SIEMENS

## Data sheet 3RT2024-1AB00

CONTACTOR, AC-3, 5.5KW/400V, 1NO+1NC, AC 24V 50HZ, 3-POLE, SZ S0 SCREW TERMINAL




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

| General technical data: | |
|---|---|
| **Size of contactor** | S0 |
| **Product extension** | |
| • function module for communication | No |
| • Auxiliary switch | Yes |
| **Insulation voltage** | |
| • rated value | 690 V |
| **Degree of pollution** | 3 |
| **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 |
| **Shock resistance** | |
| • at rectangular impulse | |


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| | |
|---|---|
| — at AC | 7,5g / 5 ms, 4,7g / 10 ms |
| • with sine pulse | |
| — at AC | 11,8g / 5 ms, 7,4g / 10 ms |
| **Mechanical service life (switching cycles)** | |
| • of contactor typical | 10 000 000 |
| • of the contactor with added electronics-compatible auxiliary switch block typical | 5 000 000 |
| • 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 | 12 A |
| • at AC-3 | |
| — at 400 V rated value | 12 A |
| — at 500 V rated value | 12 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 approx. 200000 operating cycles at AC-4** | |
| • at 400 V rated value | 5.5 A |
| • at 690 V rated value | 5.5 A |
| **Operating current** | |
| • at 1 current path at DC-1 | |
| — at 24 V rated value | 35 A |


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| | |
|---|---|
| — 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 |
| — 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** | |
| • at 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 |


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| | |
|---|---|
| — 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 | 5.5 kW |
| • at AC-3 | |
| — at 230 V rated value | 3 kW |
| — at 400 V rated value | 5.5 kW |
| — at 690 V rated value | 7.5 kW |
| **Operating power for approx. 200000 operating cycles at AC-4** | |
| • at 400 V rated value | 2.6 kW |
| • at 690 V rated value | 4.6 kW |
| **Thermal short-time current limited to 10 s** | 110 A |
| **Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor** | 0.5 W |
| **No-load switching frequency** | |
| • at AC | 5 000 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** | AC |
| **Control supply voltage at AC** | |
| • at 50 Hz rated value | 24 V |
| **Operating range factor control supply voltage rated value of magnet coil at AC** | |
| • at 50 Hz | 0.8 ... 1.1 |
| **Apparent pick-up power of magnet coil at AC** | |
| • at 50 Hz | 65 V·A |
| **Inductive power factor with closing power of the coil** | |
| • at 50 Hz | 0.82 |
| **Apparent holding power of magnet coil at AC** | |
| • at 50 Hz | 7.6 V·A |
| **Inductive power factor with the holding power of the coil** | |
| • at 50 Hz | 0.25 |
| **Closing delay** | |
| • at AC | 9 ... 38 ms |
| **Opening delay** | |
| • at AC | 4 ... 16 ms |
| **Arcing time** | 10 ... 10 ms |


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| | |
|---|---|
| **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 |
| **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 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 | 11 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 |


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| | |
|---|---|
| — 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 | 3 hp |
| — at 460/480 V rated value | 7.5 hp |
| — at 575/600 V rated value | 10 hp |
| **Contact rating of auxiliary contacts according to UL** | A600 / Q600 |

## Short-circuit protection

| | |
|---|---|
| **Design of the fuse link** | |
| • for short-circuit protection of the main circuit | |
| — with type of coordination 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:

| | |
|---|---|
| **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** | 97 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 |


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| | |
|---|---|
| — 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-sections** | |
| • 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 |
| • at AWG conductors for main contacts | 2x (16 ... 12), 2x (14 ... 8) |
| **Type of connectable conductor cross-sections** | |
| • 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) |
| • at AWG conductors for auxiliary contacts | 2x (20 ... 16), 2x (18 ... 14) |

## 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 % |
| **Failure rate [FIT]** | |
| • with low demand rate acc. to SN 31920 | 100 FIT |
| **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


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| General Product Approval | | | | | EMC |
|---|---|---|---|---|---|
| CCC | CSA | EAC | UL | KTL | C-TICK |

| Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates | | Shipping Approval | |
|---|---|---|---|---|---|
| Baumusterbescheinigung | EG-Konf. | spezielle Prüfbescheinigungen | Typprüfbescheinigung/Werkszeugnis | ABS | BUREAU VERITAS |

| Shipping Approval | | | | | |
|---|---|---|---|---|---|
| DNV | GL | LRS | PRS | RINA | RMRS |

| other | | |
|---|---|---|
| Umweltbestätigung | Bestätigungen | VDE |

## Further information

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

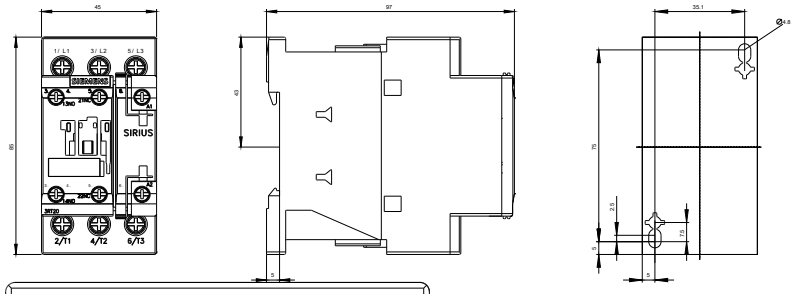
**Industry Mall (Online ordering system)**
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT20241AB00

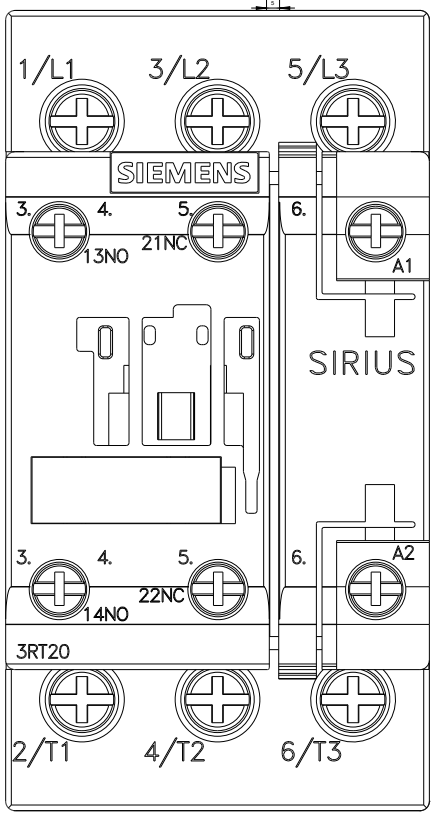
**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT20241AB00

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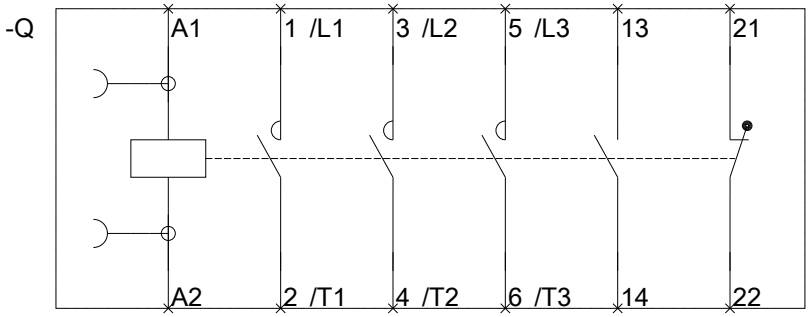

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