<ul style="list-style-type: none"> <li>• at AC-2 at 400 V rated value</li> </ul>	80 A
<ul style="list-style-type: none"> <li>• at AC-3 <ul style="list-style-type: none"> <li>— at 400 V rated value</li> <li>— at 500 V rated value</li> <li>— at 690 V rated value</li> </ul> </li> </ul>	80 A 80 A 58 A
<ul style="list-style-type: none"> <li>• at AC-4 at 400 V rated value</li> </ul>	55 A
<ul style="list-style-type: none"> <li>• at AC-5a up to 690 V rated value</li> </ul>	79.2 A
<ul style="list-style-type: none"> <li>• at AC-5b up to 400 V rated value</li> </ul>	66.4 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=20 rated value</li> <li>— up to 400 V at current peak n=20 rated value</li> <li>— up to 500 V at current peak n=20 rated value</li> </ul> </li> </ul>	70 A 70 A 70 A

— up to 690 V at current peak n=20 rated value	58 A
• at AC-6a	
— up to 230 V at current peak n=30 rated value	46.7 A
— up to 400 V at current peak n=30 rated value	46.7 A
— up to 500 V at current peak n=30 rated value	46.7 A
— up to 690 V at current peak n=30 rated value	46.7 A
<b>Minimum cross-section in the main circuit</b>	
• at maximum AC-1 rated value	35 mm <sup>2</sup>
<b>Connectable conductor cross-section in main circuit at AC-1</b>	
• at 60 °C minimum permissible	25 mm <sup>2</sup>
• at 40 °C minimum permissible	35 mm <sup>2</sup>
<b>Operating current for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	30 A
• at 690 V rated value	24 A
<b>Operating current</b>	
• at 1 current path at DC-1	
— at 24 V rated value	55 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	55 A
— at 110 V rated value	45 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 220 V rated value	45 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
<b>Operating current</b>	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	35 A

— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.1 A
— at 600 V rated value	0.06 A
• with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	55 A
— at 110 V rated value	25 A
— at 220 V rated value	5 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 220 V rated value	25 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.35 A
<b>Operating power</b>	
• at AC-1	
— at 230 V rated value	34 kW
— at 230 V at 60 °C rated value	28 kW
— at 400 V rated value	59 kW
— at 400 V at 60 °C rated value	49 kW
— at 690 V rated value	102 kW
— at 690 V at 60 °C rated value	85 kW
• at AC-2 at 400 V rated value	37 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	37 kW
— at 500 V rated value	37 kW
— at 690 V rated value	45 kW
<b>Operating power for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	15.8 kW
• at 690 V rated value	21.8 kW
<b>Thermal short-time current limited to 10 s</b>	640 A
<b>Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor</b>	5.7 W
• No-load switching frequency at AC	5 000 1/h
<b>Operating frequency</b>	
• at AC-1 maximum	700 1/h
• at AC-2 maximum	350 1/h
• at AC-3 maximum	500 1/h

- at AC-4 maximum

150 1/h

### Control circuit/ Control

<b>Type of voltage of the control supply voltage</b>	AC
<b>Control supply voltage at AC</b>	
• at 50 Hz rated value	110 V
• at 60 Hz rated value	120 V
<b>Operating range factor control supply voltage rated value of magnet coil at AC</b>	
• at 50 Hz	0.8 ... 1.1
• at 60 Hz	0.8 ... 1.1
<b>Apparent pick-up power of magnet coil at AC</b>	
• at 50 Hz	212 V·A
• at 60 Hz	188 V·A
<b>Inductive power factor with closing power of the coil</b>	
• at 50 Hz	0.69
• at 60 Hz	0.65
<b>Apparent holding power of magnet coil at AC</b>	
• at 50 Hz	18.5 V·A
• at 60 Hz	16.5 V·A
<b>Inductive power factor with the holding power of the coil</b>	
• at 50 Hz	0.36
• at 60 Hz	0.39
<b>Closing delay</b>	
• at AC	10 ... 80 ms
<b>Opening delay</b>	
• at AC	10 ... 18 ms
<b>Arcing time</b>	10 ... 20 ms
<b>Control version of the switch operating mechanism</b>	Standard A1 - A2

### Auxiliary circuit

<b>Number of NC contacts for auxiliary contacts</b>	
• instantaneous contact	1
<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

<ul style="list-style-type: none"> <li>• at 48 V rated value</li> <li>• at 60 V rated value</li> <li>• at 110 V rated value</li> <li>• at 125 V rated value</li> <li>• at 220 V rated value</li> <li>• at 600 V rated value</li> </ul>	<p>6 A</p> <p>6 A</p> <p>3 A</p> <p>2 A</p> <p>1 A</p> <p>0.15 A</p>
<b>Operating current at DC-13</b> <ul style="list-style-type: none"> <li>• at 24 V rated value</li> <li>• at 48 V rated value</li> <li>• at 60 V rated value</li> <li>• at 110 V rated value</li> <li>• at 125 V rated value</li> <li>• at 220 V rated value</li> <li>• at 600 V rated value</li> </ul>	<p>10 A</p> <p>2 A</p> <p>2 A</p> <p>1 A</p> <p>0.9 A</p> <p>0.3 A</p> <p>0.1 A</p>
<b>Contact reliability of auxiliary contacts</b>	<p>1 faulty switching per 100 million (17 V, 1 mA)</p>

#### UL/CSA ratings

<b>Full-load current (FLA) for three-phase AC motor</b> <ul style="list-style-type: none"> <li>• at 480 V rated value</li> <li>• at 600 V rated value</li> </ul>	<p>65 A</p> <p>62 A</p>
<b>Yielded mechanical performance [hp]</b> <ul style="list-style-type: none"> <li>• for single-phase AC motor <ul style="list-style-type: none"> <li>— at 110/120 V rated value</li> <li>— at 230 V rated value</li> </ul> </li> <li>• for three-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> <li>— at 220/230 V rated value</li> <li>— at 460/480 V rated value</li> <li>— at 575/600 V rated value</li> </ul> </li> </ul>	<p>5 hp</p> <p>15 hp</p> <p>20 hp</p> <p>25 hp</p> <p>50 hp</p> <p>60 hp</p>
<b>Contact rating of auxiliary contacts according to UL</b>	<p>A600 / P600</p>

#### Short-circuit protection

<b>Design of the fuse link</b> <ul style="list-style-type: none"> <li>• for short-circuit protection of the main circuit <ul style="list-style-type: none"> <li>— with type of coordination 1 required</li> <li>— with type of assignment 2 required</li> </ul> </li> <li>• for short-circuit protection of the auxiliary switch required</li> </ul>	<p>gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)</p> <p>gG: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A (415V,80kA)</p> <p>gG: 10 A (500 V, 1 kA)</p>
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#### 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
• (mounting type)	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• Mounting type Side-by-side mounting	Yes
(height)	114 mm
Width	55 mm
Depth	130 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>	
• for main current circuit	screw-type terminals
• for auxiliary and control current circuit	screw-type terminals
• at contactor for auxiliary contacts	Screw-type terminals
• of magnet coil	Screw-type terminals
<b>Type of connectable conductor cross-sections</b>	
• for main contacts	
— single or multi-stranded	2x (1 ... 35 mm <sup>2</sup> ), 1x (1 ... 50 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 25 mm <sup>2</sup> ), 1x (1 ... 35 mm <sup>2</sup> )
• at AWG conductors for main contacts	2x (18 ... 2), 1x (18 ... 1)
<b>Connectable conductor cross-section for main contacts</b>	
• finely stranded with core end processing	1 ... 35 mm <sup>2</sup>
<b>Connectable conductor cross-section for auxiliary contacts</b>	
• single or multi-stranded	0.5 ... 2.5 mm <sup>2</sup>

<ul style="list-style-type: none"> <li>finely stranded with core end processing</li> </ul>	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 (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) 2x (20 ... 16), 2x (18 ... 14)
<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>	18 ... 1 20 ... 14

### 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> <li>positively driven operation acc. to IEC 60947-5-1</li> </ul>	Yes No
<b>T1 value for proof test interval or service life acc. to IEC 61508</b>	20 y
<b>Protection against electrical shock</b>	finger-safe when touched vertically from front acc. to IEC 60529
<b>Suitability for use</b> <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	Declaration of Conformity
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[Type Examination Certificate](#)



Declaration of Conformity	Test Certificates	Marine / Shipping
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[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Marine / Shipping	other
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[Confirmation](#)

#### 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=3RT2038-1AK60>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2038-1AK60>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AK60>

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

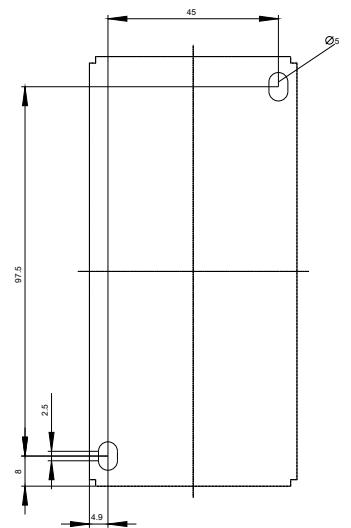
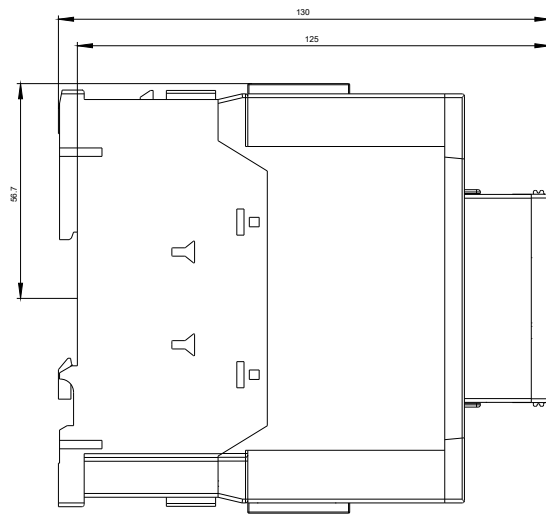
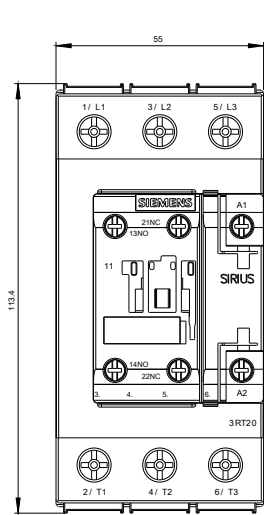
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2038-1AK60&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2038-1AK60&lang=en)

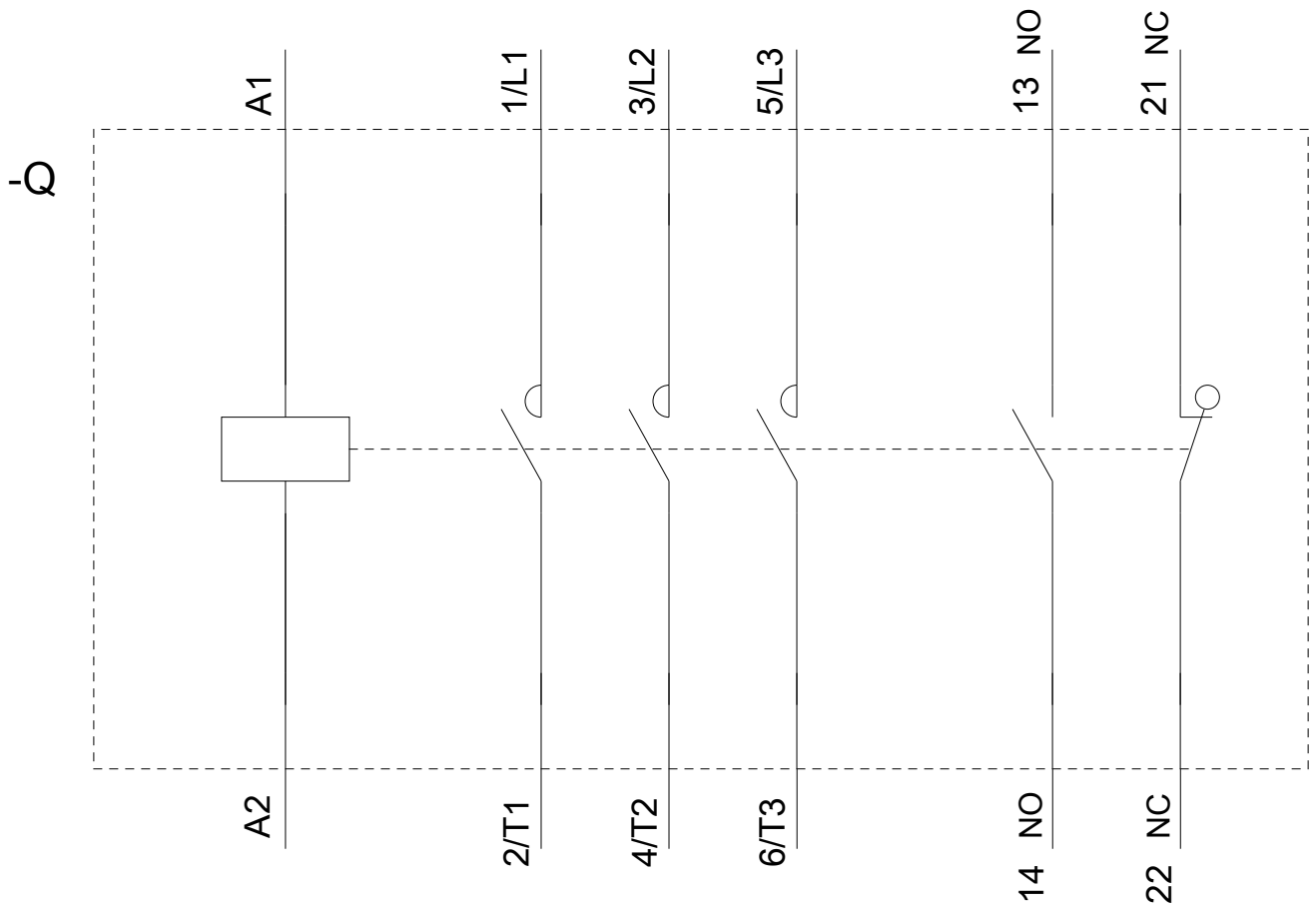
**Characteristic: Tripping characteristics, I<sup>t</sup>, Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AK60/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2038-1AK60&objecttype=14&gridview=view1>





last modified:

04/18/2019