SIEMENS

## Data sheet 3RT2023-1BB40




CONTACTOR, AC-3, 4KW/400V, 1NO+1NC, DC 24V, 3-POLE, SZ S0 SCREW TERMINAL

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

| General technical data: | |
|---|---|
| **Size of contactor** | S0 |
| **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 DC** | 10g / 5 ms, 7,5g / 10 ms |
| • **with sine pulse** | |
| — **at DC** | 15g / 5 ms, 10g / 10 ms |
| **Mechanical service life (switching cycles)** | |
| • of the contactor typical | 10 000 000 |
| • of the contactor with added electronics-compatible auxiliary switch block typical | 5 000 000 |


Changes preserved
© Copyright Siemens AG

| | |
|---|---|
| • 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 | 40 A |
| • at AC-1 up to 690 V | |
| — at ambient temperature 40 °C Rated value | 40 A |
| — at ambient temperature 60 °C Rated value | 35 A |
| • at AC-2 at 400 V Rated value | 9 A |
| • at AC-3 | |
| — at 400 V Rated value | 9 A |
| — at 500 V Rated value | 9 A |
| — at 690 V Rated value | 9 A |
| **Connectable conductor cross-section in main circuit at AC-1** | |
| • at 60 °C minimum permissible | 10 mm² |
| • at 40 °C minimum permissible | 10 mm² |
| **Operating current for ≥ 200000 operating cycles at AC-4** | |
| • at 400 V Rated value | 4.1 A |
| • at 690 V Rated value | 3.3 A |
| **Operating current** | |
| • with 1 current path at DC-1 | |
| — at 24 V Rated value | 35 A |
| — at 110 V Rated value | 4.5 A |
| — at 220 V Rated value | 1 A |
| — at 440 V Rated value | 0.4 A |
| — at 600 V Rated value | 0.25 A |
| • with 2 current paths in series at DC-1 | |
| — at 24 V Rated value | 35 A |
| — at 110 V Rated value | 35 A |


Changes preserved
© Copyright Siemens AG

| | |
|---|---|
| — at 220 V Rated value | 5 A |
| — at 440 V Rated value | 1 A |
| — at 600 V Rated value | 0.8 A |
| • with 3 current paths in series at DC-1 | |
| — at 24 V Rated value | 35 A |
| — at 110 V Rated value | 35 A |
| — at 220 V Rated value | 35 A |
| — at 440 V Rated value | 2.9 A |
| — at 600 V Rated value | 1.4 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 | 2.5 A |
| — at 220 V Rated value | 1 A |
| — at 440 V Rated value | 0.09 A |
| — at 600 V Rated value | 0.06 A |
| • with 2 current paths in series at DC-3 at DC-5 | |
| — at 110 V Rated value | 15 A |
| — at 220 V Rated value | 3 A |
| — at 24 V Rated value | 35 A |
| — at 440 V Rated value | 0.27 A |
| — at 600 V Rated value | 0.16 A |
| • with 3 current paths in series at DC-3 at DC-5 | |
| — at 110 V Rated value | 35 A |
| — at 220 V Rated value | 10 A |
| — at 24 V Rated value | 35 A |
| — at 440 V Rated value | 0.6 A |
| — at 600 V Rated value | 0.6 A |
| **Operating power** | |
| • at AC-1 | |
| — at 230 V Rated value | 13.3 kW |
| — at 230 V at 60 °C Rated value | 13.3 kW |
| — at 400 V Rated value | 23 kW |
| — at 400 V at 60 °C Rated value | 23 kW |
| — at 690 V Rated value | 40 kW |
| — at 690 V at 60 °C Rated value | 40 kW |
| • at AC-2 at 400 V Rated value | 4 kW |
| • at AC-3 | |
| — at 230 V Rated value | 2.2 kW |
| — at 400 V Rated value | 4 kW |
| — at 690 V Rated value | 7.5 kW |


Changes preserved
© Copyright Siemens AG

| | |
|---|---|
| **Operating power for ≥ 200000 operating cycles at AC-4** | |
| • at 400 V Rated value | 2 kW |
| • at 690 V Rated value | 2.5 kW |
| **Thermal short-time current restricted to 10 s** | 80 A |
| **Active power loss at AC-3 at 400 V for rated value of the operating current per conductor** | 0.4 W |
| **No-load switching frequency** | |
| • at DC | 1 500 1/h |
| **Operating frequency** | |
| • at AC-1 maximum | 1 000 1/h |
| • at AC-2 maximum | 1 000 1/h |
| • at AC-3 maximum | 1 000 1/h |
| • at AC-4 maximum | 300 1/h |

| Control circuit/ Control: | |
|---|---|
| **Type of voltage of the control supply voltage** | DC |
| **Control supply voltage at DC** | |
| • Rated value | 24 V |
| **Operating range factor control supply voltage rated value of the magnet coil at DC** | 0.8 ... 1.1 |
| **Closing power of the magnet coil at DC** | 5.9 W |
| **Holding power of the magnet coil for DC** | 5.9 W |
| **Closing delay** | |
| • at DC | 50 ... 170 ms |
| **Arcing time** | 10 ... 10 ms |
| **Residual current of the electronics for control with signal <0>** | |
| • at AC at 230 V maximum permissible | 6 mA |
| • at DC at 24 V maximum permissible | 16 mA |

| Auxiliary circuit: | |
|---|---|
| **Number of NC contacts** | |
| • for auxiliary contacts | |
| — instantaneous contact | 1 |
| **Number of NO contacts** | |
| • for auxiliary contacts | |
| — 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 |


Changes preserved
© Copyright Siemens AG

| | |
|---|---|
| **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 | 7.6 A |
| • at 600 V Rated value | 9 A |
| **yielded mechanical performance [hp]** | |
| • for single-phase AC motor | |
| — at 110/120 V Rated value | 1 hp |
| — at 230 V Rated value | 1 hp |
| • for three-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 | 7.5 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 | |
| — with type of assignment 1 required | gL/gG LV HRC 3NA, DIAZED 5SB, NEOZED 5SE: 63 A |
| — with type of assignment 2 required | gL/gG LV HRC 3NA, DIAZED 5SB, NEOZED 5SE: 25 A |
| • for short-circuit protection of the auxiliary switch required | fuse gL/gG: 10 A |

## Installation/ mounting/ dimensions:


Changes preserved
© Copyright Siemens AG

| | |
|---|---|
| **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** | 85 mm |
| **Width** | 45 mm |
| **Depth** | 107 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 (1 ... 2,5 mm²), 2x (2,5 ... 10 mm²) |
| — finely stranded with core end processing | 2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm² |
| • for AWG conductors for main contacts | 2x (16 ... 12), 2x (14 ... 8) |
| **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) |
| — 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) |


Changes preserved
© Copyright Siemens AG

## 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 |
| **T1 value for proof test interval or service life acc. to IEC 61508** | 20 y |

## Certificates/ approvals:

| General Product Approval | | | EMC | Functional Safety/Safety of Machinery | Declaration of Conformity |
|---|---|---|---|---|---|
| CSA | UL | EAC | C-TICK | Baumusterbescheinigung | EG-Konf. |

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

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

| other |
|---|
| VDE |

## Further information

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

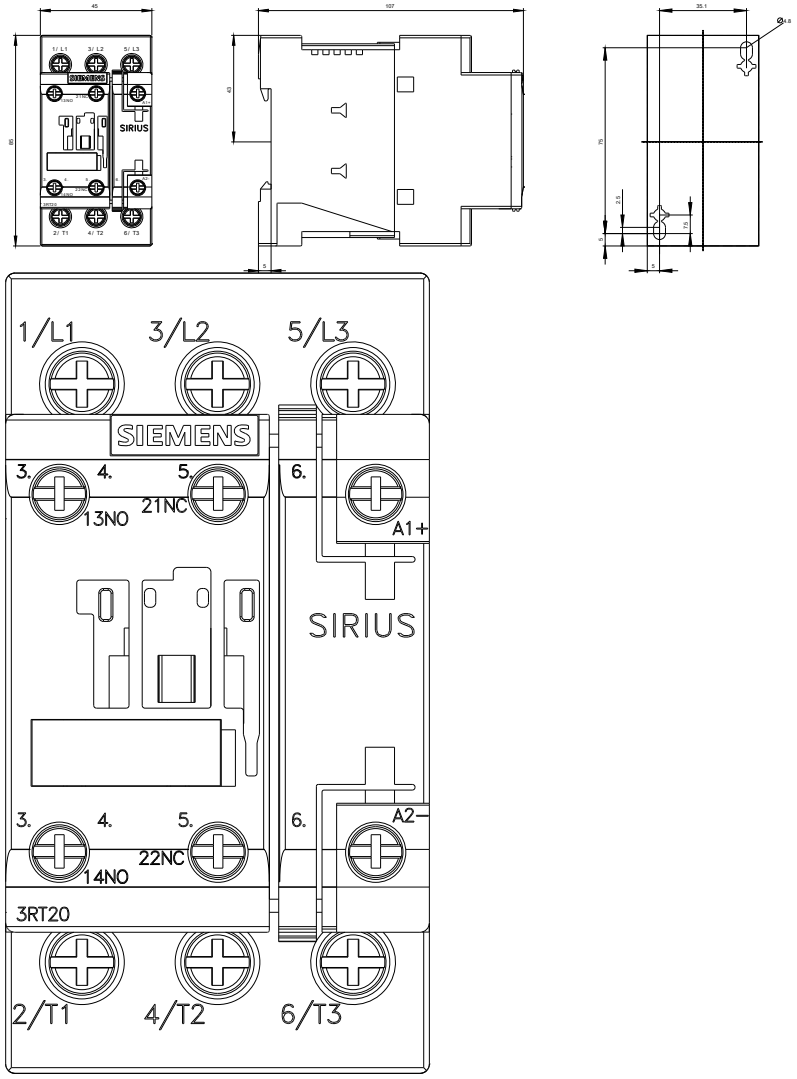
**Industry Mall (Online ordering system)**
http://www.siemens.com/industrymall

**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT20231BB40


Changes preserved
© Copyright Siemens AG

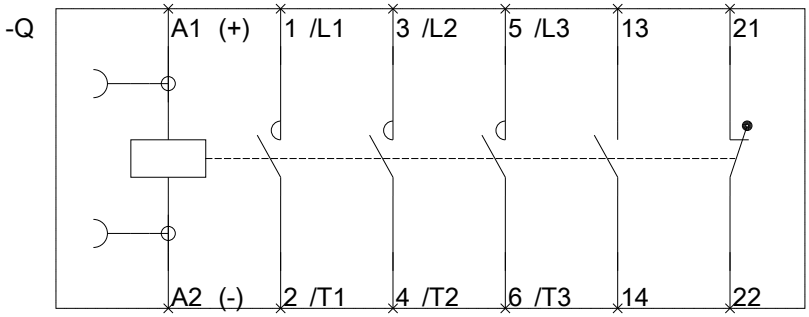
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RT20231BB40

**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT20231BB40&lang=en





Changes preserved
© Copyright Siemens AG




**last modified:** 29.06.2015


Changes preserved
© Copyright Siemens AG