



power contactor AC-1 275 A / 690 V / 40 °C 3-pole, Uc: 200-277 V AC(50-60 Hz) / DC F-PLC input 24 V DC drive: electronic auxiliary contacts 2 NO + 2 NC main circuit: busbar control and auxiliary circuit: screw terminal

product brand name	SIRIUS
product designation	Contactor
product type designation	3RT14
<b>General technical data</b>	
size of contactor	S6
product extension	<ul style="list-style-type: none"> <li>• function module for communication</li> <li>• auxiliary switch</li> </ul>
power loss [W] for rated value of the current	<ul style="list-style-type: none"> <li>• at AC in hot operating state 86.4 W</li> <li>• at AC in hot operating state per pole 28.8 W</li> <li>• without load current share typical 2.8 W</li> </ul>
type of calculation of power loss depending on pole	quadratic
insulation voltage	<ul style="list-style-type: none"> <li>• of main circuit with degree of pollution 3 rated value 1 000 V</li> <li>• of auxiliary circuit with degree of pollution 3 rated value 500 V</li> </ul>
surge voltage resistance	<ul style="list-style-type: none"> <li>• of main circuit rated value 8 kV</li> <li>• of auxiliary circuit rated value 6 kV</li> </ul>
shock resistance at rectangular impulse	<ul style="list-style-type: none"> <li>• at AC 8,5g / 5 ms, 4,2g / 10 ms</li> <li>• at DC 8,5g / 5 ms, 4,2g / 10 ms</li> </ul>
shock resistance with sine pulse	<ul style="list-style-type: none"> <li>• at AC 13,4g / 5 ms, 6,5g / 10 ms</li> <li>• at DC 13,4g / 5 ms, 6,5g / 10 ms</li> </ul>
mechanical service life (operating cycles)	<ul style="list-style-type: none"> <li>• of contactor typical 10 000 000</li> <li>• of the contactor with added electronically optimized auxiliary switch block typical 5 000 000</li> <li>• of the contactor with added auxiliary switch block typical 10 000 000</li> </ul>
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	03/01/2017
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Perfluorobutane sulfonic acid (PFBS) and its salts - - Melamine - 108-78-1
Net Weight	3.338 kg
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m

<b>ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
<b>relative humidity minimum</b>	10 %
<b>relative humidity at 55 °C according to IEC 60068-2-30 maximum</b>	95 %
<b>Main circuit</b>	
<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	275 A
— up to 690 V at ambient temperature 55 °C rated value	250 A
— up to 690 V at ambient temperature 60 °C rated value	250 A
• at AC-3	
— at 400 V rated value	97 A
— at 690 V rated value	97 A
minimum cross-section in main circuit at maximum AC-1 rated value	140 mm <sup>2</sup>
<b>operational current</b>	
• <b>at 1 current path at DC-1</b>	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	18 A
— at 220 V rated value	3.4 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.5 A
• <b>with 2 current paths in series at DC-1</b>	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	250 A
— at 220 V rated value	20 A
— at 440 V rated value	3.2 A
— at 600 V rated value	1.6 A
• <b>with 3 current paths in series at DC-1</b>	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	250 A
— at 220 V rated value	250 A
— at 440 V rated value	11.5 A
— at 600 V rated value	4 A
• <b>at 1 current path at DC-3 at DC-5</b>	
— at 24 V rated value	250 A
— at 60 V rated value	7.5 A
— at 110 V rated value	2.5 A
— at 220 V rated value	0.6 A
— at 440 V rated value	0.17 A
— at 600 V rated value	0.12 A
• <b>with 2 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	250 A
— at 220 V rated value	2.5 A
— at 440 V rated value	0.65 A
— at 600 V rated value	0.37 A

• with 3 current paths in series at DC-3 at DC-5		
— at 24 V rated value	250 A	
— at 60 V rated value	250 A	
— at 110 V rated value	250 A	
— at 220 V rated value	250 A	
— at 440 V rated value	1.4 A	
— at 600 V rated value	0.75 A	
<b>no-load switching frequency</b>		
• at AC	1 000 1/h	
• at DC	1 000 1/h	
operating frequency at AC-1 maximum	200 1/h	
<b>Control circuit/ Control</b>		
<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	200 ... 277 V	
• at 60 Hz rated value	200 ... 277 V	
<b>control supply voltage at DC rated value</b>	200 ... 277 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>type of PLC-control input according to IEC 60947-1</b>	Type 1	
<b>consumed current at PLC-control input according to IEC 60947-1 maximum</b>	30 mA	
<b>design of the surge suppressor</b>	with varistor	
<b>apparent pick-up power</b>		
• at minimum rated control supply voltage at AC		
— at 50 Hz	190 VA	
— at 60 Hz	190 VA	
• at maximum rated control supply voltage at AC		
— at 60 Hz	280 VA	
— at 50 Hz	280 VA	
<b>apparent pick-up power of magnet coil at AC</b>		
• at 50 Hz	280 VA	
<b>inductive power factor with closing power of the coil</b>		
• at 50 Hz	0.8	
<b>apparent holding power</b>		
• at minimum rated control supply voltage at DC	2.1 VA	
• at maximum rated control supply voltage at DC	2.8 VA	
<b>apparent holding power</b>		
• at minimum rated control supply voltage at AC		
— at 50 Hz	4.3 VA	
— at 60 Hz	4.3 VA	
• at maximum rated control supply voltage at AC		
— at 50 Hz	5.2 VA	
— at 60 Hz	5.2 VA	
<b>apparent holding power of magnet coil at AC</b>		
• at 50 Hz	4.4 VA	
<b>inductive power factor with the holding power of the coil</b>		
• at 50 Hz	0.5	
<b>closing power of magnet coil at DC</b>	320 W	
<b>holding power of magnet coil at DC</b>	2.8 W	
<b>closing delay</b>		
• at AC	60 ... 75 ms	
• at DC	60 ... 75 ms	

<b>opening delay</b>	115 ... 130 ms
• at AC	115 ... 130 ms
• at DC	
<b>arcing time</b>	10 ... 15 ms
<b>control version of the switch operating mechanism</b>	
<b>Auxiliary circuit</b>	
<b>number of NC contacts for auxiliary contacts</b>	2
• attachable	4
• instantaneous contact	2
<b>number of NO contacts for auxiliary contacts</b>	2
• attachable	4
• instantaneous contact	2
<b>operational current at AC-12 maximum</b>	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
<b>contact reliability of auxiliary contacts</b>	1 faulty switching per 100 million (17 V, 1 mA)
<b>Short-circuit protection</b>	
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
<b>design of the fuse link</b>	
• for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 355 A (690 V, 100 kA)
— with type of coordination 2 required	gR: 350 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>	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
<b>fastening method side-by-side mounting</b>	Yes
<b>fastening method</b>	screw fixing
<b>height</b>	172 mm
<b>width</b>	120 mm
<b>depth</b>	170 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

Connections/ Terminals	
<b>type of electrical connection</b>	
• for main current circuit	Connection bar
• for auxiliary and control circuit	screw-type terminals
• at contactor for auxiliary contacts	Screw-type terminals
• of magnet coil	Screw-type terminals
<b>width of connection bar</b>	17 mm
<b>thickness of connection bar</b>	3 mm
<b>diameter of holes</b>	9 mm
<b>number of holes</b>	1
<b>type of connectable conductor cross-sections</b>	
• for AWG cables for main contacts	4 ... 250 kcmil
<b>connectable conductor cross-section for main contacts</b>	
• solid or stranded	25 ... 120 mm <sup>2</sup>
• stranded	25 ... 120 mm <sup>2</sup>
<b>connectable conductor cross-section for auxiliary contacts</b>	
• solid or stranded	0.5 ... 4 mm <sup>2</sup>
• finely stranded with core end processing	0.5 ... 2.5 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
• for auxiliary contacts	
— solid	2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), max. 2x (0.75 ... 4 mm <sup>2</sup> )
— solid or stranded	2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ), max. 2x (0.75 ... 4 mm <sup>2</sup> )
— finely stranded with core end processing	2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> )
• for AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14), 1x 12
<b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>	18 ... 14
Safety related data	
<b>product function</b>	
• mirror contact according to IEC 60947-4-1	Yes
• positively driven operation according to IEC 60947-5-1	No
• suitable for safety function	Yes
<b>suitability for use safety-related switching OFF</b>	Yes
<b>safe state</b>	off
<b>stop category according to IEC 60204-1</b>	0
<b>proportion of dangerous failures</b>	
• with low demand rate according to SN 31920	40 %
• with high demand rate according to SN 31920	73 %
<b>B10 value with high demand rate according to SN 31920</b>	1 000 000
<b>failure rate [FIT] with low demand rate according to SN 31920</b>	100 FIT
IEC 62061	
<b>Safety Integrity Level (SIL) according to IEC 62061</b>	SIL 2
PFHD with high demand rate according to IEC 62061	4.5E-7 1/h
ISO 13849	
<b>performance level (PL) according to ISO 13849-1</b>	PL c
<b>category according to ISO 13849-1</b>	2
<b>device type according to ISO 13849-1</b>	1
<b>overdimensioning according to ISO 13849-2 necessary</b>	Yes
IEC 61508	
Safety Integrity Level (SIL) according to IEC 61508	2
<b>safety device type according to IEC 61508-2</b>	Type B
<b>PFHD with high demand rate according to IEC 61508</b>	4.5E-7 1/h
PFDAvg with low demand rate according to IEC 61508	0.007
<b>Safe failure fraction (SFF)</b>	93 %
hardware fault tolerance according to IEC 61508	0
T1 value of service life according to IEC 61508	20 a
Electrical Safety	
<b>protection class IP on the front according to IEC 60529</b>	IP00; IP20 with box terminal/cover
<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front with box terminal/cover

## Approvals Certificates

### General Product Approval



EMV	Functional Safety	Test Certificates	other
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[Type Examination Certificate](#)[Special Test Certificate](#)[Type Test Certificates/Test Report](#)

产品合格  
QC PASS

[Confirmation](#)

other	Railway	Environment
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[Miscellaneous](#)[Special Test Certificate](#)[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=3RT1456-6SP36>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT1456-6SP36>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT1456-6SP36&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT1456-6SP36&lang=en)

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1456-6SP36>

Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="HAUPT"></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)



