



Semiconductor relay, 1-phase 3RF2 Overall width 45 mm, 30 A 24-230 V / 24 V  
DC screw terminal

product brand name	SIRIUS
product designation	solid-state relay
design of the product	single-phase
product type designation	3RF20
<b>General technical data</b>	
product function	zero-point switching
power loss [W] for rated value of the current	
• at AC in hot operating state	44.2 W
• at AC in hot operating state per pole	44.2 W
• without load current share typical	0.4 W
insulation voltage rated value	600 V
type of voltage of the control supply voltage	DC
shock resistance according to IEC 60068-2-27	15g / 11 ms
vibration resistance according to IEC 60068-2-6	2g
reference code according to EN 61346-2	Q
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	05/28/2009
<b>Main circuit</b>	
number of poles for main current circuit	1
number of NO contacts for main contacts	1
number of NC contacts for main contacts	0
operating voltage at AC	
• at 50 Hz rated value	24 ... 230 V
• at 60 Hz rated value	24 ... 230 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	20 ... 253 V
• at 60 Hz	20 ... 253 V
operational current	
• at AC-51 rated value	30 A
• according to UL 508 rated value	30 A
ampacity maximum	30 A
operational current minimum	500 mA
rate of voltage rise at the thyristor for main contacts maximum permissible	500 V/μs
blocking voltage at the thyristor for main contacts maximum permissible	800 V
reverse current of the thyristor	10 mA
derating temperature	40 °C
surge current resistance rated value	300 A

<b>I<sup>2</sup>t value maximum</b>	450 A <sup>2</sup> ·s
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	DC
<b>control supply voltage 1</b>	
• at DC rated value	30 V
• at DC	15 ... 24 V
<b>control supply voltage</b>	
• at DC initial value for signal <1> detection	15 V
• at DC full-scale value for signal<0> recognition	5 V
<b>control current at minimum control supply voltage</b>	
• at DC	13 mA
control current at DC rated value	15 mA
<b>ON-delay time</b>	1 ms; additionally max. one half-wave
<b>OFF-delay time</b>	1 ms; additionally max. one half-wave
<b>Auxiliary circuit</b>	
<b>number of NC contacts for auxiliary contacts</b>	0
<b>number of NO contacts for auxiliary contacts</b>	0
number of CO contacts for auxiliary contacts	0
<b>Installation/ mounting/ dimensions</b>	
<b>fastening method</b>	screw fixing
• side-by-side mounting	Yes
<b>design of the thread of the screw for securing the equipment</b>	M4
<b>tightening torque of fixing screw maximum</b>	1.5 N·m
<b>tightening torque [lbf·in] of fixing screw maximum</b>	13 lbf·in
<b>height</b>	58 mm
<b>width</b>	45 mm
<b>depth</b>	48 mm
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
• for main current circuit	screw-type terminals
• for auxiliary and control circuit	screw-type terminals
<b>type of connectable conductor cross-sections</b>	
• for main contacts	
— solid	2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup>
• for AWG cables for main contacts	2x (14 ... 10)
<b>connectable conductor cross-section for main contacts</b>	
• solid or stranded	1.5 ... 6 mm <sup>2</sup>
• finely stranded with core end processing	1 ... 10 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
• for auxiliary and control contacts	
— solid	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
— finely stranded with core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
— finely stranded without core end processing	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.0 mm <sup>2</sup> )
• for AWG cables for auxiliary and control contacts	1x (AWG 20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	14 ... 10
<b>tightening torque</b>	
• 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
<b>tightening torque [lbf·in]</b>	
• for main contacts with screw-type terminals	7 ... 10.3 lbf·in
• for auxiliary and control contacts with screw-type terminals	4.5 ... 5.3 lbf·in
<b>design of the thread of the connection screw</b>	
• for main contacts	M4
• of the auxiliary and control contacts	M3
<b>stripped length of the cable</b>	
• for main contacts	10 mm
• for auxiliary and control contacts	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		-25 ... +60 °C
• during storage		-55 ... +80 °C
Electromagnetic compatibility		
conducted interference		
• due to burst according to IEC 61000-4-4		2 kV / 5 kHz behavior criterion 2
• due to conductor-earth surge according to IEC 61000-4-5		2 kV behavior criterion 2
• due to conductor-conductor surge according to IEC 61000-4-5		1 kV behavior criterion 2
• due to high-frequency radiation according to IEC 61000-4-6		140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
field-based interference according to IEC 61000-4-3		80 MHz ... 1 GHz 10 V/m, 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 B for the domestic, business and commercial environments
Short-circuit protection, design of the fuse link		
manufacturer's article number		
• of gS fuse for semiconductor protection at NH design usable		<a href="#">3NE1815-0: These fuses have a smaller rated current than the semiconductor relays</a>
• of full range R fuse link for semiconductor protection at cylindrical design usable		<a href="#">5SE1335</a>
• of back-up R fuse link for semiconductor protection at NH design usable		<a href="#">3NE8003-1</a>
• of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable		<a href="#">3NC1032</a>
• of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable		<a href="#">3NC1440</a>
• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable		<a href="#">3NC2240</a>
manufacturer's article number of the gG fuse		
• at NH design usable		<a href="#">3NA6803: These fuses have a smaller rated current than the semiconductor relays</a>
• at cylindrical design 14 x 51 mm usable		<a href="#">3NW6103-1: These fuses have a smaller rated current than the semiconductor relays</a>
manufacturer's article number		
• of DIAZED fuse usable		<a href="#">5SB251: These fuses have a smaller rated current than the semiconductor relays</a>
Certificates/ approvals		
General Product Approval		EMC
		Declaration of Con- formity



[Confirmation](#)



Declaration of Conformity	Test Certificates	other
---------------------------	-------------------	-------



[Type Test Certificates/Test Report](#)

[Confirmation](#)

#### 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=3RF2030-1AA02>

**Cax online generator**

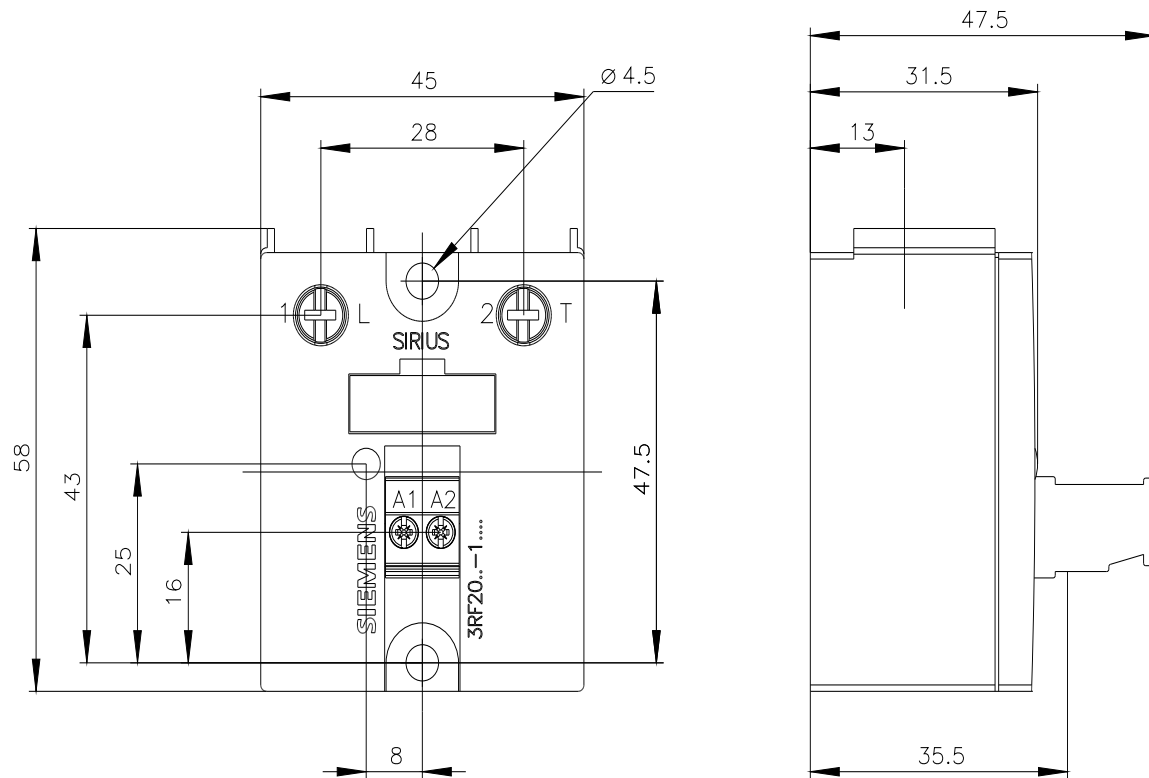
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2030-1AA02>

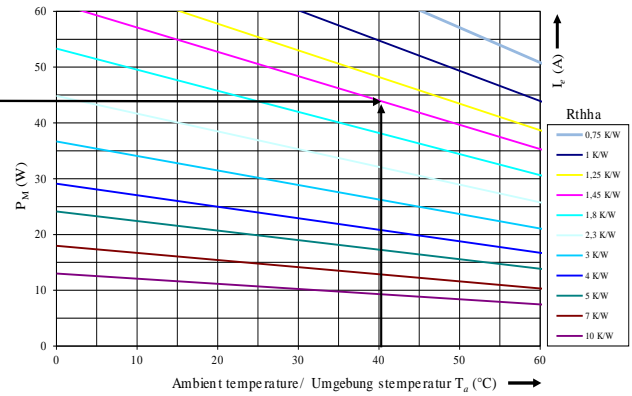
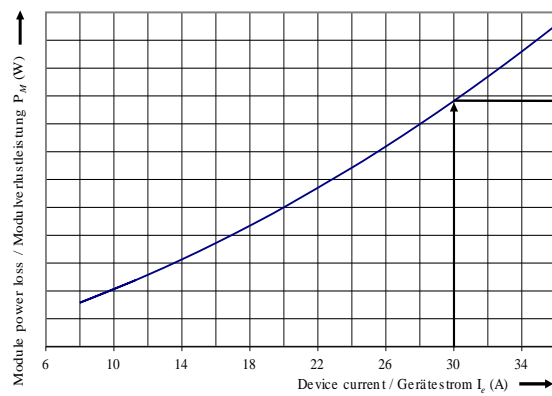
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2030-1AA02>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2030-1AA02&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2030-1AA02&lang=en)





last modified:

1/11/2022

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Siemens:

[3RF20301AA02](#)