

Siemens  
EcoTech



solid-state contactor 1-pole 3RF33 AC-1 20 A 40 °C / 48-460 V / 110-230 V AC / short-circuit-proof with B miniature circuit breaker / screw terminal

|                                                         |                                                                                                                                                                                                                                                  |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                                      | SIRIUS                                                                                                                                                                                                                                           |
| product designation                                     | solid-state contactor                                                                                                                                                                                                                            |
| product type designation                                | 3RF33                                                                                                                                                                                                                                            |
| manufacturer's article number                           |                                                                                                                                                                                                                                                  |
| • _1 of the accessories that can be ordered             | <a href="#">3RF2900-3PA88</a>                                                                                                                                                                                                                    |
| product designation                                     |                                                                                                                                                                                                                                                  |
| • _1 of the accessories that can be ordered             | terminal cover                                                                                                                                                                                                                                   |
| <b>General technical data</b>                           |                                                                                                                                                                                                                                                  |
| product function                                        | zero-point switching                                                                                                                                                                                                                             |
| product feature                                         | short-circuit-proof with B miniature circuit breaker                                                                                                                                                                                             |
| power loss [V·A] maximum                                | 18.6 VA                                                                                                                                                                                                                                          |
| power loss [W] for rated value of the current           |                                                                                                                                                                                                                                                  |
| • at AC in hot operating state                          | 18.5 W                                                                                                                                                                                                                                           |
| • at AC in hot operating state per pole                 | 18.5 W                                                                                                                                                                                                                                           |
| • without load current share typical                    | 3.5 W                                                                                                                                                                                                                                            |
| type of calculation of power loss current-dependent     | linear                                                                                                                                                                                                                                           |
| insulation voltage rated value                          | 600 V                                                                                                                                                                                                                                            |
| degree of pollution                                     | 3                                                                                                                                                                                                                                                |
| surge voltage resistance of main circuit rated value    | 6 kV                                                                                                                                                                                                                                             |
| protection class IP                                     | IP20                                                                                                                                                                                                                                             |
| protection class IP on the front according to IEC 60529 | IP20                                                                                                                                                                                                                                             |
| shock resistance according to IEC 60068-2-27            | 15 g / 11 ms                                                                                                                                                                                                                                     |
| vibration resistance according to IEC 60068-2-6         | 2 g                                                                                                                                                                                                                                              |
| reference code according to IEC 81346-2                 | Q                                                                                                                                                                                                                                                |
| Substance Prohibitance (day/month/year)                 | 01/15/2024                                                                                                                                                                                                                                       |
| SVHC substance name                                     | Lead CAS-No. 7439-92-1<br>Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5<br>Melamine CAS-No. 108-78-1<br>Dibutylbis(pentane-2,4-dionato-O,O')tin CAS-No. 22673-19-4 |
| Net Weight                                              | 0.165 kg                                                                                                                                                                                                                                         |
| <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                                                                                                                                                                                                                                                |
| type of voltage of the operating voltage                | AC                                                                                                                                                                                                                                               |

|                                                                                    |                                                                                          |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>operating voltage</b>                                                           |                                                                                          |
| • at AC                                                                            |                                                                                          |
| — at 50 Hz rated value                                                             | 48 ... 460 V                                                                             |
| — at 60 Hz rated value                                                             | 48 ... 460 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 ... 506 V                                                                             |
| • at 60 Hz                                                                         | 40 ... 506 V                                                                             |
| <b>operational current rated value maximum</b>                                     | 20 A                                                                                     |
| <b>operational current</b>                                                         |                                                                                          |
| • at AC-1 at 400 V rated value                                                     | 20 A                                                                                     |
| • at AC-51 rated value                                                             | 20 A                                                                                     |
| • at AC-51 according to IEC 60947-4-3                                              | 20 A                                                                                     |
| • according to UL 508 rated value                                                  | 16 A                                                                                     |
| <b>ampacity maximum</b>                                                            | 20 A                                                                                     |
| <b>operational current minimum</b>                                                 | 500 mA                                                                                   |
| <b>operational current of the MCB at AC rated value</b>                            | 20 A                                                                                     |
| <b>rate of voltage rise at the thyristor for main contacts maximum permissible</b> | 1 000 V/μs                                                                               |
| <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>                                        | 1 300 A                                                                                  |
| <b>I<sup>2</sup>t value maximum</b>                                                | 8 000 A <sup>2</sup> ·s                                                                  |
| <b>Control circuit/ Control</b>                                                    |                                                                                          |
| <b>type of voltage of the control supply voltage</b>                               | AC                                                                                       |
| <b>control supply voltage at AC</b>                                                |                                                                                          |
| • at 50 Hz                                                                         | 110 ... 230 V                                                                            |
| • at 60 Hz                                                                         | 110 ... 230 V                                                                            |
| <b>control supply voltage 1 at AC</b>                                              |                                                                                          |
| • at 50 Hz                                                                         | 110 ... 230 V                                                                            |
| • at 60 Hz                                                                         | 110 ... 230 V                                                                            |
| <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                                                                                     |
| • initial value for signal <1> detection                                           | 90 V                                                                                     |
| <b>control supply voltage frequency</b>                                            |                                                                                          |
| • 1 rated value                                                                    | 50 Hz                                                                                    |
| • 2 rated value                                                                    | 60 Hz                                                                                    |
| <b>symmetrical line frequency tolerance</b>                                        | 5 Hz                                                                                     |
| <b>operating range factor control supply voltage rated value at AC at 50 Hz</b>    |                                                                                          |
| • initial value                                                                    | 0.82                                                                                     |
| <b>operating range factor control supply voltage rated value at AC at 60 Hz</b>    |                                                                                          |
| • initial value                                                                    | 0.82                                                                                     |
| <b>control current at minimum control supply voltage</b>                           |                                                                                          |
| • at AC                                                                            | 2 mA                                                                                     |
| <b>control current at AC rated value</b>                                           | 15 mA                                                                                    |
| <b>ON-delay time</b>                                                               | 40 ms; additionally max. one half-wave                                                   |
| <b>OFF-delay time</b>                                                              | 40 ms; additionally max. one half-wave                                                   |
| <b>Installation/ mounting/ dimensions</b>                                          |                                                                                          |
| <b>fastening method side-by-side mounting</b>                                      | Yes                                                                                      |
| <b>fastening method</b>                                                            | screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715 |
| <b>design of the thread of the screw for securing the equipment</b>                | M4                                                                                       |
| <b>height</b>                                                                      | 95 mm                                                                                    |
| <b>width</b>                                                                       | 22.5 mm                                                                                  |

|                                                                           |                                                                                         |
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| depth                                                                     | 121 mm                                                                                  |
| <b>Connections/ Terminals</b>                                             |                                                                                         |
| product component removable terminal for auxiliary and control circuit    | Yes                                                                                     |
| 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 ... 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), 1x 8                                                                    |
| connectable conductor cross-section for main contacts                     |                                                                                         |
| • solid or stranded                                                       | 1.5 ... 6 mm <sup>2</sup>                                                               |
| • finely stranded with core end processing                                | 1 ... 10 mm <sup>2</sup>                                                                |
| type of connectable conductor cross-sections                              |                                                                                         |
| • for auxiliary and control contacts                                      |                                                                                         |
| — solid                                                                   | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )                      |
| — finely stranded with core end processing                                | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )                      |
| — finely stranded without core end processing                             | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )                      |
| • for AWG cables for auxiliary and control contacts                       | 1x (20 ... 12)                                                                          |
| AWG number as coded connectable conductor cross section for main contacts | 14 ... 8                                                                                |
| 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            | 4.5 ... 5.3 lbf·in                                                                      |
| design of the thread of the connection screw                              |                                                                                         |
| • for main contacts                                                       | M4                                                                                      |
| • of the auxiliary and control contacts                                   | M3                                                                                      |
| stripped length of the cable                                              |                                                                                         |
| • for main contacts                                                       | 10 mm                                                                                   |
| • for auxiliary and control contacts                                      | 7 mm                                                                                    |
| type of grounding                                                         | grounding by snapping onto grounded DIN rails                                           |
| <b>UL/CSA ratings</b>                                                     |                                                                                         |
| operational current according to UL 508 rated value                       | 16 A                                                                                    |
| Electrical Safety                                                         |                                                                                         |
| touch protection on the front according to IEC 60529                      | finger-safe, for vertical contact from the front                                        |
| <b>Ambient conditions</b>                                                 |                                                                                         |
| installation altitude at height above sea level maximum                   | 1 000 m                                                                                 |
| ambient temperature                                                       |                                                                                         |
| • during operation                                                        | -25 ... +60 °C                                                                          |
| • during storage                                                          | -55 ... +80 °C                                                                          |
| <b>Electromagnetic compatibility</b>                                      |                                                                                         |
| 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                          |
| <b>Short-circuit protection, design of the fuse link</b>                  |                                                                                         |

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| <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 usable</li> <li>• of gS fuse for semiconductor protection at NH design usable</li> <li>• of full range R fuse link for semiconductor protection at cylindrical design usable</li> <li>• of back-up R fuse link for semiconductor protection at NH design usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable</li> <li>• of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable</li> </ul> | <p><a href="#">3NE8714-1</a></p> <p><a href="#">3NE1814-0</a></p> <p><a href="#">5SE1325</a></p> <p><a href="#">3NE8814-0MK</a></p> <p><a href="#">3NC1032</a></p> <p><a href="#">3NC1450</a></p> <p><a href="#">3NC2263</a></p>                                                                                                                                                                                                              |
| <p>manufacturer's article number of the gG fuse</p> <ul style="list-style-type: none"> <li>• at NH design usable</li> <li>• at cylindrical design 10 x 38 mm usable</li> <li>• at cylindrical design 14 x 51 mm usable</li> <li>• at cylindrical design 14 x 51 mm usable note</li> <li>• at cylindrical design 22 x 58 mm usable</li> <li>• at cylindrical design 22 x 58 mm usable note</li> </ul>                                                                                                                                                                                                                                                                                                                                              | <p><a href="#">3NA6807</a></p> <p><a href="#">3NW6007-1</a></p> <p><a href="#">3NW6105-1: These fuses have a smaller rated current than the semiconductor relays</a></p> <p>These fuses have a smaller rated current than the semiconductor relays</p> <p><a href="#">3NW6205-1: These fuses have a smaller rated current than the semiconductor relays</a></p> <p>These fuses have a smaller rated current than the semiconductor relays</p> |
| <p>manufacturer's article number</p> <ul style="list-style-type: none"> <li>• of DIAZED fuse usable</li> <li>• of NEOZED fuse usable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><a href="#">5SB2711</a></p> <p><a href="#">5SE2320</a></p>                                                                                                                                                                                                                                                                                                                                                                                 |

#### Approvals Certificates

| Environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | General Product Approval | EMV |
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| <p><a href="#">Environmental Confirmations</a></p> <p>    </p> |                          |     |

| other                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><a href="#">Confirmation</a>  <a href="#">Confirmation</a></p> |

#### 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>

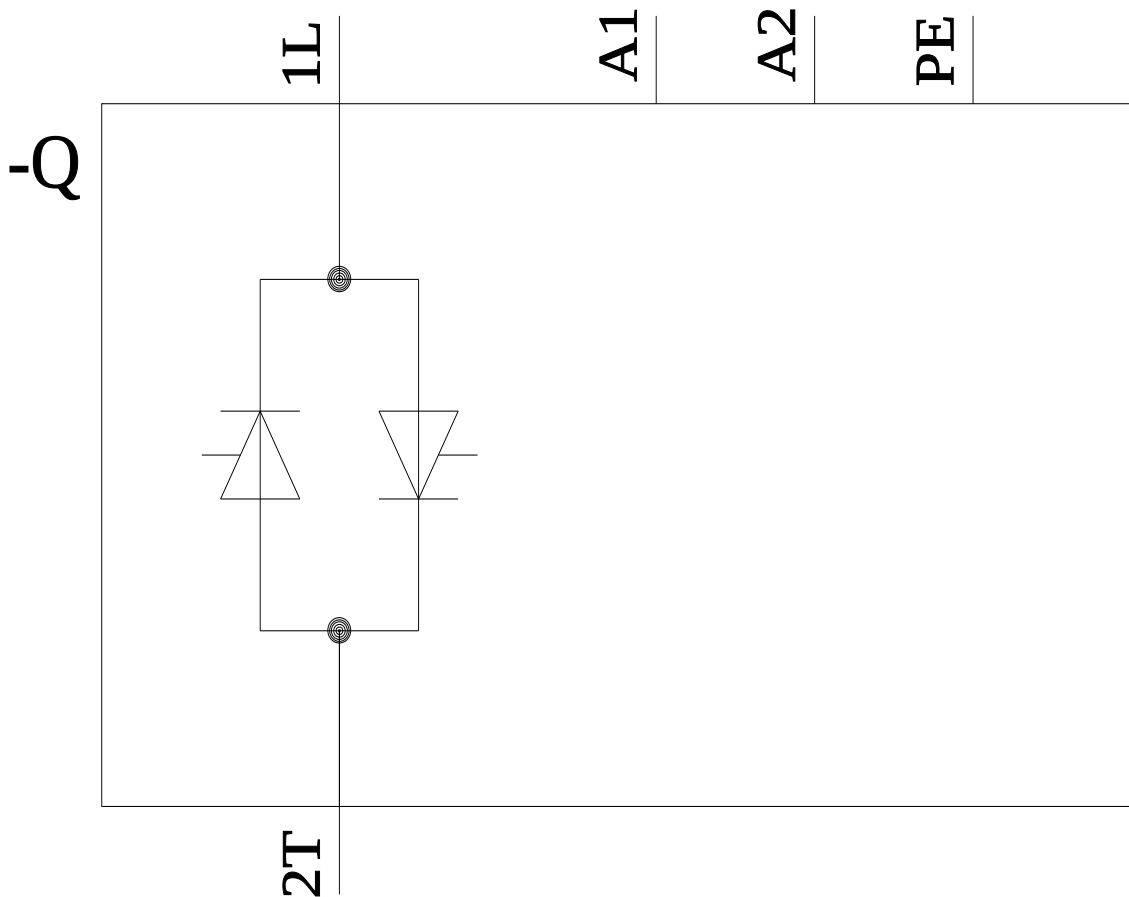
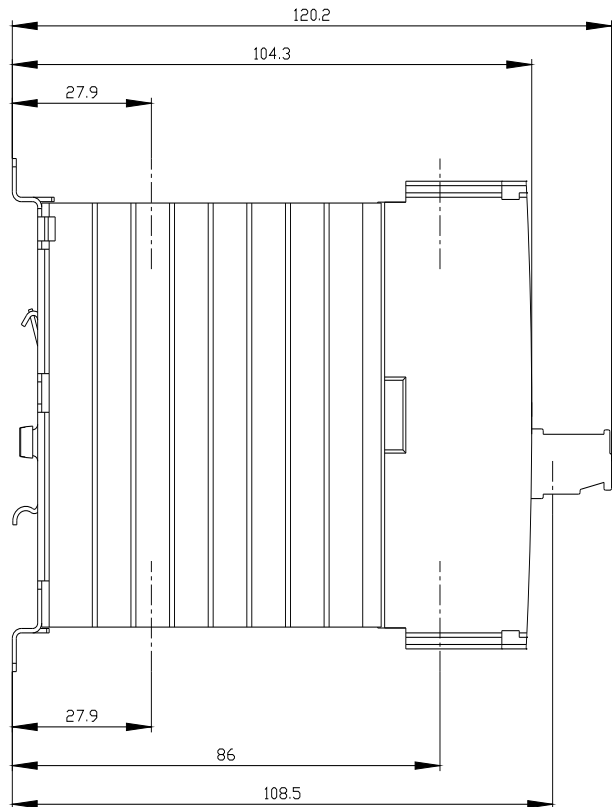
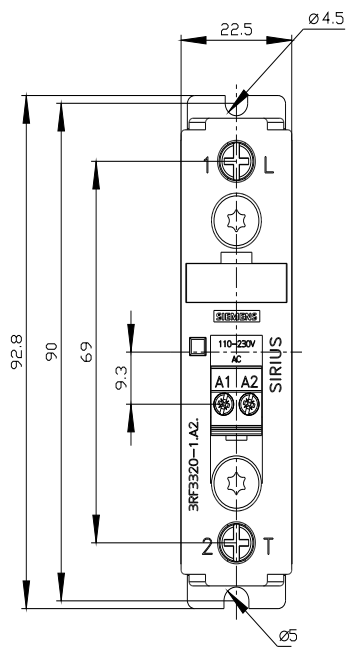
Information- and Downloadcenter (Catalogs, Brochures,...)  
<https://www.siemens.com/ic10>

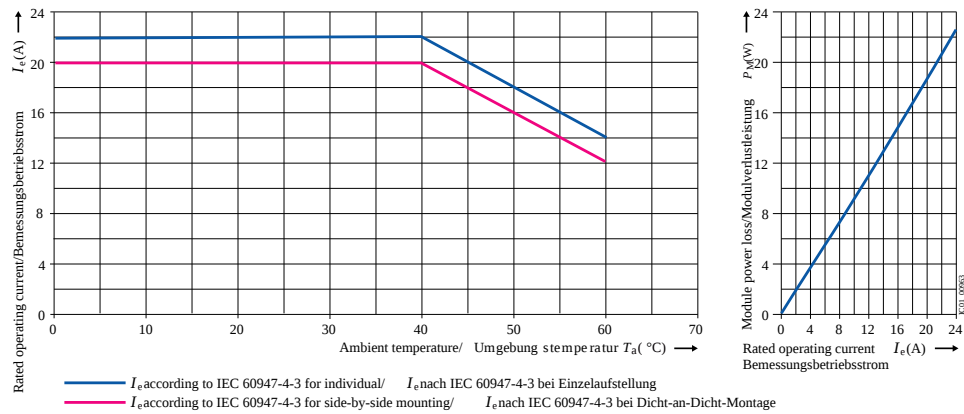
Industry Mall (Online ordering system)  
<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF3320-1DA24>

Cax online generator  
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3320-1DA24>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)  
<https://support.industry.siemens.com/cs/ww/en/ps/3RF3320-1DA24>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF3320-1DA24&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3320-1DA24&lang=en)





last modified:

7/11/2026