



Contactor, AC-1, 160 A/690 V/40 °C, S3, 3-pole, 20-33 V AC/DC, with varistor, 1 NO+1 NC, box terminal/screw terminal

product brand name	SIRIUS
product designation	Contactor
product type designation	3RT24

### General technical data

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	38.4 W
• at AC in hot operating state per pole	12.8 W
• without load current share typical	2.7 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
• at DC	6.7 g / 5 ms, 4g / 10 ms
shock resistance with sine pulse	
• at AC	16.3g / 5 ms, 10.g / 10 ms
• at DC	10.6 g / 5 ms, 6.3 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)	04/28/2017

### 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 %

### Main circuit

<b>number of poles for main current circuit</b>	3
<b>number of NO contacts for main contacts</b>	3
<b>number of NC contacts for main contacts</b>	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	160 A
— up to 690 V at ambient temperature 55 °C rated value	140 A
— up to 690 V at ambient temperature 60 °C rated value	140 A
— up to 1000 V at ambient temperature 40 °C rated value	80 A
— up to 1000 V at ambient temperature 60 °C rated value	80 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	70 mm <sup>2</sup>
<b>no-load switching frequency</b>	
• at AC	1 000 1/h
• at DC	1 000 1/h
operating frequency at AC-1 maximum	650 1/h

#### Control circuit/ Control

<b>type of voltage</b>	AC/DC
<b>type of voltage of the control supply voltage</b>	AC/DC
<b>control supply voltage at AC</b>	
• at 50 Hz rated value	20 ... 33 V
• at 60 Hz rated value	20 ... 33 V
<b>control supply voltage at DC</b>	
• rated value	20 ... 33 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>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>design of the surge suppressor</b>	with varistor
<b>inrush current peak</b>	6.5 A
<b>duration of inrush current peak</b>	50 µs
<b>locked-rotor current mean value</b>	3.2 A
<b>locked-rotor current peak</b>	6.5 A
<b>duration of locked-rotor current</b>	150 ms
<b>holding current mean value</b>	75 mA
<b>apparent pick-up power of magnet coil at AC</b>	
• at 50 Hz	163 VA
• at 60 Hz	163 VA
<b>apparent holding power of magnet coil at AC</b>	
• at 50 Hz	3.5 VA
• at 60 Hz	3.5 VA
<b>closing power of magnet coil at DC</b>	76 W
<b>holding power of magnet coil at DC</b>	2.7 W
<b>closing delay</b>	
• at AC	50 ... 70 ms
• at DC	50 ... 70 ms
<b>opening delay</b>	
• at AC	38 ... 57 ms
• at DC	38 ... 57 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
• 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
design of the miniature circuit breaker for short-circuit protection of the auxiliary switch required	gG: 10 A (230 V, 400 A)
<b>contact reliability of auxiliary contacts</b>	1 faulty switching per 100 million (17 V, 1 mA)
<b>Short-circuit protection</b>	
<b>product function short circuit protection</b>	No
<b>design of the fuse link</b>	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 250 A (690 V, 100 kA)
— with type of assignment 2 required	gR: 250 A (690 V, 100 kA)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
<b>Installation/ mounting/ dimensions</b>	
<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>fastening method</b>	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
• side-by-side mounting	Yes
<b>height</b>	140 mm
<b>width</b>	70 mm
<b>depth</b>	152 mm
<b>required spacing</b>	
• with side-by-side mounting	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
• for grounded parts	
— forwards	20 mm
— upwards	10 mm
— at the side	10 mm
— downwards	10 mm
• for live parts	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
• for main current circuit	box terminal
• for auxiliary and control 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	

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

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>)  
 2x (10 ... 1/0), 1x (10 ... 2)

#### connectable conductor cross-section for main contacts

- solid
- solid or stranded
- stranded
- finely stranded with core end processing

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>

#### connectable conductor cross-section for auxiliary contacts

- solid or stranded
- finely stranded with core end processing

0.5 ... 2.5 mm<sup>2</sup>  
 0.5 ... 2.5 mm<sup>2</sup>

#### 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 %  
 20 a

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

#### 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



[Type Examination Certificate](#)



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

### Marine / Shipping



#### other

#### Railway

#### Dangerous Good

## Further information

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=3RT2448-1NB30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2448-1NB30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2448-1NB30>

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

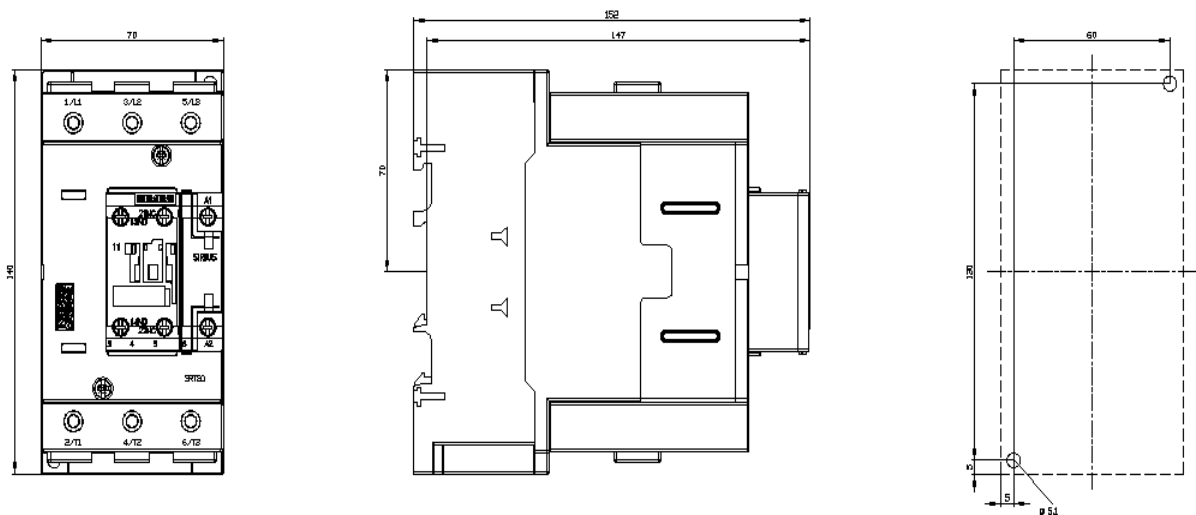
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2448-1NB30&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2448-1NB30&lang=en)

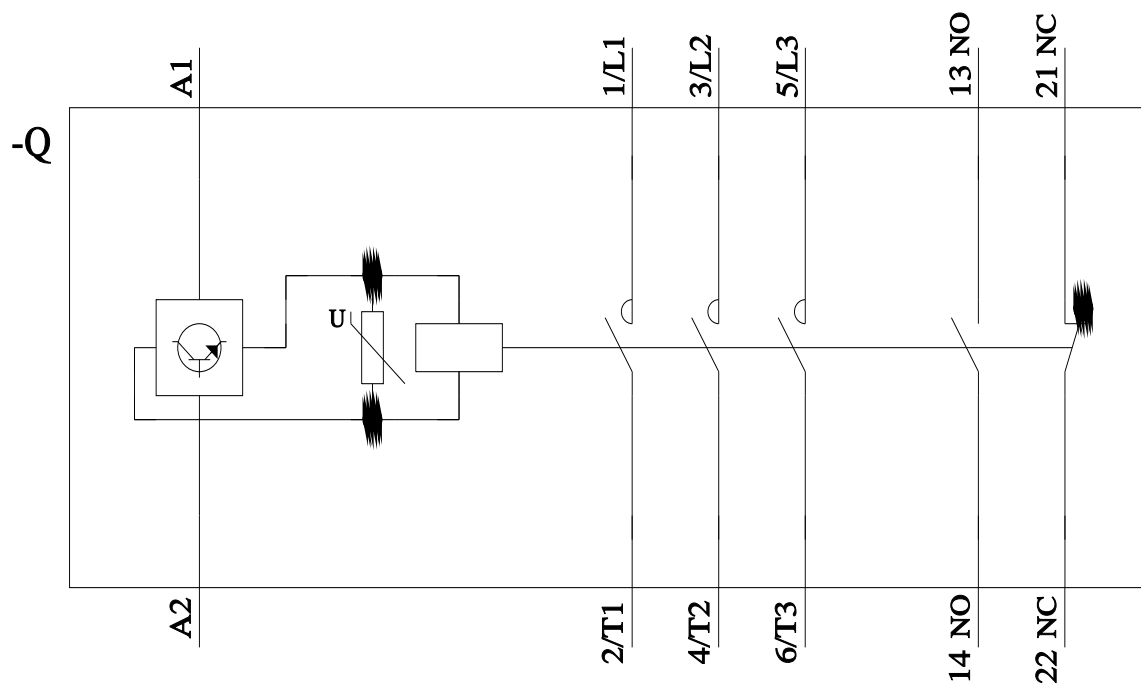
Characteristic: Tripping characteristics,  $I^2t$ , Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2448-1NB30/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2448-1NB30&objecttype=14&gridview=view1>





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