

Siemens  
EcoTech



circuit breaker frame size S0 for system protection with approval circuit breaker UL 489, CSA C22.2 no. 5-02 thermal overload release 20 A short-circuit release 260 A screw terminal standard switching capacity

|                                                                                                |                                                           |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| product brand name                                                                             | SIRIUS                                                    |
| product designation                                                                            | Circuit breaker                                           |
| design of the product                                                                          | For system protection according to UL 489/CSA C22.2 No. 5 |
| 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                                                        |
| 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                                                                 | 10.5 W                                                    |
| • at AC in hot operating state per pole                                                        | 3.5 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                                                                              | IP00                                                      |
| shock resistance according to IEC 60068-2-27                                                   | 25 g / 11 ms (rectangular impulse and sine pulse)         |
| 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                                                                 | 20 A                                                      |
| Substance Prohibitance (day/month/year)                                                        | 10/01/2009                                                |
| Net Weight                                                                                     | 513 g                                                     |
| <b>Ambient conditions</b>                                                                      |                                                           |
| installation altitude at height above sea level maximum                                        | 2 000 m                                                   |
| ambient temperature                                                                            |                                                           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>during operation</li> <li>during storage</li> <li>during transport</li> </ul>                                                                                                                                                                                                                                                                                                                   | -20 ... +60 °C<br>-50 ... +80 °C<br>-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>type of voltage for main current circuit</b>                                                                                                                                                                                                                                                                                                                                                                                        | AC                                                                       |
| <b>operating voltage</b> <ul style="list-style-type: none"> <li>rated value</li> <li>rated value</li> <li>at AC-3 rated value maximum</li> <li>at AC-3e rated value maximum</li> </ul>                                                                                                                                                                                                                                                 | 690 V<br>20 ... 690 V<br>690 V<br>690 V                                  |
| <b>operating frequency rated value</b>                                                                                                                                                                                                                                                                                                                                                                                                 | 50 ... 60 Hz                                                             |
| <b>operational current rated value</b>                                                                                                                                                                                                                                                                                                                                                                                                 | 20 A                                                                     |
| <b>operational current</b> <ul style="list-style-type: none"> <li>at AC-3 at 400 V rated value</li> <li>at AC-3e at 400 V rated value</li> </ul>                                                                                                                                                                                                                                                                                       | 20 A<br>20 A                                                             |
| <b>operating power</b> <ul style="list-style-type: none"> <li>at AC-3 <ul style="list-style-type: none"> <li>at 230 V rated value</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul> </li> <li>at AC-3e <ul style="list-style-type: none"> <li>at 230 V rated value</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul> </li> </ul> | 5.5 kW<br>7.5 kW<br>11 kW<br>15 kW<br>5.5 kW<br>7.5 kW<br>11 kW<br>15 kW |
| <b>operating frequency</b> <ul style="list-style-type: none"> <li>at AC-3 maximum</li> <li>at AC-3e maximum</li> </ul>                                                                                                                                                                                                                                                                                                                 | 15 1/h<br>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> <ul style="list-style-type: none"> <li>ground fault detection</li> <li>phase failure detection</li> </ul>                                                                                                                                                                                                                                                                                                      | No<br>No                                                                 |
| <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> <ul style="list-style-type: none"> <li>at AC at 240 V rated value</li> <li>at AC at 400 V rated value</li> <li>at AC at 500 V rated value</li> <li>at AC at 690 V rated value</li> <li>at 480 AC Y/277 V according to UL 489 rated value</li> </ul>                                                                                                                       | 100 kA<br>55 kA<br>10 kA<br>4 kA<br>50 kA                                |
| <b>operating short-circuit current breaking capacity (Ics) at AC</b> <ul style="list-style-type: none"> <li>at 240 V rated value</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul>                                                                                                                                                                                                  | 100 kA<br>25 kA<br>5 kA<br>2 kA                                          |
| response value current of instantaneous short-circuit trip unit                                                                                                                                                                                                                                                                                                                                                                        | 260 A                                                                    |
| <b>Short-circuit protection</b>                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                          |
| <b>product function short circuit protection</b>                                                                                                                                                                                                                                                                                                                                                                                       | Yes                                                                      |
| <b>design of the short-circuit trip</b>                                                                                                                                                                                                                                                                                                                                                                                                | magnetic                                                                 |
| <b>design of the fuse link for IT network for short-circuit</b>                                                                                                                                                                                                                                                                                                                                                                        |                                                                          |

|                                                                                                                                                 |                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <b>protection of the main circuit</b>                                                                                                           |                                                                          |
| • at 400 V                                                                                                                                      | gG 63 A                                                                  |
| • at 500 V                                                                                                                                      | gG 50 A                                                                  |
| • at 690 V                                                                                                                                      | gG 50 A                                                                  |
| <b>Installation/ mounting/ dimensions</b>                                                                                                       |                                                                          |
| <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>                                                                                                                                   | 144 mm                                                                   |
| <b>width</b>                                                                                                                                    | 45 mm                                                                    |
| <b>depth</b>                                                                                                                                    | 97 mm                                                                    |
| <b>required spacing</b>                                                                                                                         |                                                                          |
| • for grounded parts at 400 V                                                                                                                   |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| • for live parts at 400 V                                                                                                                       |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| • for grounded parts at 500 V                                                                                                                   |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| • for live parts at 500 V                                                                                                                       |                                                                          |
| — downwards                                                                                                                                     | 30 mm                                                                    |
| — upwards                                                                                                                                       | 30 mm                                                                    |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| • for grounded parts at 690 V                                                                                                                   |                                                                          |
| — downwards                                                                                                                                     | 70 mm                                                                    |
| — upwards                                                                                                                                       | 70 mm                                                                    |
| — backwards                                                                                                                                     | 0 mm                                                                     |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| — forwards                                                                                                                                      | 0 mm                                                                     |
| • for live parts at 690 V                                                                                                                       |                                                                          |
| — downwards                                                                                                                                     | 70 mm                                                                    |
| — upwards                                                                                                                                       | 70 mm                                                                    |
| — backwards                                                                                                                                     | 0 mm                                                                     |
| — at the side                                                                                                                                   | 30 mm                                                                    |
| — forwards                                                                                                                                      | 0 mm                                                                     |
| <b>Connections/ Terminals</b>                                                                                                                   |                                                                          |
| <b>product component removable terminal for auxiliary and control circuit</b>                                                                   | No                                                                       |
| <b>type of electrical connection</b>                                                                                                            |                                                                          |
| • for main current circuit                                                                                                                      | screw-type terminals                                                     |
| <b>arrangement of electrical connectors for main current circuit</b>                                                                            | Top and bottom                                                           |
| <b>type of connectable conductor cross-sections</b>                                                                                             |                                                                          |
| • for main contacts                                                                                                                             |                                                                          |
| — solid or stranded                                                                                                                             | 1 ... 10 mm <sup>2</sup> , max. 2x 10 mm <sup>2</sup>                    |
| — finely stranded with core end processing                                                                                                      | 1 ... 16 mm <sup>2</sup> , max. 6 + 16 mm <sup>2</sup>                   |
| • for AWG cables for main contacts                                                                                                              | 2x (14 ... 10)                                                           |
| <b>connectable conductor cross-section for main contacts</b>                                                                                    |                                                                          |
| • solid or stranded                                                                                                                             | 1 ... 10 mm <sup>2</sup>                                                 |
| • finely stranded with core end processing                                                                                                      | 1 ... 16 mm <sup>2</sup>                                                 |
| <b>AWG number as coded connectable conductor cross section for main contacts</b>                                                                | 12 ... 10                                                                |
| <b>tightening torque</b>                                                                                                                        |                                                                          |

|                                                     |                    |
|-----------------------------------------------------|--------------------|
| • for main contacts with screw-type terminals       | 2.5 ... 3 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> |                    |
| • for main contacts                                 | M4                 |

#### Safety related data

|                                                                      |        |
|----------------------------------------------------------------------|--------|
| product function suitable for safety function                        | Yes    |
| <b>suitability for use</b>                                           |        |
| • safety-related switching on                                        | No     |
| • safety-related switching OFF                                       | 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 |

#### ISO 13849

|                                                            |     |
|------------------------------------------------------------|-----|
| <b>device type according to ISO 13849-1</b>                | 3   |
| <b>overdimensioning according to ISO 13849-2 necessary</b> | Yes |

#### IEC 61508

|                                                                  |        |
|------------------------------------------------------------------|--------|
| <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   |

#### Electrical Safety

|                                                                |                                                  |
|----------------------------------------------------------------|--------------------------------------------------|
| <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 |

#### 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

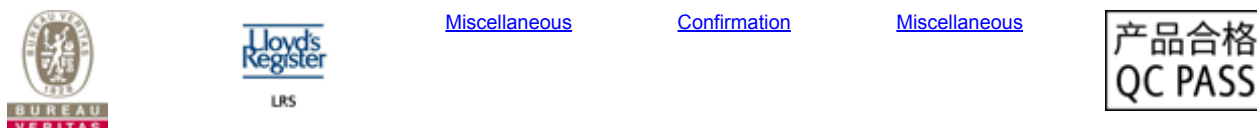
[Environmental Confirmations](#)



#### General Product Approval Test Certificates



#### Maritime application other



#### Railway

#### 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=3RV2721-4BD10>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RV2721-4BD10>

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

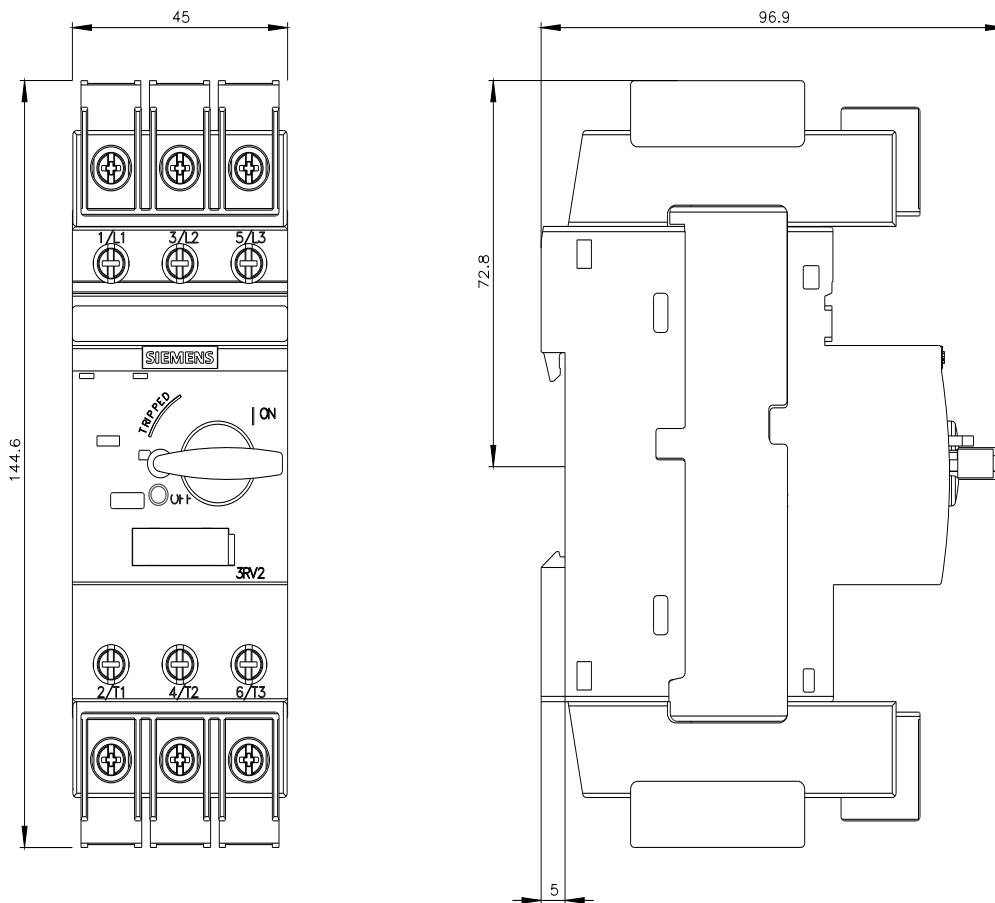
[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RV2721-4BD10&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2721-4BD10&lang=en)

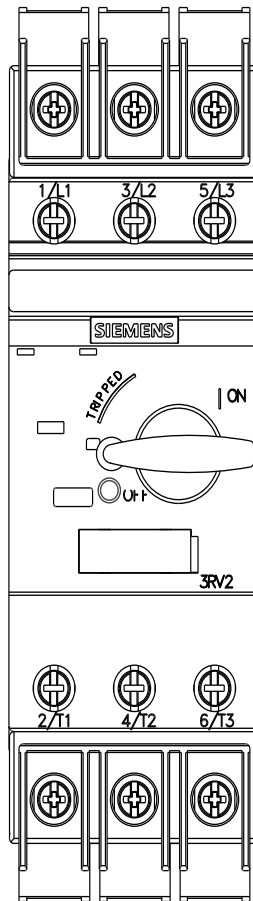
##### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2721-4BD10>

##### 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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