



contactor AC-1, 140 A, 690 V / 40 °C, 3-pole, 400 V AC, 50 Hz, auxiliary contacts: 1 NO + 1 NC, main circuit: box terminal, control and auxiliary circuit: screw terminal, size: S3

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
• without load current share typical	7.3 W
type of calculation of power loss depending on pole	quadratic
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 Prohibition (Date)	03/01/2017
Weight	1.705 kg
<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
type of voltage for main current circuit	AC
operational current	
<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 55 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul> </li> <li>at AC-3 <ul style="list-style-type: none"> <li>at 400 V rated value</li> <li>at 690 V rated value</li> </ul> </li> </ul>	140 A 130 A 130 A 44 A 44 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm <sup>2</sup>
operational current	
<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 60 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 60 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 60 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>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 60 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-3 at DC-5 <ul style="list-style-type: none"> <li>at 24 V rated value</li> <li>at 60 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-3 at DC-5 <ul style="list-style-type: none"> <li>at 24 V rated value</li> <li>at 60 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>	130 A 80 A 12 A 2.5 A 0.8 A 0.48 A 130 A 130 A 130 A 13 A 2.4 A 1.3 A 130 A 130 A 130 A 130 A 6 A 3.4 A 6 A 3 A 1.25 A 0.35 A 0.15 A 0.1 A 130 A 130 A 130 A 1.75 A 0.42 A 0.27 A 130 A 130 A 130 A 4 A 0.8 A 0.45 A
no-load switching frequency	
<ul style="list-style-type: none"> <li>at AC</li> </ul>	5 000 1/h
operating frequency at AC-1 maximum	650 1/h

Control circuit/ Control	
type of voltage	AC
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	400 V
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 ... 1.1
apparent pick-up power of magnet coil at AC	
• at 50 Hz	326 VA
• at 60 Hz	326 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.62
• at 60 Hz	0.55
apparent holding power of magnet coil at AC	
• at 50 Hz	22 VA
• at 60 Hz	22 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.36
• at 60 Hz	0.4
closing delay	
• at AC	13 ... 50 ms
opening delay	
• at AC	10 ... 21 ms
arcing time	10 ... 20 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts	1
• attachable	2
• instantaneous contact	1
number of NO contacts for auxiliary contacts	1
• attachable	2
• instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
• 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
operational current at DC-13	
• 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
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
Short-circuit protection	
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA
design of the fuse link	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 250 A (690 V, 100 kA)
— with type of coordination 2 required	gR: 250 A (690 V, 100 kA)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (690 V, 1 kA)
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
fastening method side-by-side mounting	Yes
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715

<b>height</b>	140 mm
<b>width</b>	70 mm
<b>depth</b>	152 mm
<b>required spacing</b>	
<ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 0 mm</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— at the side 10 mm</li> <li>— downwards 10 mm</li> </ul> </li> <li>• for live parts <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 10 mm</li> </ul> </li> </ul>	
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
<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>	box terminal 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 2x (2.5 ... 16 mm<sup>2</sup>)</li> <li>— stranded 2x (2.5 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>), 1x (10 ... 70 mm<sup>2</sup>)</li> <li>— solid or stranded 2x (2.5 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>), 1x (10 ... 70 mm<sup>2</sup>)</li> <li>— finely stranded with core end processing 2x (2.5 ... 35 mm<sup>2</sup>), 1x (2.5 ... 50 mm<sup>2</sup>)</li> </ul> </li> <li>• for AWG cables for main contacts 2x (10 ... 1/0), 1x (10 ... 2/0)</li> </ul>	
<b>connectable conductor cross-section for main contacts</b>	
<ul style="list-style-type: none"> <li>• solid 2.5 ... 16 mm<sup>2</sup></li> <li>• solid or stranded 4 ... 70 mm<sup>2</sup></li> <li>• stranded 6 ... 70 mm<sup>2</sup></li> <li>• finely stranded with core end processing 2.5 ... 50 mm<sup>2</sup></li> </ul>	
<b>connectable conductor cross-section for auxiliary contacts</b>	
<ul style="list-style-type: none"> <li>• solid or stranded 0.5 ... 2.5 mm<sup>2</sup></li> <li>• finely stranded with core end processing 0.5 ... 2.5 mm<sup>2</sup></li> </ul>	
<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>— solid 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> <li>— solid or stranded 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> <li>— finely stranded with core end processing 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> </ul> </li> <li>• for AWG cables for auxiliary contacts 2x (20 ... 16), 2x (18 ... 14)</li> </ul>	
<b>AWG number extended as coded connectable conductor cross section for main contacts</b>	10 ... 2/0
<b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>	20 ... 14
<b>Safety related data</b>	
<b>product function</b>	
<ul style="list-style-type: none"> <li>• mirror contact according to IEC 60947-4-1</li> <li>• positively driven operation according to IEC 60947-5-1</li> <li>• suitable for safety function</li> </ul>	Yes No Yes
suitability for use safety-related switching OFF	Yes
<b>service life maximum</b>	20 a
<b>proportion of dangerous failures</b>	
<ul style="list-style-type: none"> <li>• with low demand rate according to SN 31920</li> <li>• with high demand rate according to SN 31920</li> </ul>	40 % 73 %
<b>B10 value with high demand rate according to SN 31920</b>	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
<b>Approvals Certificates</b>	
General Product Approval	



[KC](#)



EMV	Test Certificates	Maritime application
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[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



Maritime application	other	Railway
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[Confirmation](#)

[Special Test Certificate](#)

Dangerous goods	Environment
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[Transport Information](#)

[Environmental Confirmations](#)

#### Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3RT2446-1AV00>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2446-1AV00>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AV00>

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

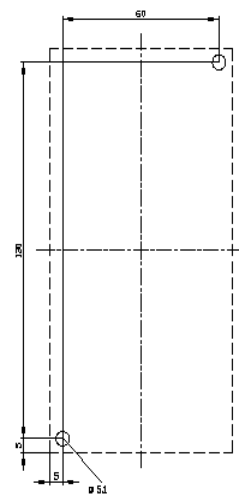
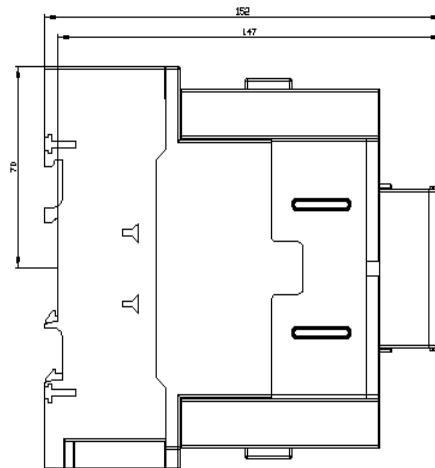
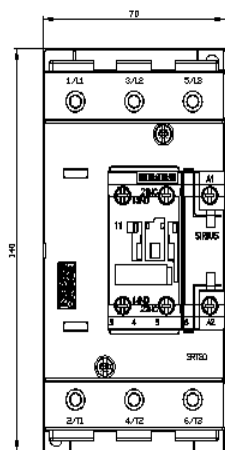
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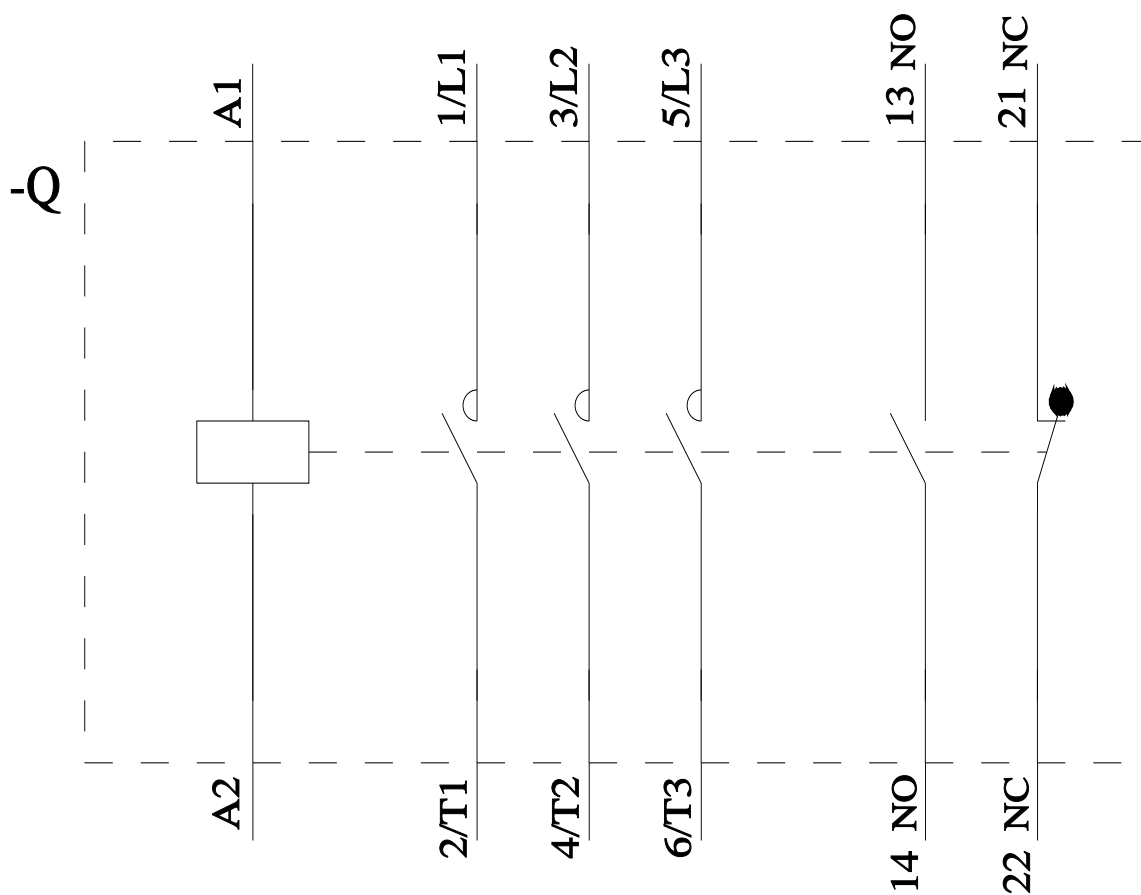
Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AV00/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2446-1AV00&objecttype=14&gridview=view1>





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