



Circuit breaker size S0 for motor protection, CLASS 10 A-release 5.5...8 A N-release 104 A screw terminal Standard switching capacity

|                                                                                     |                      |
|-------------------------------------------------------------------------------------|----------------------|
| product brand name                                                                  | SIRIUS               |
| product designation                                                                 | Circuit breaker      |
| design of the product                                                               | For motor protection |
| product type designation                                                            | 3RV2                 |
| <b>General technical data</b>                                                       |                      |
| size of the circuit-breaker                                                         | S0                   |
| size of contactor can be combined company-specific                                  | S00, S0              |
| product extension auxiliary switch                                                  | Yes                  |
| power loss [W] for rated value of the current                                       |                      |
| • at AC in hot operating state                                                      | 9.25 W               |
| • at AC in hot operating state per pole                                             | 3.1 W                |
| insulation voltage with degree of pollution 3 at AC rated value                     | 690 V                |
| surge voltage resistance rated value                                                | 6 kV                 |
| shock resistance according to IEC 60068-2-27                                        | 25g / 11 ms          |
| mechanical service life (operating cycles)                                          |                      |
| • of the main contacts typical                                                      | 100 000              |
| • of auxiliary contacts typical                                                     | 100 000              |
| electrical endurance (operating cycles) typical                                     | 100 000              |
| reference code according to IEC 81346-2                                             | Q                    |
| Substance Prohibitance (Date)                                                       | 10/01/2009           |
| Net Weight                                                                          | 0.356 kg             |
| <b>Ambient conditions</b>                                                           |                      |
| installation altitude at height above sea level maximum                             | 2 000 m              |
| ambient temperature                                                                 |                      |
| • during operation                                                                  | -20 ... +60 °C       |
| • during storage                                                                    | -50 ... +80 °C       |
| • during transport                                                                  | -50 ... +80 °C       |
| relative humidity during operation                                                  | 10 ... 95 %          |
| <b>Main circuit</b>                                                                 |                      |
| number of poles for main current circuit                                            | 3                    |
| adjustable current response value current of the current-dependent overload release | 5.5 ... 8 A          |
| type of voltage for main current circuit                                            | AC                   |
| operating voltage                                                                   |                      |
| • rated value                                                                       | 20 ... 690 V         |
| • at AC-3 rated value maximum                                                       | 690 V                |

|                                                                      |                                             |
|----------------------------------------------------------------------|---------------------------------------------|
| • at AC-3e rated value maximum                                       | 690 V                                       |
| <b>operating frequency rated value</b>                               | 50 ... 60 Hz                                |
| <b>operational current rated value</b>                               | 8 A                                         |
| <b>operational current</b>                                           |                                             |
| • at AC-3 at 400 V rated value                                       | 8 A                                         |
| • at AC-3e at 400 V rated value                                      | 8 A                                         |
| <b>operating power</b>                                               |                                             |
| • at AC-3                                                            |                                             |
| — at 230 V rated value                                               | 1.5 kW                                      |
| — at 400 V rated value                                               | 3 kW                                        |
| — at 500 V rated value                                               | 4 kW                                        |
| — at 690 V rated value                                               | 5.5 kW                                      |
| • at AC-3e                                                           |                                             |
| — at 230 V rated value                                               | 1.5 kW                                      |
| — at 400 V rated value                                               | 3 kW                                        |
| — at 500 V rated value                                               | 4 kW                                        |
| — at 690 V rated value                                               | 5.5 kW                                      |
| <b>operating frequency</b>                                           |                                             |
| • at AC-3 maximum                                                    | 15 1/h                                      |
| • at AC-3e maximum                                                   | 15 1/h                                      |
| <b>Auxiliary circuit</b>                                             |                                             |
| <b>type of voltage for auxiliary and control circuit</b>             | AC/DC                                       |
| <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>Protective and monitoring functions</b>                           |                                             |
| <b>product function</b>                                              |                                             |
| • ground fault detection                                             | No                                          |
| • phase failure detection                                            | Yes                                         |
| <b>trip class</b>                                                    | CLASS 10                                    |
| <b>design of the overload release</b>                                | thermal                                     |
| <b>maximum short-circuit current breaking capacity (Icu)</b>         |                                             |
| • at AC at 240 V rated value                                         | 100 kA                                      |
| • at AC at 400 V rated value                                         | 100 kA                                      |
| • at AC at 500 V rated value                                         | 42 kA                                       |
| • at AC at 690 V rated value                                         | 6 kA                                        |
| <b>operating short-circuit current breaking capacity (Ics) at AC</b> |                                             |
| • at 240 V rated value                                               | 100 kA                                      |
| • at 400 V rated value                                               | 100 kA                                      |
| • at 500 V rated value                                               | 42 kA                                       |
| • at 690 V rated value                                               | 4 kA                                        |
| response value current of instantaneous short-circuit trip unit      | 104 A                                       |
| <b>UL/CSA ratings</b>                                                |                                             |
| <b>full-load current (FLA) for 3-phase AC motor</b>                  |                                             |
| • at 480 V rated value                                               | 8 A                                         |
| • at 600 V rated value                                               | 8 A                                         |
| <b>yielded mechanical performance [hp]</b>                           |                                             |
| • for single-phase AC motor                                          |                                             |
| — at 110/120 V rated value                                           | 0.33 hp                                     |
| — at 230 V rated value                                               | 1 hp                                        |
| • for 3-phase AC motor                                               |                                             |
| — at 200/208 V rated value                                           | 2 hp                                        |
| — at 220/230 V rated value                                           | 2 hp                                        |
| — at 460/480 V rated value                                           | 5 hp                                        |
| — at 575/600 V rated value                                           | 5 hp                                        |
| <b>Category Control Number (CCN)</b>                                 | E47705 (NLRV, NLRV7), E156943 (NKJH, NKJH7) |
| <b>Short-circuit protection</b>                                      |                                             |
| <b>product function short circuit protection</b>                     | Yes                                         |
| <b>design of the short-circuit trip</b>                              | magnetic                                    |

| Installation/ mounting/ dimensions                                                                                                               |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>mounting position</b>                                                                                                                         | any                                                                                     |
| <b>fastening method</b>                                                                                                                          | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715                |
| <b>height</b>                                                                                                                                    | 97 mm                                                                                   |
| <b>width</b>                                                                                                                                     | 45 mm                                                                                   |
| <b>depth</b>                                                                                                                                     | 97 mm                                                                                   |
| <b>required spacing</b>                                                                                                                          |                                                                                         |
| <ul style="list-style-type: none"> <li>• with side-by-side mounting at the side</li> </ul>                                                       | 0 mm                                                                                    |
| <ul style="list-style-type: none"> <li>• for grounded parts at 400 V <ul style="list-style-type: none"> <li>— downwards</li> </ul> </li> </ul>   | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— upwards</li> </ul> </li> </ul>                                  | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at the side</li> </ul> </li> </ul>                              | 9 mm                                                                                    |
| <ul style="list-style-type: none"> <li>• for live parts at 400 V <ul style="list-style-type: none"> <li>— downwards</li> </ul> </li> </ul>       | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— upwards</li> </ul> </li> </ul>                                  | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at the side</li> </ul> </li> </ul>                              | 9 mm                                                                                    |
| <ul style="list-style-type: none"> <li>• for grounded parts at 500 V <ul style="list-style-type: none"> <li>— downwards</li> </ul> </li> </ul>   | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— upwards</li> </ul> </li> </ul>                                  | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at the side</li> </ul> </li> </ul>                              | 9 mm                                                                                    |
| <ul style="list-style-type: none"> <li>• for live parts at 500 V <ul style="list-style-type: none"> <li>— downwards</li> </ul> </li> </ul>       | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— upwards</li> </ul> </li> </ul>                                  | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at the side</li> </ul> </li> </ul>                              | 9 mm                                                                                    |
| <ul style="list-style-type: none"> <li>• for grounded parts at 690 V <ul style="list-style-type: none"> <li>— downwards</li> </ul> </li> </ul>   | 50 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— upwards</li> </ul> </li> </ul>                                  | 50 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— backwards</li> </ul> </li> </ul>                                | 0 mm                                                                                    |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at the side</li> </ul> </li> </ul>                              | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— forwards</li> </ul> </li> </ul>                                 | 0 mm                                                                                    |
| <ul style="list-style-type: none"> <li>• for live parts at 690 V <ul style="list-style-type: none"> <li>— downwards</li> </ul> </li> </ul>       | 50 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— upwards</li> </ul> </li> </ul>                                  | 50 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— backwards</li> </ul> </li> </ul>                                | 0 mm                                                                                    |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— at the side</li> </ul> </li> </ul>                              | 30 mm                                                                                   |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— forwards</li> </ul> </li> </ul>                                 | 0 mm                                                                                    |
| Connections/ Terminals                                                                                                                           |                                                                                         |
| <b>type of electrical connection</b>                                                                                                             |                                                                                         |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> </ul>                                                                     | screw-type terminals                                                                    |
| <b>arrangement of electrical connectors for main current circuit</b>                                                                             | Top and bottom                                                                          |
| <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 or stranded</li> </ul> </li> </ul>     | 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> )                       |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> </ul> </li> </ul> | 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup> |
| <ul style="list-style-type: none"> <li>• for AWG cables for main contacts</li> </ul>                                                             | 2x (16 ... 12), 2x (14 ... 8)                                                           |
| <b>tightening torque</b>                                                                                                                         |                                                                                         |
| <ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>                                                  | 2 ... 2.5 N·m                                                                           |
| <b>design of screwdriver shaft</b>                                                                                                               | Diameter 5 to 6 mm                                                                      |
| <b>size of the screwdriver tip</b>                                                                                                               | Pozidriv size 2                                                                         |
| <b>design of the thread of the connection screw</b>                                                                                              |                                                                                         |
| <ul style="list-style-type: none"> <li>• for main contacts</li> </ul>                                                                            | M4                                                                                      |
| Safety related data                                                                                                                              |                                                                                         |
| product function suitable for safety function                                                                                                    | Yes                                                                                     |
| <b>suitability for use</b>                                                                                                                       |                                                                                         |
| <ul style="list-style-type: none"> <li>• safety-related switching on</li> </ul>                                                                  | No                                                                                      |
| <ul style="list-style-type: none"> <li>• safety-related switching OFF</li> </ul>                                                                 | Yes                                                                                     |
| <b>service life maximum</b>                                                                                                                      | 10 a                                                                                    |
| <b>test wear-related service life necessary</b>                                                                                                  | Yes                                                                                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>proportion of dangerous failures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                 |
| • with low demand rate according to SN 31920                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 40 %                                                                                                                                                                                                                                                            |
| • with high demand rate according to SN 31920                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 50 %                                                                                                                                                                                                                                                            |
| <b>B10 value with high demand rate according to SN 31920</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5 000                                                                                                                                                                                                                                                           |
| <b>failure rate [FIT] with low demand rate according to SN 31920</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 50 FIT                                                                                                                                                                                                                                                          |
| <b>ISO 13849</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                 |
| <b>device type according to ISO 13849-1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                                                                                                                                                                                               |
| <b>overdimensioning according to ISO 13849-2 necessary</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Yes                                                                                                                                                                                                                                                             |
| <b>IEC 61508</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                 |
| <b>safety device type according to IEC 61508-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Type A                                                                                                                                                                                                                                                          |
| <b>T1 value</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                 |
| • for proof test interval or service life according to IEC 61508                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10 a                                                                                                                                                                                                                                                            |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                 |
| <b>protection class IP on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | IP20                                                                                                                                                                                                                                                            |
| <b>touch protection on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | finger-safe, for vertical contact from the front                                                                                                                                                                                                                |
| <b>Display</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                 |
| display version for switching status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Handle                                                                                                                                                                                                                                                          |
| <b>Approvals Certificates</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                 |
| <b>Environmental Product Declaration</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                 |
| • global warming potential [CO2 eq] / during manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2.68 kg                                                                                                                                                                                                                                                         |
| • global warming potential [CO2 eq] / during sales                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.143 kg                                                                                                                                                                                                                                                        |
| • global warming potential [CO2 eq] / during operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 72.7 kg                                                                                                                                                                                                                                                         |
| • global warming potential [CO2 eq] / after end of life                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -0.445 kg                                                                                                                                                                                                                                                       |
| • global warming potential [CO2 eq] / total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 75.078 kg                                                                                                                                                                                                                                                       |
| <b>Environment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>General Product Approval</b>                                                                                                                                                                                                                                 |
|   <a href="#">Environmental Confirmations</a>                                             |                                                                                                                                                                                                                                                                 |
| <b>General Product Approval</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                 |
| <b>For use in hazardous locations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                 |
|       |                                                                                                                                                                                                                                                                 |
| <b>For use in hazardous locations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Test Certificates</b>                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                           | <a href="#">Special Test Certificate</a> <a href="#">Type Test Certificates/Test Report</a>                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |
| <b>Maritime application</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>other</b>                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                     | <a href="#">Confirmation</a>  <a href="#">Miscellaneous</a>                                                                                                                |
| <b>other</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Railway</b>                                                                                                                                                                                                                                                  |
| <a href="#">Miscellaneous</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <a href="#">Confirmation</a> <a href="#">Special Test Certificate</a>                                                                                                                                                                                           |

## 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=3RV2021-1HA10>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RV2021-1HA10>

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

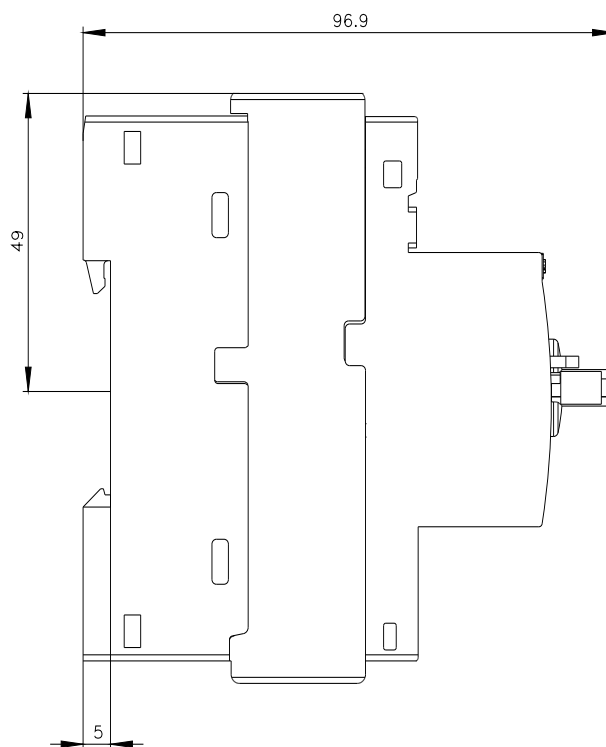
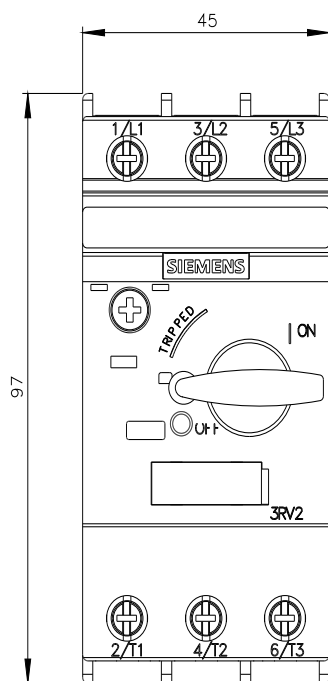
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RV2021-1HA10&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2021-1HA10&lang=en)

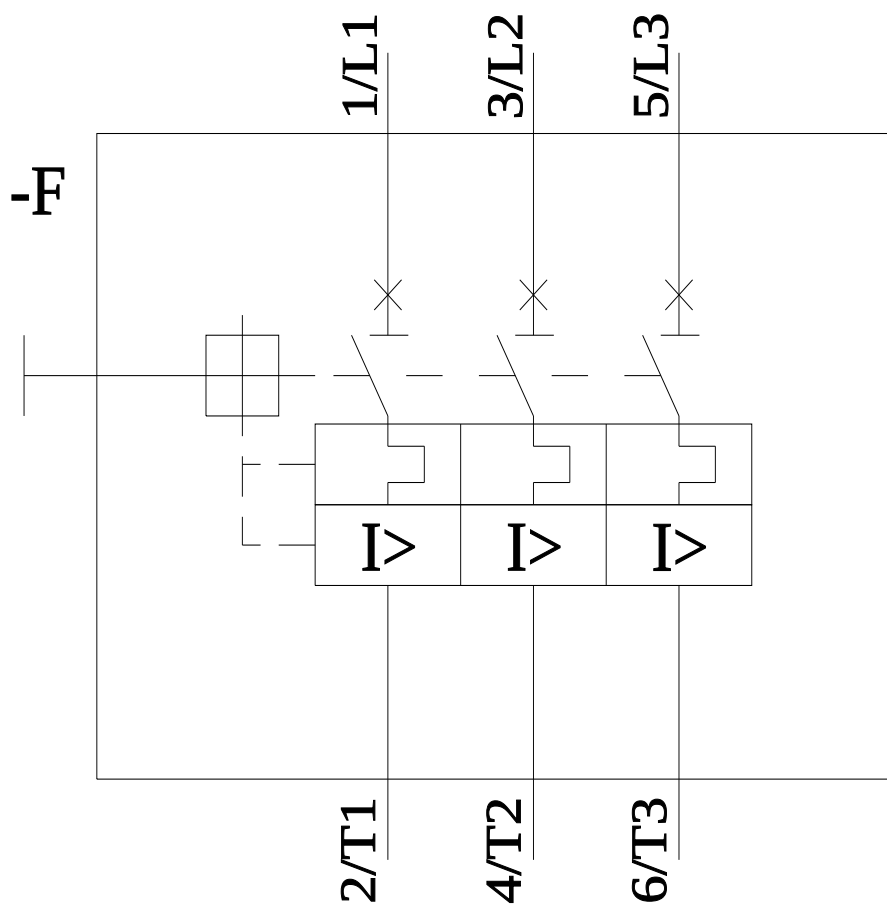
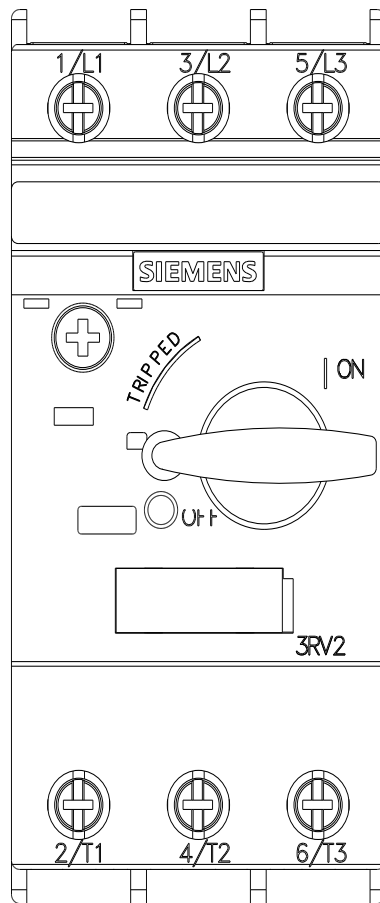
### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2021-1HA10>

### Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP='HAUPT'></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP='HAUPT'></mmp_prod_no>)





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