SIEMENS

## Data sheet 3RT2027-1NB30

Power contactor, AC-3 32 A, 15 kW / 400 V 1 NO + 1 NC, AC 50-60 Hz / DC 21-28 V AC / DC 3-pole, size S0 screw terminals


| | |
|---|---|
| **Product brand name** | SIRIUS |
| **Product designation** | Power contactor |
| **Product type designation** | 3RT2 |

| General technical data | |
|---|---|
| **Size of contactor** | S0 |
| **Product extension** | |
| • function module for communication | No |
| • Auxiliary switch | Yes |
| **Surge voltage resistance** | |
| • of main circuit rated value | 6 kV |
| • of auxiliary circuit 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** | |
| • at AC | 8,3g / 5 ms, 5,3g / 10 ms |

| | |
|---|---|
| • at DC | 10g / 5 ms, 7,5g / 10 ms |
| **Shock resistance with sine pulse** | |
| • at AC | 13,5g / 5 ms, 8,3g / 10 ms |
| • at DC | 15g / 5 ms, 10g / 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 |
| **Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750** | K |
| **Reference code acc. to DIN EN 81346-2** | Q |

## Ambient conditions

| | |
|---|---|
| **Installation altitude at height above sea level** | |
| • maximum | 2 000 m |

## Main circuit

| | |
|---|---|
| **Number of poles for main current circuit** | 3 |
| **Number of NO contacts for main contacts** | 3 |
| **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 | 50 A |
| • at AC-1 | |
| — up to 690 V at ambient temperature 40 °C rated value | 50 A |
| — up to 690 V at ambient temperature 60 °C rated value | 42 A |
| • at AC-2 at 400 V rated value | 32 A |
| • at AC-3 | |
| — at 400 V rated value | 32 A |
| — at 500 V rated value | 32 A |
| — at 690 V rated value | 21 A |
| • at AC-4 at 400 V rated value | 22 A |
| • at AC-5a up to 690 V rated value | 44 A |
| • at AC-5b up to 400 V rated value | 26.5 A |
| • at AC-6a | |
| — up to 230 V at current peak n=20 rated value | 30.8 A |
| — up to 400 V at current peak n=20 rated value | 30.8 A |

| | |
|---|---|
| — up to 500 V at current peak n=20 rated value | 27 A |
| — up to 690 V at current peak n=20 rated value | 21 A |
| • at AC-6a | |
| — up to 230 V at current peak n=30 rated value | 20.5 A |
| — up to 400 V at current peak n=30 rated value | 20.5 A |
| — up to 500 V at current peak n=30 rated value | 18 A |
| — up to 690 V at current peak n=30 rated value | 18 A |
| **Minimum cross-section in the main circuit** | |
| • at maximum AC-1 rated value | 10 mm² |
| **Operating current for approx. 200000 operating cycles at AC-4** | |
| • at 400 V rated value | 12 A |
| • at 690 V rated value | 12 A |
| **Operating current** | |
| • at 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 |
| — 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 24 V rated value | 35 A |
| — at 110 V rated value | 15 A |
| — at 220 V rated value | 3 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 24 V rated value | 35 A |
| — at 110 V rated value | 35 A |
| — at 220 V rated value | 10 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 | 16 kW |
| — at 230 V at 60 °C rated value | 15.5 kW |
| — at 400 V rated value | 28 kW |
| — at 400 V at 60 °C rated value | 27.5 kW |
| — at 690 V rated value | 48 kW |
| — at 690 V at 60 °C rated value | 47.5 kW |
| • at AC-2 at 400 V rated value | 15 kW |
| • at AC-3 | |
| — at 230 V rated value | 7.5 kW |
| — at 400 V rated value | 15 kW |
| — at 500 V rated value | 15 kW |
| — at 690 V rated value | 18.5 kW |
| **Operating power for approx. 200000 operating cycles at AC-4** | |
| • at 400 V rated value | 6 kW |
| • at 690 V rated value | 10.3 kW |
| **Thermal short-time current limited to 10 s** | 260 A |
| **Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor** | 2.7 W |
| **No-load switching frequency** | |
| • at AC | 5 000 1/h |
| • at DC | 1 500 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/DC |
| **Control supply voltage at AC** | |
| • at 50 Hz rated value | 21 ... 28 V |
| • at 60 Hz rated value | 21 ... 28 V |
| **Control supply voltage at DC** | |
| • rated value | 21 ... 28 V |
| **Operating range factor control supply voltage rated value of magnet coil at DC** | |
| • initial value | 0.7 |
| • Full-scale value | 1.3 |
| **Operating range factor control supply voltage rated value of magnet coil at AC** | |
| • at 50 Hz | 0.7 ... 1.3 |
| • at 60 Hz | 0.7 ... 1.3 |
| **Design of the surge suppressor** | with varistor |
| **Inrush current peak** | |
| • at 24 V | 2.5 A |
| **Duration of inrush current peak** | |
| • at 24 V | 100 µs |
| **Apparent pick-up power of magnet coil at AC** | |
| • at 50 Hz | 6.6 V·A |
| • at 60 Hz | 6.7 V·A |
| **Inductive power factor with closing power of the coil** | |
| • at 50 Hz | 0.98 |
| • at 60 Hz | 0.98 |
| **Apparent holding power of magnet coil at AC** | |
| • at 50 Hz | 1.9 V·A |
| • at 60 Hz | 2 V·A |
| **Inductive power factor with the holding power of the coil** | |
| • at 50 Hz | 0.86 |
| • at 60 Hz | 0.82 |
| **Closing power of magnet coil at DC** | 5.9 W |
| **Holding power of magnet coil at DC** | 1.4 W |
| **Closing delay** | |
| • at AC | 60 ... 80 ms |
| • at DC | 60 ... 75 ms |
| **Opening delay** | |
| • at AC | 30 ... 45 ms |
| • at DC | 30 ... 45 ms |

| | |
|---|---|
| **Arcing time** | 10 ... 10 ms |
| **Control version of the switch operating mechanism** | Standard A1 - A2 |
| **Residual current of the electronics for control with signal <0>** | |
| • 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 | 27 A |
| • at 600 V rated value | 27 A |
| **Yielded mechanical performance [hp]** | |
| • for single-phase AC motor | |
| — at 110/120 V rated value | 2 hp |
| — at 230 V rated value | 5 hp |

| | |
|---|---|
| • for three-phase AC motor | |
| — at 200/208 V rated value | 10 hp |
| — at 220/230 V rated value | 10 hp |
| — at 460/480 V rated value | 20 hp |
| — at 575/600 V rated value | 25 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 | gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA) |
| — with type of assignment 2 required | gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA) |
| • for short-circuit protection of the auxiliary switch required | gG: 10 A (500 V, 1 kA) |

## 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 60715 |
| • Side-by-side mounting | Yes |
| **Height** | 85 mm |
| **Width** | 45 mm |
| **Depth** | 107 mm |
| **Required spacing** | |
| • with side-by-side mounting | |
| — forwards | 10 mm |
| — upwards | 10 mm |
| — downwards | 10 mm |
| — at the side | 0 mm |
| • for grounded parts | |
| — forwards | 10 mm |
| — upwards | 10 mm |
| — at the side | 6 mm |
| — downwards | 10 mm |
| • for live parts | |
| — forwards | 10 mm |
| — upwards | 10 mm |
| — downwards | 10 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 |
| • at contactor for auxiliary contacts | Screw-type terminals |
| • of magnet coil | Screw-type terminals |
| **Type of connectable conductor cross-sections** | |
| • for main contacts | |
| — solid | 2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²) |
| — 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) |
| **Connectable conductor cross-section for main contacts** | |
| • solid | 1 ... 10 mm² |
| • stranded | 1 ... 10 mm² |
| • finely stranded with core end processing | 1 ... 10 mm² |
| **Connectable conductor cross-section for auxiliary contacts** | |
| • single or multi-stranded | 0.5 ... 2.5 mm² |
| • finely stranded with core end processing | 0.5 ... 2.5 mm² |
| **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) |
| **AWG number as coded connectable conductor cross section** | |
| • for main contacts | 16 ... 8 |
| • for auxiliary contacts | 20 ... 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 |
| **Protection against electrical shock** | finger-safe |

| | |
|---|---|
| **Suitability for use** | |
| • safety-related switching on | No |
| • safety-related switching OFF | No |

## Certificates/approvals

| General Product Approval | | | | | EMC |
|---|---|---|---|---|---|
| CCC | CSA | UL | KC | EAC | C-Tick |

| Functional Safety/Safety of Machinery | Declaration of Conformity | | Test Certificates | | |
|---|---|---|---|---|---|
| Type Examination Certificate | EG-Konf. | Miscellaneous | Type Test Certificates/Test Report | Special Test Certificate | Miscellaneous |

| Marine / Shipping | | | | | |
|---|---|---|---|---|---|
| ABS | BUREAU VERITAS | LRS | PRS | RINA | RMRS |

| Marine / Shipping | other | |
|---|---|---|
| DNVGL.COM/AF | Confirmation | 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=3RT2027-1NB30

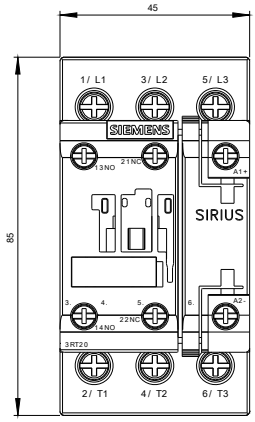
**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2027-1NB30

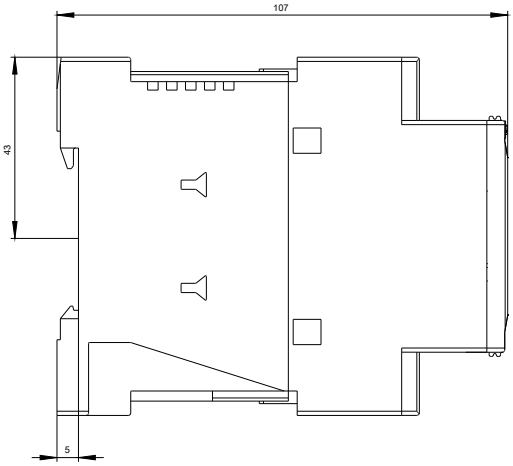
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RT2027-1NB30

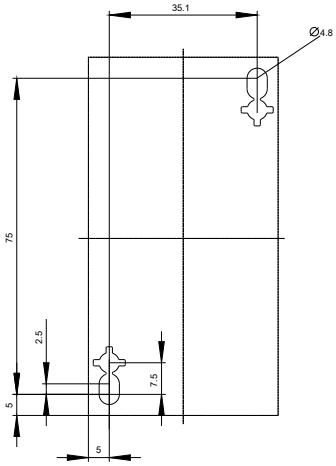
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2027-1NB30&lang=en

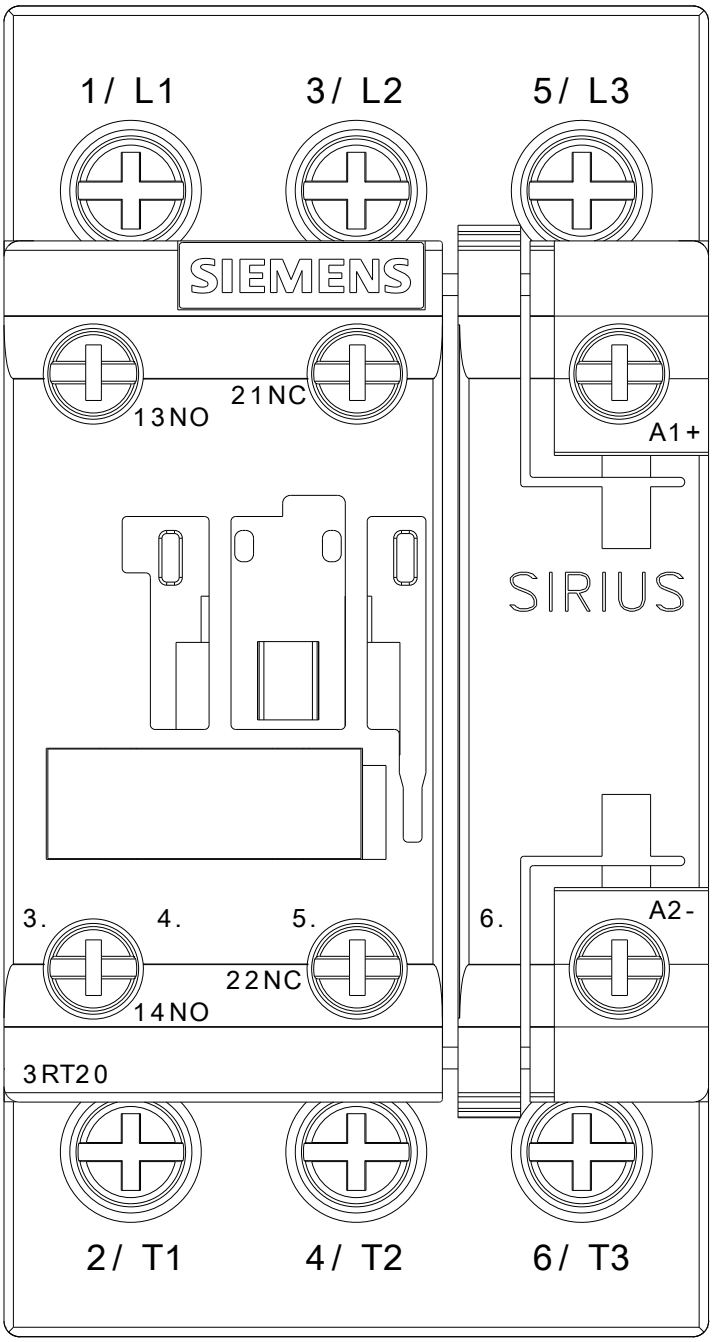
**Characteristic: Tripping characteristics, I²t, Let-through current**
https://support.industry.siemens.com/cs/ww/en/ps/3RT2027-1NB30/char

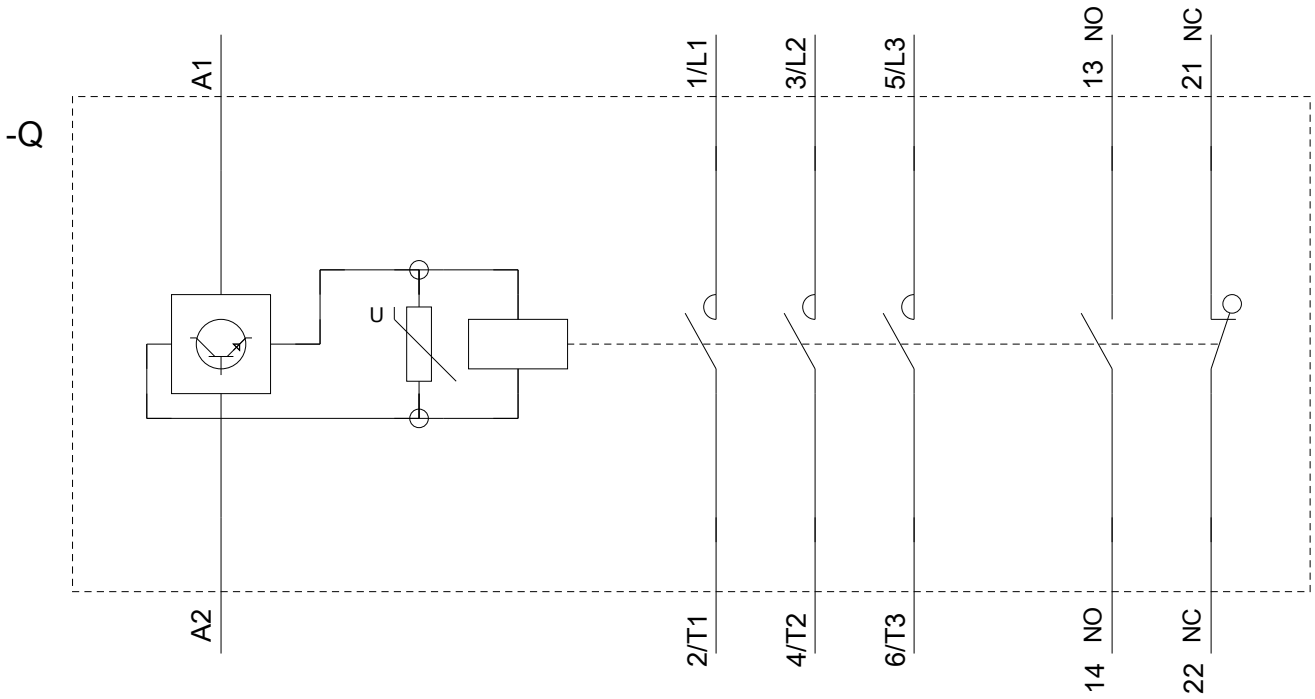
**Further characteristics (e.g. electrical endurance, switching frequency)**
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2027-1NB30&objecttype=14&gridview=view1








**last modified:** 05/14/2019