

Siemens  
EcoTech



Circuit breaker size S0 for motor protection, CLASS 10 A-release 2.8...4 A N release 52 A Spring-type 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>                                                                  |                        |
| Product equipment of circuit breaker for motor protection complete unit with protection device | Yes                    |
| size of the circuit-breaker                                                                    | S0                     |
| size of contactor can be combined company-specific                                             | S00, S0                |
| product function disconnecter functionality                                                    | Yes                    |
| product extension auxiliary switch                                                             | Yes                    |
| power loss [W] for rated value of the current                                                  |                        |
| • at AC in hot operating state                                                                 | 7.25 W                 |
| • at AC in hot operating state per pole                                                        | 2.4 W                  |
| type of calculation of power loss current-dependent                                            | quadratic              |
| insulation voltage with degree of pollution 3 at AC rated value                                | 690 V                  |
| surge voltage resistance rated value                                                           | 6 kV                   |
| maximum permissible voltage for protective separation                                          |                        |
| • in networks with ungrounded star point between main and auxiliary circuit                    | 400 V                  |
| • in networks with grounded star point between main and auxiliary circuit                      | 400 V                  |
| protection class IP                                                                            |                        |
| • on the front according to IEC 60529                                                          | IP20                   |
| • on the front                                                                                 | IP20                   |
| • of the terminal                                                                              | IP20                   |
| 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                      |
| continuous current rated value                                                                 | 4 A                    |
| Substance Prohibitance (day/month/year)                                                        | 10/01/2009             |
| SVHC substance name                                                                            | Lead CAS-No. 7439-92-1 |
| Net Weight                                                                                     | 405 g                  |
| <b>Ambient conditions</b>                                                                      |                        |

|                                                                                            |                |
|--------------------------------------------------------------------------------------------|----------------|
| installation altitude at height above sea level maximum                                    | 2 000 m        |
| <b>ambient temperature</b>                                                                 |                |
| • during operation                                                                         | -20 ... +60 °C |
| • during storage                                                                           | -50 ... +80 °C |
| • during transport                                                                         | -50 ... +80 °C |
| <b>temperature compensation</b>                                                            | -20 ... +60 °C |
| relative humidity during operation                                                         | 10 ... 95 %    |
| <b>Main circuit</b>                                                                        |                |
| <b>number of poles for main current circuit</b>                                            | 3              |
| <b>adjustable current response value current of the current-dependent overload release</b> | 2.8 ... 4 A    |
| <b>type of voltage for main current circuit</b>                                            | AC             |
| <b>operating voltage</b>                                                                   |                |
| • rated value                                                                              | 690 V          |
| • 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>                                                     | 4 A            |
| <b>operational current</b>                                                                 |                |
| • at AC-3 at 400 V rated value                                                             | 4 A            |
| • at AC-3e at 400 V rated value                                                            | 4 A            |
| <b>operating power</b>                                                                     |                |
| • at AC-3                                                                                  |                |
| — at 230 V rated value                                                                     | 0.8 kW         |
| — at 400 V rated value                                                                     | 1.5 kW         |
| — at 500 V rated value                                                                     | 2.2 kW         |
| — at 690 V rated value                                                                     | 3 kW           |
| • at AC-3e                                                                                 |                |
| — at 230 V rated value                                                                     | 0.8 kW         |
| — at 400 V rated value                                                                     | 1.5 kW         |
| — at 500 V rated value                                                                     | 2.2 kW         |
| — at 690 V rated value                                                                     | 3 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              |
| <b>number of CO contacts for auxiliary contacts</b>                                        | 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>protection function thermal overload protection (ANSI 49)</b>                           | Yes            |
| <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                                                               | 100 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                                                                     | 100 kA         |
| • at 690 V rated value                                                                     | 4 kA           |
| <b>response value current of instantaneous short-circuit trip unit</b>                     | 52 A           |

| UL/CSA ratings                                                                                                                                  |                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <b>full-load current (FLA) for 3-phase AC motor</b>                                                                                             |                                                                          |
| • at 480 V rated value                                                                                                                          | 4 A                                                                      |
| • at 600 V rated value                                                                                                                          | 4 A                                                                      |
| <b>yielded mechanical performance [hp]</b>                                                                                                      |                                                                          |
| • for single-phase AC motor                                                                                                                     |                                                                          |
| — at 110/120 V rated value                                                                                                                      | 0.13 hp                                                                  |
| — at 230 V rated value                                                                                                                          | 0.33 hp                                                                  |
| • for 3-phase AC motor                                                                                                                          |                                                                          |
| — at 200/208 V rated value                                                                                                                      | 0.8 hp                                                                   |
| — at 220/230 V rated value                                                                                                                      | 0.75 hp                                                                  |
| — at 460/480 V rated value                                                                                                                      | 2 hp                                                                     |
| — at 575/600 V rated value                                                                                                                      | 3 hp                                                                     |
| <b>UL File Number (CCN)</b>                                                                                                                     | E47705 (NLRV, NLRV7), E156943 (NKJH, NKJH7)                              |
| Short-circuit protection                                                                                                                        |                                                                          |
| <b>product function short circuit protection</b>                                                                                                | Yes                                                                      |
| <b>design of the short-circuit trip</b>                                                                                                         | magnetic                                                                 |
| certificate of suitability according to ATEX directive 2014/34/EU                                                                               | DMT 02 ATEX F 001                                                        |
| <b>type of protection according to ATEX directive 2014/34/EU</b>                                                                                | Ex II (2) GD                                                             |
| 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>Mounting method of circuit breaker for Transformer protection, Generator protection and system protection optional standard bar mounting</b> | Yes                                                                      |
| <b>height</b>                                                                                                                                   | 119 mm                                                                   |
| <b>width</b>                                                                                                                                    | 45 mm                                                                    |
| <b>depth</b>                                                                                                                                    | 97 mm                                                                    |
| <b>required spacing</b>                                                                                                                         |                                                                          |
| • with side-by-side mounting                                                                                                                    |                                                                          |
| — forwards                                                                                                                                      | 0 mm                                                                     |
| — backwards                                                                                                                                     | 0 mm                                                                     |
| — upwards                                                                                                                                       | 50 mm                                                                    |
| — downwards                                                                                                                                     | 50 mm                                                                    |
| — at the side                                                                                                                                   | 0 mm                                                                     |
| • for grounded parts                                                                                                                            |                                                                          |
| — forwards                                                                                                                                      | 0 mm                                                                     |
| — backwards                                                                                                                                     | 0 mm                                                                     |
| — upwards                                                                                                                                       | 50 mm                                                                    |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| — downwards                                                                                                                                     | 50 mm                                                                    |
| • for live parts                                                                                                                                |                                                                          |
| — forwards                                                                                                                                      | 0 mm                                                                     |
| — backwards                                                                                                                                     | 0 mm                                                                     |
| — upwards                                                                                                                                       | 50 mm                                                                    |
| — downwards                                                                                                                                     | 50 mm                                                                    |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| • for grounded parts at 400 V                                                                                                                   |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 9 mm                                                                     |
| • for live parts at 400 V                                                                                                                       |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 9 mm                                                                     |
| • for grounded parts at 500 V                                                                                                                   |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 9 mm                                                                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• for live parts at 500 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts at 690 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— backwards</li> <li>— at the side</li> <li>— forwards</li> </ul> </li> <li>• for live parts at 690 V <ul style="list-style-type: none"> <li>— downwards</li> <li>— upwards</li> <li>— backwards</li> <li>— at the side</li> <li>— forwards</li> </ul> </li> </ul> | 30 mm<br>30 mm<br>9 mm<br><br>50 mm<br>50 mm<br>0 mm<br>30 mm<br>0 mm<br><br>50 mm<br>50 mm<br>0 mm<br>30 mm<br>0 mm |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                      |
| <b>product component removable terminal for auxiliary and control circuit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No                                                                                                                   |
| <b>type of electrical connection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | spring-loaded 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> <li>— finely stranded with core end processing</li> <li>— finely stranded without core end processing</li> </ul> </li> <li>• for AWG cables for main contacts</li> </ul>                                                                                                                                                                                                                                                                | 2x (1 ... 10 mm <sup>2</sup> )<br>2x (1 ... 6 mm <sup>2</sup> )<br>2x (1 ... 6 mm <sup>2</sup> )<br>2x (18 ... 8)    |
| <b>connectable conductor cross-section for main contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                      |
| <ul style="list-style-type: none"> <li>• solid or stranded</li> <li>• finely stranded with core end processing</li> <li>• finely stranded without core end processing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   | 1 ... 10 mm <sup>2</sup><br>1 ... 6 mm <sup>2</sup><br>1 ... 6 mm <sup>2</sup>                                       |
| <b>AWG number as coded connectable conductor cross section for main contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 18 ... 8                                                                                                             |
| <b>design of screwdriver shaft</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Diameter 3 mm                                                                                                        |
| <b>size of the screwdriver tip</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3,0 x 0,5 mm                                                                                                         |
| <b>Safety related data</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                      |
| product function suitable for safety function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Yes                                                                                                                  |
| <b>suitability for use</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                      |
| <ul style="list-style-type: none"> <li>• safety-related switching on</li> <li>• safety-related switching OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            | No<br>Yes                                                                                                            |
| <b>service life maximum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10 a                                                                                                                 |
| <b>test wear-related service life necessary</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Yes                                                                                                                  |
| <b>proportion of dangerous failures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                      |
| <ul style="list-style-type: none"> <li>• with low demand rate according to SN 31920</li> <li>• with high demand rate according to SN 31920</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                              | 40 %<br>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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                      |
| <ul style="list-style-type: none"> <li>• for proof test interval or service life according to IEC 61508</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 a                                                                                                                 |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                      |
| <b>protection class IP on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | IP20                                                                                                                 |

|                                                      |                                                  |
|------------------------------------------------------|--------------------------------------------------|
| touch protection on the front according to IEC 60529 | finger-safe, for vertical contact from the front |
|------------------------------------------------------|--------------------------------------------------|

## Display

|                                      |        |
|--------------------------------------|--------|
| display version for switching status | Handle |
|--------------------------------------|--------|

## Approvals Certificates

### Environmental Product Declaration

|                                                            |           |
|------------------------------------------------------------|-----------|
| • 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 |

### Environment General Product Approval

[Environmental Confirmations](#)



### General Product Approval For use in hazardous locations



### For use in hazardous locations Test Certificates Maritime application



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



### Maritime application other



[Miscellaneous](#)

[Confirmation](#)

[Miscellaneous](#)



### Railway

[Confirmation](#)

[Special Test Certificate](#)

### 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=3RV2021-1EA20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RV2021-1EA20>

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

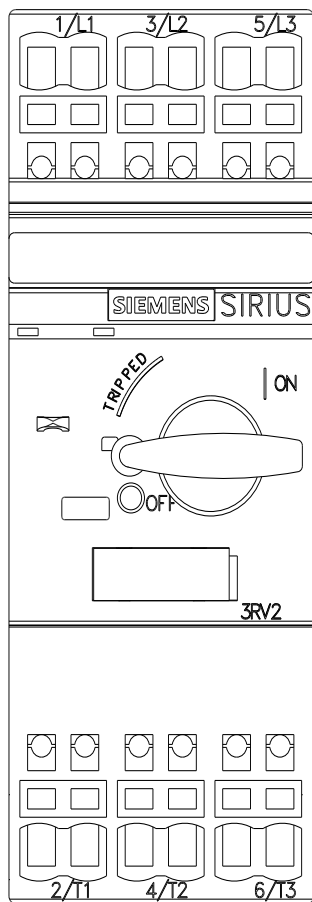
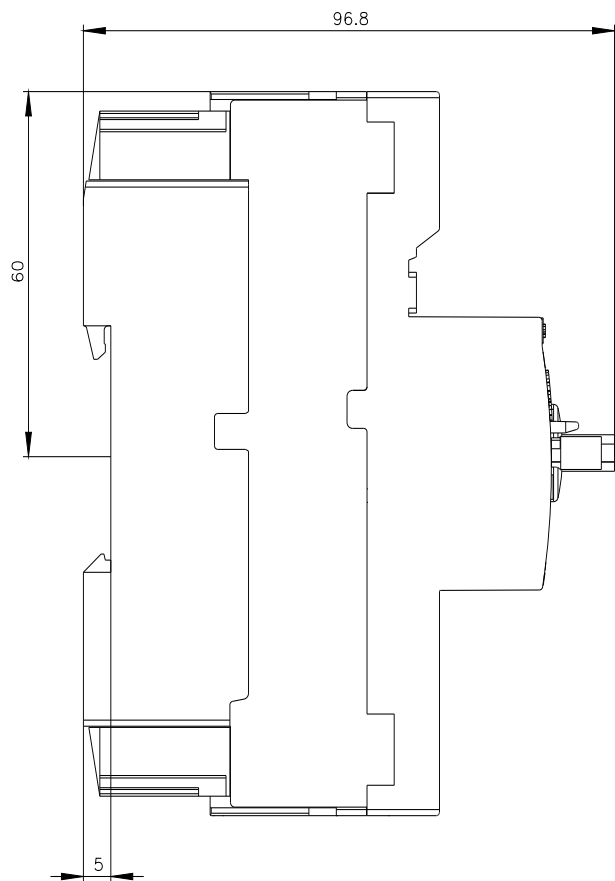
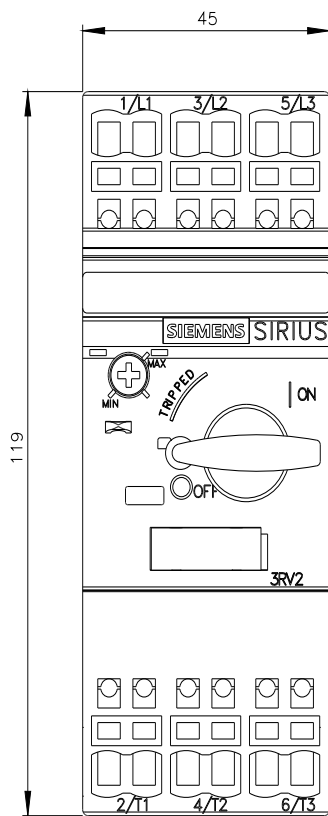
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RV2021-1EA20&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2021-1EA20&lang=en)

#### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2021-1EA20>

#### 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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