

Semiconductor relay, 1-phase 3RF2 Overall width 45 mm, 30 A 24-230 V / 110-230 V AC screw terminal



<b>Product brand name</b>	SIRIUS
<b>Product designation</b>	solid-state relay
<b>Product type designation</b>	3RF20

### General technical data

<b>Product function</b>	zero-point switching
Power loss [W] / for rated value of the current / at AC / in hot operating state	44.2 W
<b>Insulation voltage</b>	
• rated value	600 V
<b>Protection class IP</b>	IP20
Shock resistance / acc. to IEC 60068-2-27	15g / 11 ms
Vibration resistance / acc. to IEC 60068-2-6	2g
<b>Reference code / acc. to DIN EN 81346-2</b>	Q

### Main circuit

<b>Number of poles / for main current circuit</b>	1
<b>Number of NO contacts / for main contacts</b>	1
<b>Number of NC contacts / for main contacts</b>	0
<b>Operating voltage / at AC</b>	
• at 50 Hz / rated value	24 ... 230 V

• at 60 Hz / rated value	24 ... 230 V
<b>Operating frequency / rated value</b>	50 ... 60 Hz
<b>Relative symmetrical tolerance / of the operating frequency</b>	10 %
<b>Operating range relative to the operating voltage / at AC</b>	
• at 50 Hz	20 ... 253 V
• at 60 Hz	20 ... 253 V
<b>Operating current</b>	
• at AC-51 / rated value	30 A
• acc. to UL 508 / rated value	30 A
<b>Ampacity / maximum</b>	30 A
<b>Operating current / minimum</b>	500 mA
<b>Rate of voltage rise / at the thyristor / for main contacts / maximum permissible</b>	500 V/ $\mu$ s
<b>Blocking voltage / at the thyristor / for main contacts / maximum permissible</b>	800 V
<b>Reverse current / of the thyristor</b>	10 mA
<b>Derating temperature</b>	40 °C
<b>Surge current resistance / rated value</b>	300 A
<b>I<sup>2</sup>t value / maximum</b>	450 A <sup>2</sup> ·s

#### Control circuit/ Control

<b>Type of voltage / of the control supply voltage</b>	AC
<b>Control supply voltage / 1 / at AC</b>	
• at 50 Hz	110 ... 230 V
• at 60 Hz	110 ... 230 V
<b>Control supply voltage frequency</b>	
• 1 / rated value	50 Hz
• 2 / rated value	60 Hz
<b>Control supply voltage / at AC</b>	
• at 50 Hz / Full-scale value for signal<0> recognition	40 V
• at 60 Hz / Full-scale value for signal<0> recognition	40 V
<b>Control supply voltage</b>	
• at AC / initial value for signal <1> detection	90 V
<b>Symmetrical line frequency tolerance</b>	5 Hz
<b>Control current / at minimum control supply voltage</b>	
• at AC	2 mA
<b>Control current / at AC / rated value</b>	15 mA
<b>Switch-on delay time</b>	40 ms; additionally max. one half-wave
<b>Off-delay time</b>	40 ms
<b>Number of NC contacts / for auxiliary contacts</b>	0

Number of NO contacts / for auxiliary contacts	0
Number of CO contacts / for auxiliary contacts	0

### Installation/ mounting/ dimensions

<b>Mounting type</b>	screw fixing
• Side-by-side mounting	Yes
<b>Height</b>	58 mm
<b>Width</b>	45 mm
<b>Depth</b>	48 mm
<b>Installation altitude / at height above sea level / maximum</b>	1 000 m

### Connections/ 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>
• at AWG conductors / for main contacts	2x (14 ... 10)
<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> )
• at AWG conductors / for auxiliary and control contacts	1x (AWG 20 ... 12)
<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>Wire stripping length / of the cable</b>	
• for main contacts	10 mm
• for auxiliary and control contacts	7 mm

### Ambient conditions

<b>Ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C

## Electromagnetic compatibility

### Conducted interference

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• due to burst / acc. to IEC 61000-4-4</li></ul>                     | 2 kV / 5 kHz behavior criterion 2                                     |
| <ul style="list-style-type: none"><li>• due to conductor-earth surge / acc. to IEC 61000-4-5</li></ul>     | 2 kV behavior criterion 2   |
| <ul style="list-style-type: none"><li>• due to conductor-conductor surge / acc. to IEC 61000-4-5</li></ul> | 1 kV behavior criterion 2   |
| <ul style="list-style-type: none"><li>• due to high-frequency radiation / acc. to IEC 61000-4-6</li></ul>  | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 |

### Electrostatic discharge / acc. to IEC 61000-4-2

4 kV contact discharging / 8 kV air discharging, behavior criterion 2

### Conducted HF-interference emissions / acc. to CISPR11

Class A for industrial environment

### Field-bound HF-interference emission / acc. to CISPR11

Class B for the domestic, business and commercial environments

## Short-circuit protection, design of the fuse link

### Manufacturer's article number

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• of gS fuse for semiconductor protection / at NH design</li></ul>                                 | <a href="#">3NE1815-0; These fuses have a smaller rated current than the semiconductor relays</a> |
| <ul style="list-style-type: none"><li>• of full range R fuse link for semiconductor protection / at cylindrical design</li></ul>         | <a href="#">5SE1335</a>   |
| <ul style="list-style-type: none"><li>• of back-up R fuse link for semiconductor protection / at NH design</li></ul>                     | <a href="#">3NE8003-1</a>   |
| <ul style="list-style-type: none"><li>• of back-up R fuse link for semiconductor protection / at cylindrical design 10 x 38 mm</li></ul> | <a href="#">3NC1032</a>   |
| <ul style="list-style-type: none"><li>• of back-up R fuse link for semiconductor protection / at cylindrical design 14 x 51 mm</li></ul> | <a href="#">3NC1440</a>   |
| <ul style="list-style-type: none"><li>• of back-up R fuse link for semiconductor protection / at cylindrical design 22 x 58 mm</li></ul> | <a href="#">3NC2240</a>   |

### Manufacturer's article number / of the gG fuse

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• at NH design</li></ul>                     | <a href="#">3NA6803; These fuses have a smaller rated current than the semiconductor relays</a>   |
| <ul style="list-style-type: none"><li>• at cylindrical design 14 x 51 mm</li></ul> | <a href="#">3NW6103-1; These fuses have a smaller rated current than the semiconductor relays</a> |

### Manufacturer's article number

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• of DIAZED fuse</li></ul> | <a href="#">5SB251; These fuses have a smaller rated current than the semiconductor relays</a> |
| <ul style="list-style-type: none"><li>• of NEOZED fuse</li></ul> | 5SE2313-2A; These fuses have a smaller rated current than the semiconductor relays             |

## Certificates/ approvals

General Product Approval	EMC	Declaration of Conformity
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[Miscellaneous](#)

Test Certificates	other
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[Type Test Certificates/Test Report](#)

[Confirmation](#)

### 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=3RF2030-1AA22>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2030-1AA22>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2030-1AA22>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2030-1AA22&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2030-1AA22&lang=en)





