SIEMENS

## Data sheet 3RT2018-1AB01




CONTACTOR, AC-3, 7.5KW/400V, 1NO, AC 24V 50/60HZ, 3-POLE, SZ S00 SCREW TERMINAL

| | |
|---|---|
| **product brand name** | SIRIUS |
| **Product designation** | 3RT2 contactor |

| General technical data: | |
|---|---|
| **Size of contactor** | S00 |
| **Product expansion** | |
| • function module for communication | No |
| • Auxiliary switch | Yes |
| **Insulation voltage** | |
| • Rated value | 690 V |
| **Surge voltage resistance Rated value** | 6 kV |
| **maximum permissible voltage for safe isolation between coil and main contacts acc. to EN 60947-1** | 400 V |
| **Protection class IP** | |
| • on the front | IP20 |
| • of the terminal | IP20 |
| **Degree of pollution** | 3 |
| **Shock resistance** | |
| • **at rectangular impulse** | |
| — **at AC** | 7,3g / 5 ms, 4,7g / 10 ms |
| • **with sine pulse** | |
| — **at AC** | 11,4g / 5 ms, 7,3g / 10 ms |
| **Mechanical service life (switching cycles)** | |
| • of the contactor typical | 30 000 000 |
| • of the contactor with added electronics-compatible auxiliary switch block typical | 5 000 000 |


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| | |
|---|---|
| • of the contactor with added auxiliary switch block typical | 10 000 000 |
| **Ambient conditions:** | |
| **Installation altitude at height above sea level maximum** | 2 000 m |
| **Ambient temperature** | |
| • during operation | -25 ... +60 °C |
| • during storage | -55 ... +80 °C |
| **Main circuit:** | |
| **Number of NO contacts for main contacts** | 3 |
| **Number of NC contacts for main contacts** | 0 |
| **Operating voltage** | |
| • at AC-3 Rated value maximum | 690 V |
| **Operating current** | |
| • at AC-1 at 400 V | |
| — at ambient temperature 40 °C Rated value | 22 A |
| • at AC-1 up to 690 V | |
| — at ambient temperature 40 °C Rated value | 22 A |
| — at ambient temperature 60 °C Rated value | 20 A |
| • at AC-2 at 400 V Rated value | 16 A |
| • at AC-3 | |
| — at 400 V Rated value | 16 A |
| — at 500 V Rated value | 12.4 A |
| — at 690 V Rated value | 8.9 A |
| **Connectable conductor cross-section in main circuit at AC-1** | |
| • at 60 °C minimum permissible | 2.5 mm² |
| • at 40 °C minimum permissible | 4 mm² |
| **Operating current for ≥ 200000 operating cycles at AC-4** | |
| • at 400 V Rated value | 5.5 A |
| • at 690 V Rated value | 4.4 A |
| **Operating current** | |
| • with 1 current path at DC-1 | |
| — at 24 V Rated value | 20 A |
| — at 110 V Rated value | 2.1 A |
| — at 220 V Rated value | 0.8 A |
| — at 440 V Rated value | 0.6 A |
| — at 600 V Rated value | 0.6 A |
| • with 2 current paths in series at DC-1 | |
| — at 24 V Rated value | 20 A |
| — at 110 V Rated value | 12 A |


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| | |
|---|---|
| — at 220 V Rated value | 1.6 A |
| — at 440 V Rated value | 0.8 A |
| — at 600 V Rated value | 0.7 A |
| • with 3 current paths in series at DC-1 | |
| — at 24 V Rated value | 20 A |
| — at 110 V Rated value | 20 A |
| — at 220 V Rated value | 20 A |
| — at 440 V Rated value | 1.3 A |
| — at 600 V Rated value | 1 A |
| **Operating current** | |
| • with 1 current path at DC-3 at DC-5 | |
| — at 24 V Rated value | 20 A |
| — at 110 V Rated value | 0.1 A |
| • with 2 current paths in series at DC-3 at DC-5 | |
| — at 110 V Rated value | 0.35 A |
| — at 24 V Rated value | 20 A |
| • with 3 current paths in series at DC-3 at DC-5 | |
| — at 110 V Rated value | 20 A |
| — at 220 V Rated value | 1.5 A |
| — at 24 V Rated value | 20 A |
| — at 440 V Rated value | 0.2 A |
| — at 600 V Rated value | 0.2 A |
| **Operating power** | |
| • at AC-1 | |
| — at 230 V Rated value | 7.5 kW |
| — at 230 V at 60 °C Rated value | 7.5 kW |
| — at 400 V Rated value | 13 kW |
| — at 400 V at 60 °C Rated value | 13 kW |
| — at 690 V Rated value | 22 kW |
| — at 690 V at 60 °C Rated value | 22 kW |
| • at AC-2 at 400 V Rated value | 7.5 kW |
| • at AC-3 | |
| — at 230 V Rated value | 4 kW |
| — at 400 V Rated value | 7.5 kW |
| — at 690 V Rated value | 7.5 kW |
| **Operating power for ≥ 200000 operating cycles at AC-4** | |
| • at 400 V Rated value | 2.5 kW |
| • at 690 V Rated value | 3.5 kW |
| **Thermal short-time current restricted to 10 s** | 128 A |
| **Active power loss at AC-3 at 400 V for rated value of the operating current per conductor** | 2.2 W |


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| | |
|---|---|
| **No-load switching frequency** | |
| • at AC | 10 000 1/h |
| **Operating frequency** | |
| • at AC-1 maximum | 1 000 1/h |
| • at AC-2 maximum | 750 1/h |
| • at AC-3 maximum | 750 1/h |
| • at AC-4 maximum | 250 1/h |

## Control circuit/ Control:

| | |
|---|---|
| **Type of voltage of the control supply voltage** | AC |
| **Control supply voltage at AC** | |
| • at 50 Hz Rated value | 24 V |
| • at 60 Hz Rated value | 24 V |
| **Operating range factor control supply voltage rated value of the magnet coil at AC** | |
| • at 50 Hz | 0.8 ... 1.1 |
| • at 60 Hz | 0.85 ... 1.1 |
| **Apparent pick-up power of the magnet coil at AC** | |
| • at 50 Hz | 37 V·A |
| • at 60 Hz | 43 V·A |
| **Inductive power factor with closing power of the coil** | |
| • at 50 Hz | 0.8 |
| • at 60 Hz | 0.8 |
| **Apparent holding power of the magnet coil at AC** | |
| • at 50 Hz | 5.7 V·A |
| • at 60 Hz | 6.5 V·A |
| **Inductive power factor with the holding power of the coil** | |
| • at 50 Hz | 0.25 |
| • at 60 Hz | 0.25 |
| **Closing delay** | |
| • at AC | 8 ... 33 ms |
| **Arcing time** | 10 ... 15 ms |
| **Residual current of the electronics for control with signal <0>** | |
| • at AC at 230 V maximum permissible | 4 mA |
| • at DC at 24 V maximum permissible | 10 mA |

## Auxiliary circuit:

| | |
|---|---|
| **Number of NC contacts** | |
| • for auxiliary contacts | |
| — instantaneous contact | 0 |
| **Number of NO contacts** | |
| • for auxiliary contacts | |


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| | |
|---|---|
| — instantaneous contact | 1 |
| Operating current at AC-12 maximum | 10 A |
| **Operating current at AC-15** | |
| • at 230 V Rated value | 10 A |
| • at 400 V Rated value | 3 A |
| • at 500 V Rated value | 2 A |
| • at 690 V Rated value | 1 A |
| **Operating current at DC-12** | |
| • at 24 V Rated value | 10 A |
| • at 48 V Rated value | 6 A |
| • at 60 V Rated value | 6 A |
| • at 110 V Rated value | 3 A |
| • at 125 V Rated value | 2 A |
| • at 220 V Rated value | 1 A |
| • at 600 V Rated value | 0.15 A |
| **Operating current at DC-13** | |
| • at 24 V Rated value | 10 A |
| • at 48 V Rated value | 2 A |
| • at 60 V Rated value | 2 A |
| • at 110 V Rated value | 1 A |
| • at 125 V Rated value | 0.9 A |
| • at 220 V Rated value | 0.3 A |
| • at 600 V Rated value | 0.1 A |
| **Contact reliability of the auxiliary contacts** | 1 faulty switching per 100 million (17 V, 1 mA) |

| UL/CSA ratings: | |
|---|---|
| **Full-load current (FLA) for three-phase AC motor** | |
| • at 480 V Rated value | 14 A |
| • at 600 V Rated value | 11 A |
| **yielded mechanical performance [hp]** | |
| • for single-phase AC motor | |
| — at 110/120 V Rated value | 1 hp |
| — at 230 V Rated value | 2 hp |
| • for three-phase AC motor | |
| — at 200/208 V Rated value | 3 hp |
| — at 220/230 V Rated value | 5 hp |
| — at 460/480 V Rated value | 10 hp |
| — at 575/600 V Rated value | 10 hp |
| **Contact rating of the auxiliary contacts acc. to UL** | A600 / Q600 |

| Short-circuit: | |
|---|---|
| **Design of the fuse link** | |
| • for short-circuit protection of the main circuit | |


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| | |
|---|---|
| — with type of assignment 1 required | gL/gG LV HRC 3NA, DIAZED 5SB, NEOZED 5SE: 35 A |
| — with type of assignment 2 required | gL/gG LV HRC 3NA, DIAZED 5SB, NEOZED 5SE: 20 A |
| • for short-circuit protection of the auxiliary switch required | fuse gL/gG: 10 A |

## Installation/ mounting/ dimensions:

| | |
|---|---|
| **mounting position** | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface |
| **Mounting type** | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 50022 |
| • Side-by-side mounting | Yes |
| **Height** | 58 mm |
| **Width** | 45 mm |
| **Depth** | 73 mm |
| **Required spacing** | |
| • with side-by-side mounting | |
| — forwards | 0 mm |
| — Backwards | 0 mm |
| — upwards | 0 mm |
| — downwards | 0 mm |
| — at the side | 0 mm |
| • for grounded parts | |
| — forwards | 0 mm |
| — Backwards | 0 mm |
| — upwards | 0 mm |
| — at the side | 6 mm |
| — downwards | 0 mm |
| • for live parts | |
| — forwards | 0 mm |
| — Backwards | 0 mm |
| — upwards | 0 mm |
| — downwards | 0 mm |
| — at the side | 6 mm |

## Connections/ Terminals:

| | |
|---|---|
| **Type of electrical connection** | |
| • for main current circuit | screw-type terminals |
| • for auxiliary and control current circuit | screw-type terminals |
| **Type of connectable conductor cross-section** | |
| • for main contacts | |
| — single or multi-stranded | 2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), 2x 4 mm² |
| — finely stranded with core end processing | 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) |


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| | |
|---|---|
| • for AWG conductors for main contacts | 2x (20 ... 16), 2x (18 ... 14), 2x 12 |
| **Type of connectable conductor cross-section** | |
| • for auxiliary contacts | |
| — single or multi-stranded | 2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), 2x 4 mm² |
| — finely stranded with core end processing | 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) |
| • for AWG conductors for auxiliary contacts | 2x (20 ... 16), 2x (18 ... 14), 2x 12 |

## Safety related data:

| | |
|---|---|
| **B10 value with high demand rate acc. to SN 31920** | 1 000 000 |
| **Proportion of dangerous failures** | |
| • with low demand rate acc. to SN 31920 | 40 % |
| • with high demand rate acc. to SN 31920 | 73 % |
| **Product function** | |
| • Mirror contact acc. to IEC 60947-4-1 | Yes; with 3RH29 |
| **T1 value for proof test interval or service life acc. to IEC 61508** | 20 y |

## Certificates/ approvals:


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| General Product Approval | | | | Functional Safety/Safety of Machinery | Declaration of Conformity |
|---|---|---|---|---|---|
| CCC | CSA | | UL | Baumusterbescheinigung | EG-Konf. |

| Test Certificates | | Shipping Approval | | | |
|---|---|---|---|---|---|
| spezielle Prüfbescheinigungen | Typprüfbescheinigung/Werkszeugnis | ABS | BUREAU VERITAS | DNV | GL |

| Shipping Approval | | | | other | |
|---|---|---|---|---|---|
| LRS | PRS | RINA | RMRS | Bestätigungen | Umweltbestätigung |

| other |
|---|
| VDE |

## Further information

**Information- and Downloadcenter (Catalogs, Brochures,…)**
http://www.siemens.com/industrial-controls/catalogs

**Industry Mall (Online ordering system)**
http://www.siemens.com/industrymall

**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT20181AB01

**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RT20181AB01

**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT20181AB01&lang=en


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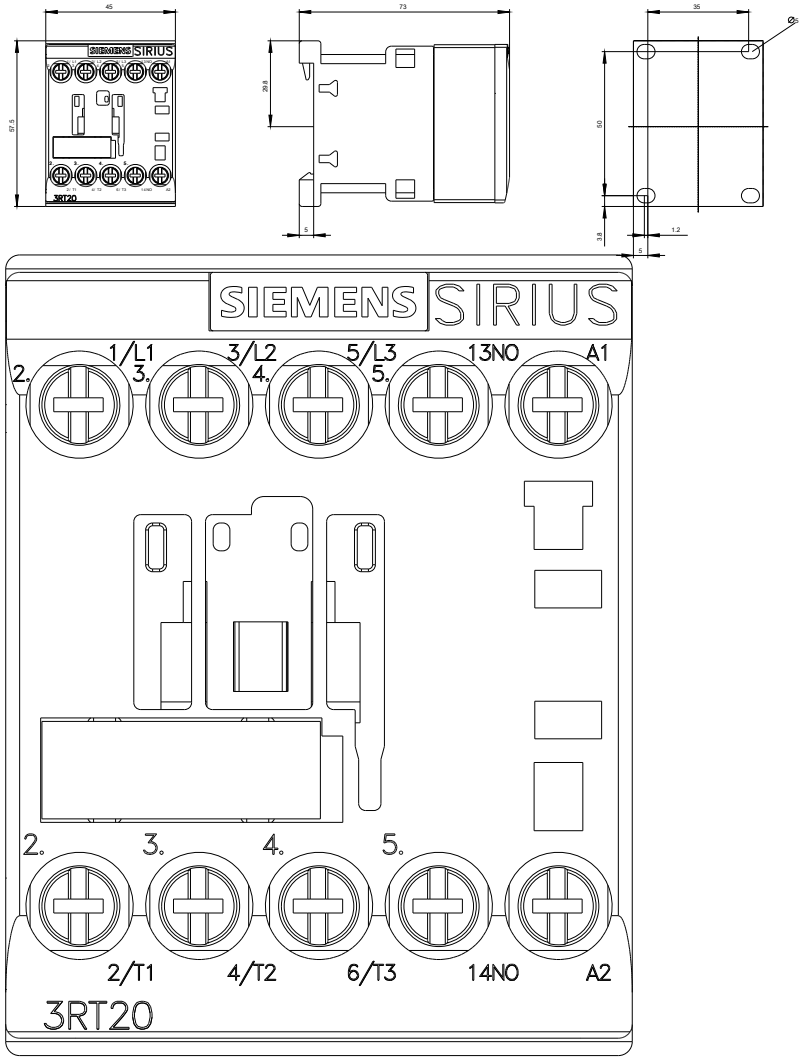



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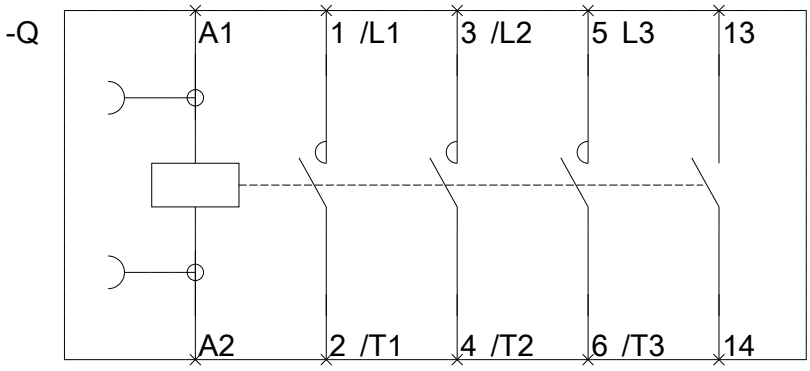


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