

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



|                          |                       |
|--------------------------|-----------------------|
| Product brand name       | SIRIUS                |
| Product designation      | solid-state contactor |
| 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                 |
| Insulation voltage   |                      |
| • rated value  | 600 V                |
| Degree of pollution  | 3                    |
| Protection class IP  | IP20                 |
| Shock resistance / acc. to IEC 60068-2-27  | 15g / 11 ms          |
| Vibration resistance / acc. to IEC 60068-2-6                                     | 2g                   |
| Reference code / acc. to DIN EN 81346-2  | Q                    |

### 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            |
| <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   | 40 ... 660 V            |
| • at 60 Hz   | 40 ... 660 V            |
| <b>Operating current</b>   |                         |
| • at AC-51 / rated value   | 22 A                    |
| • acc. to UL 508 / rated value   | 15 A                    |
| <b>Operating current / minimum</b>   | 500 mA                  |
| <b>Rate of voltage rise / at the thyristor / for main contacts / maximum permissible</b> | 1 000 V/ $\mu$ s        |
| <b>Blocking voltage / at the thyristor / for main contacts / maximum permissible</b>     | 1 200 V                 |
| <b>Reverse current / of the thyristor</b>  | 10 mA                   |
| <b>Derating temperature</b>  | 40 °C                   |
| <b>Surge current resistance / rated value</b>  | 600 A                   |
| <b>I<sup>2</sup>t value / maximum</b>  | 1 800 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   | 180 ... 230 V                          |
| • at 60 Hz   | 180 ... 230 V                          |
| <b>Control supply voltage frequency</b>                    |  |
| • 1 / rated value  | 45 Hz                                  |
| • 2 / rated value  | 66 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    | 180 V                                  |
| <b>Control supply voltage</b>                              |  |
| • at AC / initial value for signal <1> detection           | 180 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>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 |
|--|---|

### Installation/ mounting/ dimensions

|   |  |
|---|--|
| <b>Mounting type</b>  | screw and snap-on mounting onto 35 mm standard mounting rail |
| <ul style="list-style-type: none"> <li>• Side-by-side mounting</li> </ul> | Yes  |
| <b>Height</b>   | 100 mm   |
| <b>Width</b>  | 74.5 mm; 90.5 mm product version E01                         |
| <b>Depth</b>  | 115.6 mm; 112.5 mm product version E01                       |
| <b>Installation altitude / at height above sea level / maximum</b>        | 1 000 m  |

### Connections/ 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</li> <li>— finely stranded / with core end processing</li> <li>— finely stranded / without core end processing</li> </ul> </li> <li>• at AWG conductors / for main contacts</li> </ul>                                   | 2x (0.5 ... 2.5 mm <sup>2</sup> )<br>2x (0.5 ... 1.5 mm <sup>2</sup> )<br>2x (0.5 ... 2.5 mm <sup>2</sup> )<br><br>2x (18 ... 14) |
| <b>Type of connectable conductor cross-sections</b>  |   |
| <ul style="list-style-type: none"> <li>• for auxiliary and control contacts <ul style="list-style-type: none"> <li>— solid</li> <li>— finely stranded / with core end processing</li> <li>— finely stranded / without core end processing</li> </ul> </li> <li>• at AWG conductors / for auxiliary and control contacts</li> </ul> | 0.5 ... 1.5 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup><br>0.5 ... 2.5 mm <sup>2</sup><br><br>1x (AWG 20 ... 12)               |
| <b>Wire stripping length / of the cable</b>  |   |
| <ul style="list-style-type: none"> <li>• for main contacts</li> <li>• for auxiliary and control contacts</li> </ul>  | 10 mm<br>10 mm  |

### Ambient conditions

|  |                                  |
|--|----------------------------------|
| <b>Ambient temperature</b>   |                                  |
| <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage</li> </ul> | -25 ... +60 °C<br>-55 ... +80 °C |

### Electromagnetic compatibility






|   |  |
|---|--|
| <b>Conducted interference</b>   |  |
| <ul style="list-style-type: none"> <li>• due to burst / acc. to IEC 61000-4-4</li> <li>• due to conductor-earth surge / acc. to IEC 61000-4-5</li> <li>• due to conductor-conductor surge / acc. to IEC 61000-4-5</li> <li>• due to high-frequency radiation / acc. to IEC 61000-4-6</li> </ul> | 2 kV / 5 kHz behavior criterion 2<br>2 kV behavior criterion 2<br>1 kV behavior criterion 2<br><br>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 A for industrial environment                                    |

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

|  |   |
|--|---|
| <p>Manufacturer's article number</p> <ul style="list-style-type: none"> <li>• of full range R fuse link for semiconductor protection / at NH design</li> <li>• of full range R fuse link for semiconductor protection / at cylindrical design</li> <li>• of back-up R fuse link for semiconductor protection / at NH design</li> <li>• of back-up R fuse link for semiconductor protection / at cylindrical design 10 x 38 mm</li> <li>• of back-up R fuse link for semiconductor protection / at cylindrical design 14 x 51 mm</li> <li>• of back-up R fuse link for semiconductor protection / at cylindrical design 22 x 58 mm</li> </ul> | <p><a href="#">3NE1814-0</a></p> <p><a href="#">5SE1320; Maximum operating voltage 400 V!</a></p> <p><a href="#">3NE8015-1</a></p> <p><a href="#">3NC1032</a></p> <p><a href="#">3NC1450</a></p> <p><a href="#">3NC2250</a></p> |
| <p>Manufacturer's article number / of the gG fuse / at NH design</p> <ul style="list-style-type: none"> <li>• up to 460 V</li> </ul>   | <p><a href="#">3NA3805; These fuses have a smaller rated current than the semiconductor relays</a></p>  |

### Certificates/ approvals

| General Product Approval  | EMC  | Declaration of Conformity  |
|---|--|--|
|  CSA<br> UL |  EAC<br> RCM |  CE<br>EG-Konf. |

[Miscellaneous](#)

| Test Certificates | other |
|-------------------|-------|
|-------------------|-------|

[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=3RF2420-2AC55>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RF2420-2AC55>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RF2420-2AC55>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mfb=3RF2420-2AC55&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mfb=3RF2420-2AC55&lang=en)

