



contactor AC-1, 140 A, 690 V / 40 °C, 3-pole, 230 V AC, 50/60 Hz, auxiliary contacts: 1 NO + 1 NC, main circuit: box terminal, control and auxiliary circuit: screw terminal

product brand name	SIRIUS
product designation	Contactor
product type designation	3RT24
<b>General technical data</b>	
size of contactor	S3
product extension	
• function module for communication	No
• auxiliary switch	Yes
power loss [W] for rated value of the current	
• at AC in hot operating state	29.4 W
• at AC in hot operating state per pole	9.8 W
insulation voltage	
• of main circuit with degree of pollution 3 rated value	1 000 V
• of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
• of main circuit rated value	8 kV
• of auxiliary circuit rated value	6 kV
shock resistance at rectangular impulse	
• at AC	10.3g / 5 ms, 6.g / 10 ms
shock resistance with sine pulse	
• at AC	16.3g / 5 ms, 10.g / 10 ms
mechanical service life (operating cycles)	
• of contactor typical	10 000 000
• of the contactor with added electronically optimized auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	03/01/2017
<b>Ambient conditions</b>	
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 %
<b>Main circuit</b>	
number of poles for main current circuit	3
number of NO contacts for main contacts	3
number of NC contacts for main contacts	0

<b>type of voltage for main current circuit</b>	AC
<b>operational current</b>	
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	140 A
— up to 690 V at ambient temperature 55 °C rated value	130 A
— up to 690 V at ambient temperature 60 °C rated value	130 A
— up to 1000 V at ambient temperature 40 °C rated value	60 A
— up to 1000 V at ambient temperature 60 °C rated value	60 A
• at AC-3	
— at 400 V rated value	44 A
— at 690 V rated value	44 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm <sup>2</sup>
<b>no-load switching frequency</b>	
• at AC	5 000 1/h
operating frequency at AC-1 maximum	650 1/h

#### Control circuit/ Control

<b>type of voltage</b>	AC
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage at AC</b>	
• at 50 Hz rated value	230 V
• at 60 Hz rated value	230 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	0.85 ... 1.1
<b>apparent pick-up power of magnet coil at AC</b>	
• at 50 Hz	348 VA
• at 60 Hz	296 VA
<b>inductive power factor with closing power of the coil</b>	
• at 50 Hz	0.62
• at 60 Hz	0.55
<b>apparent holding power of magnet coil at AC</b>	
• at 50 Hz	25 VA
• at 60 Hz	18 VA
<b>inductive power factor with the holding power of the coil</b>	
• at 50 Hz	0.35
• at 60 Hz	0.41
<b>closing delay</b>	
• at AC	13 ... 50 ms
<b>opening delay</b>	
• at AC	10 ... 21 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>	1
• attachable	2
• instantaneous contact	1
<b>number of NO contacts for auxiliary contacts</b>	1
• attachable	2
• instantaneous contact	1
operational current at AC-12 maximum	10 A
<b>operational current at AC-15</b>	
• at 230 V rated value	6 A
• at 400 V rated value	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 A
<b>operational current at DC-13</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>design of the miniature circuit breaker for short-circuit protection of the auxiliary switch required</p> <p><b>contact reliability of auxiliary contacts</b></p>	<p>2 A 2 A 1 A 0.9 A 0.3 A 0.1 A</p> <p>gG: 10 A (230 V, 400 A)</p> <p>1 faulty switching per 100 million (17 V, 1 mA)</p>
<b>Short-circuit protection</b>	
<p><b>product function short circuit protection design of the fuse link</b></p> <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>No</p> <p>gG: 250 A (690 V, 100 kA) gR: 250 A (690 V, 100 kA) gG: 10 A (500 V, 1 kA)</p>
<b>Installation/ mounting/ dimensions</b>	
<p><b>mounting position</b></p> <p><b>fastening method</b></p> <ul style="list-style-type: none"> <li>• side-by-side mounting</li> </ul> <p><b>height</b></p> <p><b>width</b></p> <p><b>depth</b></p> <p><b>required spacing</b></p> <ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>• for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul>	<p>+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface</p> <p>screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715</p> <p>Yes</p> <p>140 mm 70 mm 152 mm</p> <p>20 mm 10 mm 10 mm 0 mm</p> <p>20 mm 10 mm 10 mm 10 mm</p> <p>20 mm 10 mm 10 mm 10 mm</p>
<b>Connections/ Terminals</b>	
<p><b>type of electrical connection</b></p> <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul> <p>type of connectable conductor cross-sections for main contacts</p> <ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul> <p><b>connectable conductor cross-section for main contacts</b></p> <ul style="list-style-type: none"> <li>• solid</li> <li>• solid or stranded</li> <li>• stranded</li> <li>• finely stranded with core end processing</li> </ul> <p><b>connectable conductor cross-section for auxiliary contacts</b></p> <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> </ul>	<p>box terminal screw-type terminals Screw-type terminals Screw-type terminals</p> <p>2x (2.5 ... 16 mm<sup>2</sup>) 2x (2.5 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>), 1x (10 ... 70 mm<sup>2</sup>) 2x (2.5 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>), 1x (10 ... 70 mm<sup>2</sup>) 2x (2.5 ... 35 mm<sup>2</sup>), 1x (2.5 ... 50 mm<sup>2</sup>)</p> <p>2.5 ... 16 mm<sup>2</sup> 4 ... 70 mm<sup>2</sup> 6 ... 70 mm<sup>2</sup> 2.5 ... 50 mm<sup>2</sup></p> <p>0.5 ... 2.5 mm<sup>2</sup> 0.5 ... 2.5 mm<sup>2</sup></p>

### type of connectable conductor cross-sections

- for auxiliary contacts
  - solid
  - solid or stranded
  - finely stranded with core end processing
- at AWG cables for auxiliary contacts

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 (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)  
 2x (20 ... 16), 2x (18 ... 14)

### Safety related data

#### product function

- mirror contact according to IEC 60947-4-1
- positively driven operation according to IEC 60947-5-1

Yes  
No

#### proportion of dangerous failures

- with low demand rate according to SN 31920
- with high demand rate according to SN 31920

40 %  
73 %

T1 value for proof test interval or service life according to IEC 61508

20 a

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

### Certificates/ approvals

#### General Product Approval



[Confirmation](#)



[KC](#)



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
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[Type Examination Certificate](#)



EG-Konf.



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)

### Marine / Shipping



LRS



PRS



RINA



RMRS

other	Railway	Dangerous Good
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[Confirmation](#)

[Vibration and Shock](#)

[Transport Information](#)

### Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

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=3RT2446-1AL20>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2446-1AL20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AL20>

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

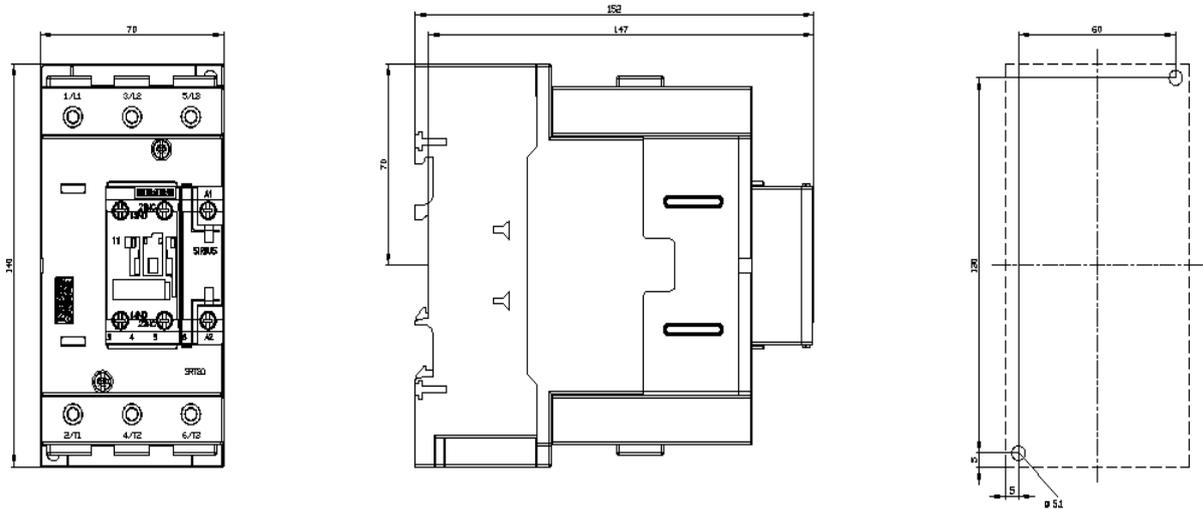
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2446-1AL20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2446-1AL20&lang=en)

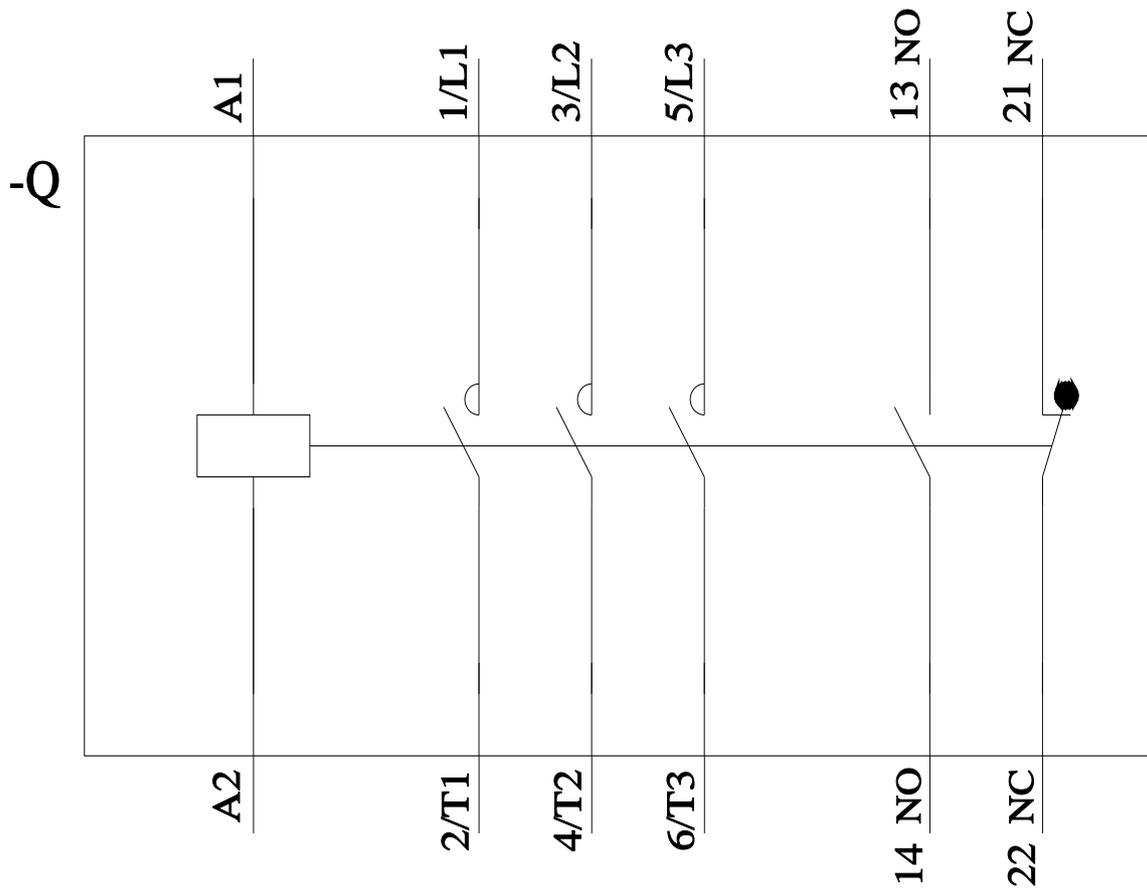
**Characteristic: Tripping characteristics, I<sup>t</sup>, Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AL20/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2446-1AL20&objecttype=14&gridview=view1>





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