SIEMENS

## Data sheet 3RV2021-1JA20

Siemens EcoTech



Circuit breaker size S0 for motor protection, CLASS 10 A-release 7...10 A N release 130 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 |
| **General technical data** | |
| **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 disconnector functionality | Yes |
| 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 |
| **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** | 10 A |
| **Substance Prohibitance (day/month/year)** | 10/01/2009 |
| **Net Weight** | 0.383 kg |
| **Ambient conditions** | |
| installation altitude at height above sea level maximum | 2 000 m |


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| | |
|---|---|
| **ambient temperature** | |
| ● during operation | -20 ... +60 °C |
| ● during storage | -50 ... +80 °C |
| ● during transport | -50 ... +80 °C |
| **temperature compensation** | -20 ... +60 °C |
| relative humidity during operation | 10 ... 95 % |
| **Main circuit** | |
| **number of poles for main current circuit** | 3 |
| **adjustable current response value current of the current-dependent overload release** | 7 ... 10 A |
| **type of voltage for main current circuit** | AC |
| **operating voltage** | |
| ● 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 |
| **operating frequency rated value** | 50 ... 60 Hz |
| **operational current rated value** | 10 A |
| **operational current** | |
| ● at AC-3 at 400 V rated value | 10 A |
| ● at AC-3e at 400 V rated value | 10 A |
| **operating power** | |
| ● at AC-3 | |
| — at 230 V rated value | 2.2 kW |
| — at 400 V rated value | 4 kW |
| — at 500 V rated value | 5.5 kW |
| — at 690 V rated value | 7.5 kW |
| ● at AC-3e | |
| — at 230 V rated value | 2.2 kW |
| — at 400 V rated value | 4 kW |
| — at 500 V rated value | 5.5 kW |
| — at 690 V rated value | 7.5 kW |
| **operating frequency** | |
| ● at AC-3 maximum | 15 1/h |
| ● at AC-3e maximum | 15 1/h |
| **Auxiliary circuit** | |
| **type of voltage for auxiliary and control circuit** | AC/DC |
| **number of NC contacts for auxiliary contacts** | 0 |
| **number of NO contacts for auxiliary contacts** | 0 |
| number of CO contacts for auxiliary contacts | 0 |
| **Protective and monitoring functions** | |
| **product function** | |
| ● ground fault detection | No |
| ● phase failure detection | Yes |
| **trip class** | CLASS 10 |
| **design of the overload release** | thermal |
| **protection function thermal overload protection (ANSI 49)** | Yes |
| **maximum short-circuit current breaking capacity (Icu)** | |
| ● 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 |
| **operating short-circuit current breaking capacity (Ics) at AC** | |
| ● 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 | 130 A |
| **UL/CSA ratings** | |


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| | |
|---|---|
| **full-load current (FLA) for 3-phase AC motor** | |
| ● at 480 V rated value | 10 A |
| ● at 600 V rated value | 10 A |
| **yielded mechanical performance [hp]** | |
| ● for single-phase AC motor | |
| — at 110/120 V rated value | 0.5 hp |
| — at 230 V rated value | 1.5 hp |
| ● for 3-phase AC motor | |
| — at 200/208 V rated value | 2 hp |
| — at 220/230 V rated value | 3 hp |
| — at 460/480 V rated value | 5 hp |
| — at 575/600 V rated value | 10 hp |
| **UL File Number (CCN)** | E47705 (NLRV, NLRV7), E156943 (NKJH, NKJH7) |
| **Short-circuit protection** | |
| **product function short circuit protection** | Yes |
| **design of the short-circuit trip** | magnetic |
| certificate of suitability according to ATEX directive 2014/34/EU | DMT 02 ATEX F 001 |
| **type of protection according to ATEX directive 2014/34/EU** | Ex II (2) GD |
| **Installation/ mounting/ dimensions** | |
| **mounting position** | any |
| **fastening method** | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715 |
| **Mounting method of circuit breaker for Transformer protection, Generator protection and system protection optional standard bar mounting** | Yes |
| **height** | 119 mm |
| **width** | 45 mm |
| **depth** | 97 mm |
| **required spacing** | |
| ● 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 |
| ● for live parts at 500 V | |


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| | |
|---|---|
| — downwards | 30 mm |
| — upwards | 30 mm |
| — at the side | 9 mm |
| ● for grounded parts at 690 V | |
| — downwards | 50 mm |
| — upwards | 50 mm |
| — backwards | 0 mm |
| — at the side | 30 mm |
| — forwards | 0 mm |
| ● for live parts at 690 V | |
| — downwards | 50 mm |
| — upwards | 50 mm |
| — backwards | 0 mm |
| — at the side | 30 mm |
| — forwards | 0 mm |
| **Connections/ Terminals** | |
| **product component removable terminal for auxiliary and control circuit** | No |
| **type of electrical connection** | |
| ● for main current circuit | spring-loaded terminals |
| **arrangement of electrical connectors for main current circuit** | Top and bottom |
| **type of connectable conductor cross-sections** | |
| ● for main contacts | |
| — solid or stranded | 2x (1 ... 10 mm²) |
| — finely stranded with core end processing | 2x (1 ... 6 mm²) |
| — finely stranded without core end processing | 2x (1 ... 6 mm²) |
| ● for AWG cables for main contacts | 2x (18 ... 8) |
| **connectable conductor cross-section for main contacts** | |
| ● solid or stranded | 1 ... 10 mm² |
| ● finely stranded with core end processing | 1 ... 6 mm² |
| ● finely stranded without core end processing | 1 ... 6 mm² |
| **AWG number as coded connectable conductor cross section for main contacts** | 18 ... 8 |
| **design of screwdriver shaft** | Diameter 3 mm |
| **size of the screwdriver tip** | 3,0 x 0,5 mm |
| **Safety related data** | |
| **product function suitable for safety function** | Yes |
| **suitability for use** | |
| **● safety-related switching on** | No |
| **● safety-related switching OFF** | Yes |
| **service life maximum** | 10 a |
| **test wear-related service life necessary** | Yes |
| **proportion of dangerous failures** | |
| **● with low demand rate according to SN 31920** | 40 % |
| **● with high demand rate according to SN 31920** | 50 % |
| **B10 value with high demand rate according to SN 31920** | 5 000 |
| **failure rate [FIT] with low demand rate according to SN 31920** | 50 FIT |
| ISO 13849 | |
| **device type according to ISO 13849-1** | 3 |
| **overdimensioning according to ISO 13849-2 necessary** | Yes |
| IEC 61508 | |
| **safety device type according to IEC 61508-2** | Type A |
| **T1 value** | |
| **● for proof test interval or service life according to IEC 61508** | 10 a |
| Electrical Safety | |
| **protection class IP on the front according to IEC 60529** | IP20 |
| **touch protection on the front according to IEC 60529** | finger-safe, for vertical contact from the front |


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| 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**

Environmental Confirmations

**General Product Approval**

**General Product Approval**

**For use in hazardous locations**

**For use in hazardous locations**

IECEx

**Test Certificates**

Special Test Certificate

Type Test Certificates/Test Report

**Maritime application**

ABS

**Maritime application**

DNV

LRS

PRS

RINA

**other**

Miscellaneous

Confirmation

**other**

Miscellaneous

**Railway**

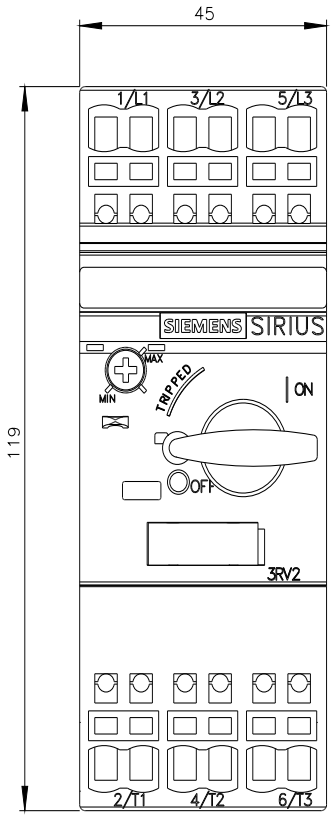
Confirmation

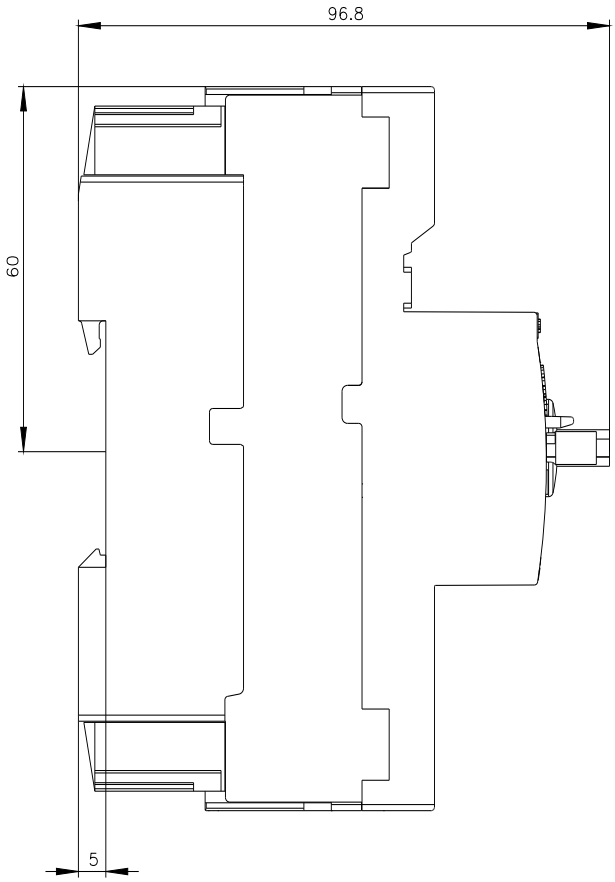
Special Test Certificate

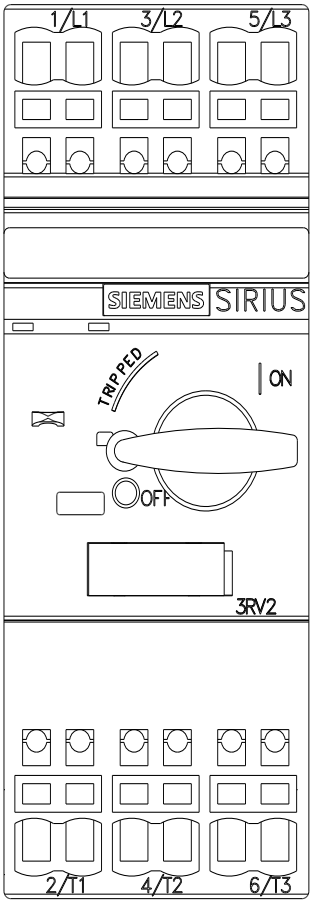
## Further information

**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=3RV2021-1JA20
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RV2021-1JA20
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2021-1JA20&lang=en
**Cax online generator**
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2021-1JA20
**Kennlinien**
https://curves.simaris.siemens.com/curves/3RV2021-1JA20


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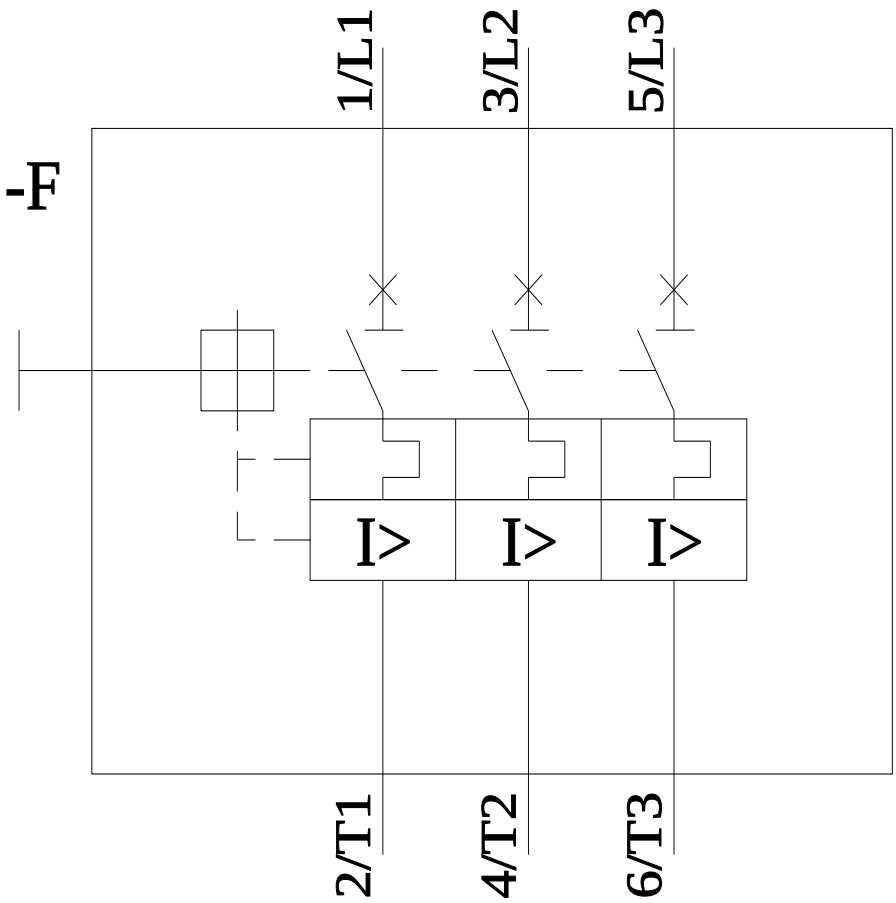




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