



Solid-state contactor 3-phase 3RF2 AC 51 / 20 A / 40 °C 48-600 V / 230 V
AC 3-phase controlled screw terminal Blocking voltage 1200 V

product brand name	SIRIUS
product designation	solid-state contactor
design of the product	three-phase controlled
product type designation	3RF24

General technical data

product function	zero-point switching
power loss [W] for rated value of the current	
• at AC in hot operating state	66 W
• at AC in hot operating state per pole	22 W
• without load current share typical	3.5 W
insulation voltage rated value	600 V
degree of pollution	3
type of voltage of the control supply voltage	AC
surge voltage resistance of main circuit rated value	6 kV
shock resistance according to IEC 60068-2-27	15g / 11 ms
vibration resistance according to IEC 60068-2-6	2g
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	07/01/2006

Main circuit

number of poles for main current circuit	3
number of NO contacts for main contacts	3
number of NC contacts for main contacts	0
operating voltage at AC	
• at 50 Hz rated value	48 ... 600 V
• at 60 Hz rated value	48 ... 600 V
operating frequency rated value	50 ... 60 Hz
relative symmetrical tolerance of the operating frequency	10 %
operating range relative to the operating voltage at AC	
• at 50 Hz	40 ... 660 V
• at 60 Hz	40 ... 660 V
operational current	
• at AC-51 rated value	22 A
• at AC-51 according to IEC 60947-4-3	15 A
• according to UL 508 rated value	15 A
operational current minimum	500 mA
rate of voltage rise at the thyristor for main contacts	1 000 V/μs
maximum permissible	
blocking voltage at the thyristor for main contacts	1 200 V
maximum permissible	
reverse current of the thyristor	10 mA
derating temperature	40 °C

surge current resistance rated value	600 A
I²t value maximum	1 800 A ² ·s
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage 1 at AC	
• at 50 Hz	180 ... 230 V
• at 60 Hz	180 ... 230 V
control supply voltage frequency	
• 1 rated value	45 Hz
• 2 rated value	66 Hz
control supply voltage at AC	
• at 50 Hz full-scale value for signal<0> recognition	40 V
• at 60 Hz full-scale value for signal<0> recognition	180 V
control supply voltage	
• at AC initial value for signal <1> detection	180 V
symmetrical line frequency tolerance	5 Hz
control current at minimum control supply voltage	
• at AC	2 mA
control current at AC rated value	15 mA
ON-delay time	40 ms; additionally max. one half-wave
Auxiliary circuit	
number of NC contacts for auxiliary contacts	0
number of NO contacts for auxiliary contacts	0
number of CO contacts for auxiliary contacts	0
Installation/ mounting/ dimensions	
fastening method	screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715
• side-by-side mounting	Yes
design of the thread of the screw for securing the equipment	M4
height	100 mm
width	74.5 mm
depth	119.5 mm
Connections/ Terminals	
type of electrical connection	
• for main current circuit	screw-type terminals
• for auxiliary and control circuit	screw-type terminals
type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (1.5 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²)
— finely stranded with core end processing	2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ²
• at AWG cables for main contacts	2x (14 ... 10)
connectable conductor cross-section for main contacts	
• solid or stranded	0.5 ... 2.5 mm ²
• finely stranded with core end processing	0.5 ... 1.5 mm ²
• finely stranded without core end processing	0.5 ... 2.5 mm ²
type of connectable conductor cross-sections	
• for auxiliary and control contacts	
— solid	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
— finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
— finely stranded without core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.0 mm ²)
• at AWG cables for auxiliary and control contacts	1x (AWG 20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	14 ... 10
tightening torque	
• for main contacts with screw-type terminals	2 ... 2.5 N·m
• for auxiliary and control contacts with screw-type terminals	0.5 ... 0.6 N·m
tightening torque [lbf·in]	
• for main contacts with screw-type terminals	18 ... 22 lbf·in
• for auxiliary and control contacts with screw-type terminals	7.5 ... 5.3 lbf·in
design of the thread of the connection screw	

• for main contacts • of the auxiliary and control contacts	M4 M3									
stripped length of the cable										
• for main contacts • for auxiliary and control contacts	7 mm 7 mm									
Safety related data										
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									
Ambient conditions										
installation altitude at height above sea level maximum	1 000 m									
ambient temperature										
• during operation • during storage	-25 ... +60 °C -55 ... +80 °C									
Electromagnetic compatibility										
conducted interference										
• due to burst according to IEC 61000-4-4 • due to conductor-earth surge according to IEC 61000-4-5 • due to conductor-conductor surge according to IEC 61000-4-5 • due to high-frequency radiation according to IEC 61000-4-6	2 kV / 5 kHz behavior criterion 2 2 kV behavior criterion 2 1 kV behavior criterion 2 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1									
electrostatic discharge according to IEC 61000-4-2	4 kV contact discharging / 8 kV air discharging, behavior criterion 2									
conducted HF interference emissions according to CISPR11	Class A for industrial environment									
field-bound HF interference emission according to CISPR11	Class A for industrial environment									
Short-circuit protection, design of the fuse link										
manufacturer's article number										
• of full range R fuse link for semiconductor protection at NH design usable • of full range R fuse link for semiconductor protection at cylindrical design usable • of back-up R fuse link for semiconductor protection at NH design usable • of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable • of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable • of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable	3NE1814-0 5SE1320 ; Maximum operating voltage 400 V! 3NE8015-1 3NC1032 3NC1450 3NC2250									
manufacturer's article number of the gG fuse at NH design usable										
• up to 460 V	3NA3805 ; These fuses have a smaller rated current than the semiconductor relays									
Certificates/ approvals										
<table><tr><td>General Product Approval</td><td>EMC</td><td>Declaration of Conformity</td></tr><tr><td> CSA</td><td> UL</td><td> EAC</td></tr><tr><td>Confirmation</td><td> RCM</td><td> EG-Konf.</td></tr></table>		General Product Approval	EMC	Declaration of Conformity	 CSA	 UL	 EAC	Confirmation	 RCM	 EG-Konf.
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<table><tr><td>Declaration of Conformity</td><td>Test Certificates</td><td>other</td></tr><tr><td> UK CA</td><td>Type Test Certificates/Test Report</td><td>Confirmation  VDE</td></tr></table>		Declaration of Conformity	Test Certificates	other	 UK CA	Type Test Certificates/Test Report	Confirmation  VDE			
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Further information

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=3RF2420-1AC55>

Cax online generator

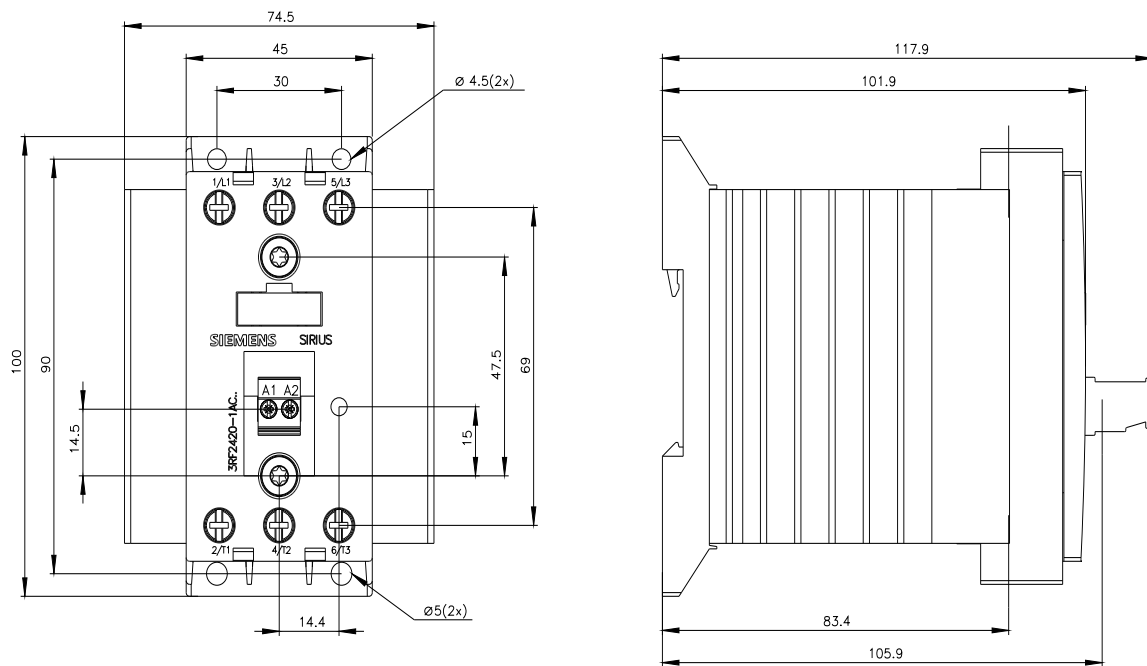
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2420-1AC55>

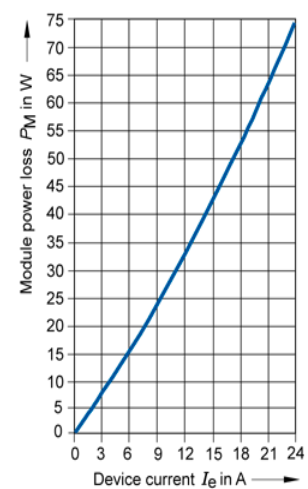
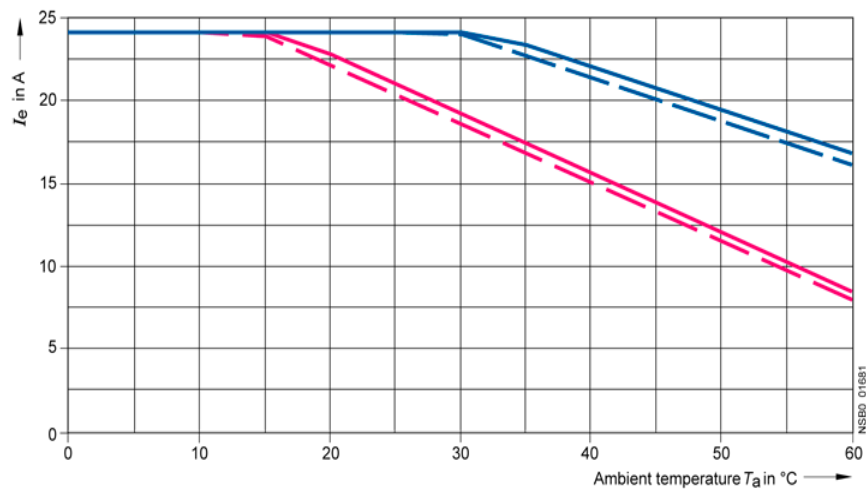
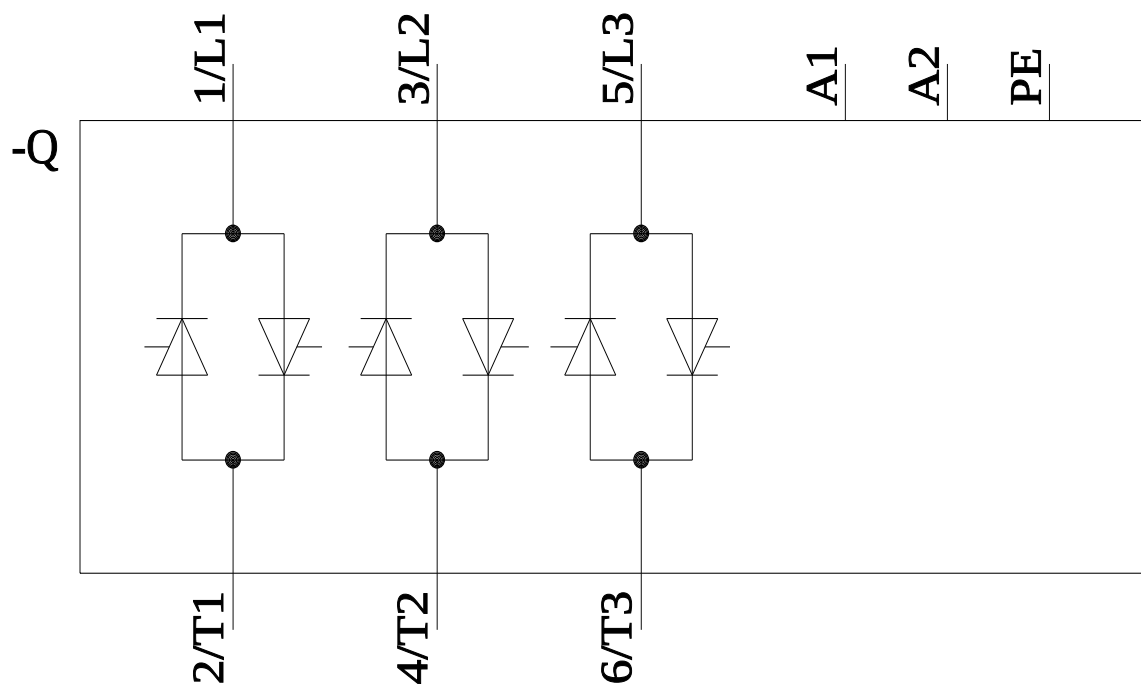
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2420-1AC55>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2420-1AC55&lang=en





- $I_{\max}$ Thermal limit current for individual mounting
- - - $I_{\max}$ Thermal limit current for side-by-side mounting
- I_{IEC} Current according to IEC 947-4-3 for individual mounting
- - - I_{IEC} Current according to IEC 947-4-3 for side-by-side mounting

last modified:

1/26/2022