SIEMENS

## Data sheet 3RT2027-1AV60

Power contactor, AC-3 32 A, 15 kW / 400 V 1 NO + 1 NC, 480 V AC, 60 Hz 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 |
| **Power loss [W] for rated value of the current** | |
| • at AC in hot operating state | 8.1 W |
| • at AC in hot operating state per pole | 2.7 W |
| **Power loss [W] for rated value of the current without load current share typical** | 9.4 W |
| **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 |


Subject to change without notice
© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| **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 |
| **Shock resistance with sine pulse** | |
| • at AC | 13,5g / 5 ms, 8,3g / 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 EN 81346-2** | Q |

## 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 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 | |


Subject to change without notice
© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| — up to 230 V for current peak value n=20 rated value | 30.8 A |
| — up to 400 V for current peak value n=20 rated value | 30.8 A |
| — up to 500 V for current peak value n=20 rated value | 27 A |
| — up to 690 V for current peak value n=20 rated value | 21 A |
| • at AC-6a | |
| — up to 230 V for current peak value n=30 rated value | 20.5 A |
| — up to 400 V for current peak value n=30 rated value | 20.5 A |
| — up to 500 V for current peak value n=30 rated value | 18 A |
| — up to 690 V for current peak value n=30 rated value | 18 A |
| **Minimum cross-section in 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** | |


© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| • 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-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 |
| **Operating apparent output at AC-6a** | |
| • up to 230 V for current peak value n=20 rated value | 12.2 kV·A |
| • up to 400 V for current peak value n=20 rated value | 21.3 kV·A |
| • up to 500 V for current peak value n=20 rated value | 23.3 kV·A |
| • up to 690 V for current peak value n=20 rated value | 25 kV·A |
| **Operating apparent output at AC-6a** | |
| • up to 230 V for current peak value n=30 rated value | 8.1 kV·A |
| • up to 400 V for current peak value n=30 rated value | 14.2 kV·A |


© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| • up to 500 V for current peak value n=30 rated value | 15.5 kV·A |
| • up to 690 V for current peak value n=30 rated value | 21.5 kV·A |
| **Short-time withstand current in cold operating state up to 40 °C** | |
| • limited to 1 s switching at zero current maximum | 499 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 5 s switching at zero current maximum | 395 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 10 s switching at zero current maximum | 260 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 30 s switching at zero current maximum | 186 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 60 s switching at zero current maximum | 152 A; Use minimum cross-section acc. to AC-1 rated value |
| **No-load switching frequency** | |
| • at AC | 5 000 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 60 Hz rated value | 480 V |
| **Operating range factor control supply voltage rated value of magnet coil at AC** | |
| • at 60 Hz | 0.85 ... 1.1 |
| **Apparent pick-up power of magnet coil at AC** | |
| • at 60 Hz | 87 V·A |
| **Inductive power factor with closing power of the coil** | |
| • at 60 Hz | 0.76 |
| **Apparent holding power of magnet coil at AC** | |
| • at 60 Hz | 9.4 V·A |
| **Inductive power factor with the holding power of the coil** | |
| • at 60 Hz | 0.28 |
| **Closing delay** | |
| • at AC | 8 ... 40 ms |
| **Opening delay** | |
| • at AC | 4 ... 16 ms |


© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| **Arcing time** | 10 ... 10 ms |
| **Control version of the switch operating mechanism** | Standard A1 - A2 |

## 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 |


Subject to change without notice
© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| — 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 / P600 |

## 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** | 97 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 |


Subject to change without notice
© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| | |
|---|---|
| • 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 OFF | Yes |

## Certificates/ approvals


© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

| General Product Approval | | | | | EMC |
|---|---|---|---|---|---|
| CCC | CSA | UL | KC | EAC | RCM |

| Functional Safety/Safety of Machinery | Declaration of Conformity | | Test Certificates | | Marine / Ship-ping |
|---|---|---|---|---|---|
| Type Examination Certificate | EG-Konf. | Miscellaneous | Type Test Certific-ates/Test Report | Special Test Certi-ficate | ABS |

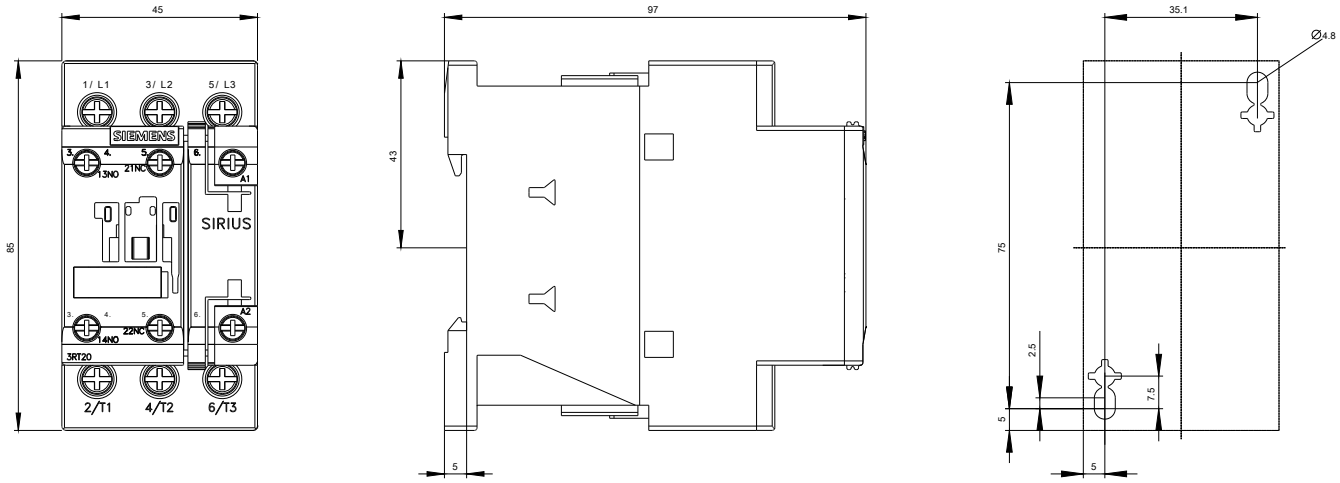
| Marine / Shipping | | | | | other |
|---|---|---|---|---|---|
| BUREAU VERITAS | LRS | RINA | RMRS | DNVGL.COM/AF | Confirmation |

| other |
|---|
| VDE |

## Further information


Subject to change without notice
© Copyright Siemens

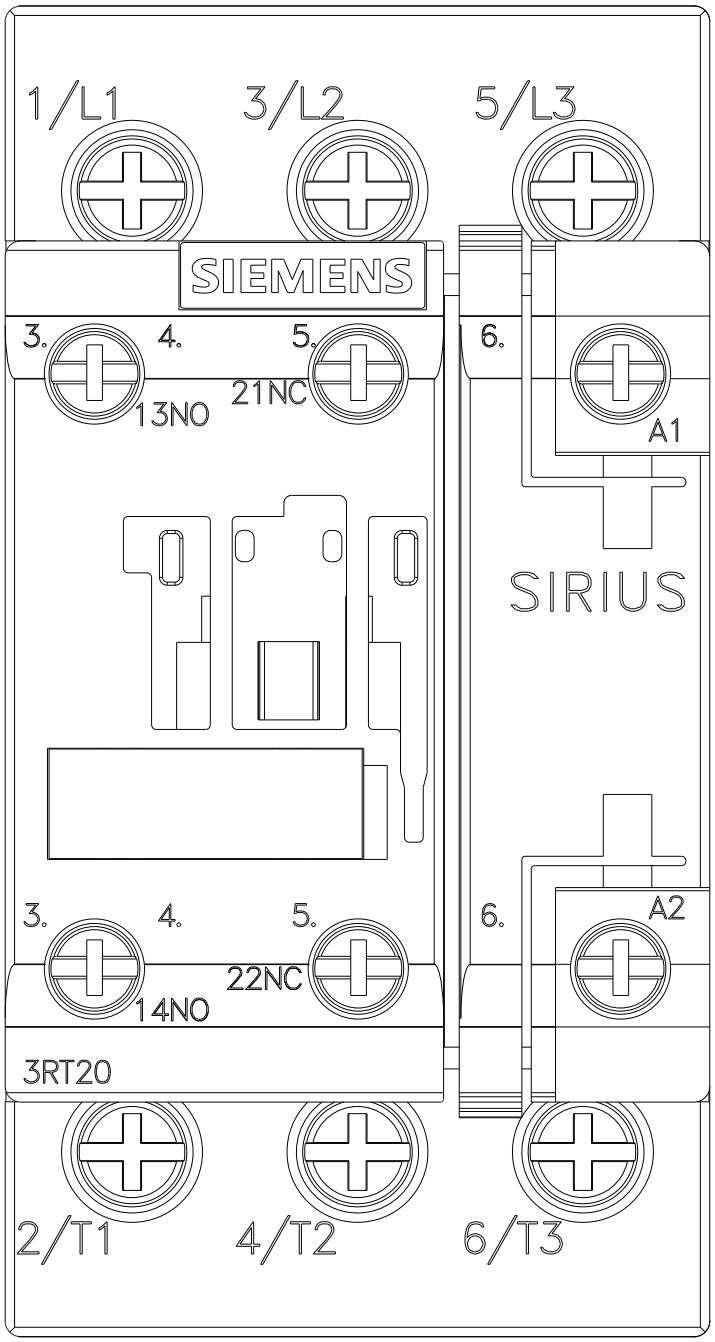
Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com





Subject to change without notice
© Copyright Siemens

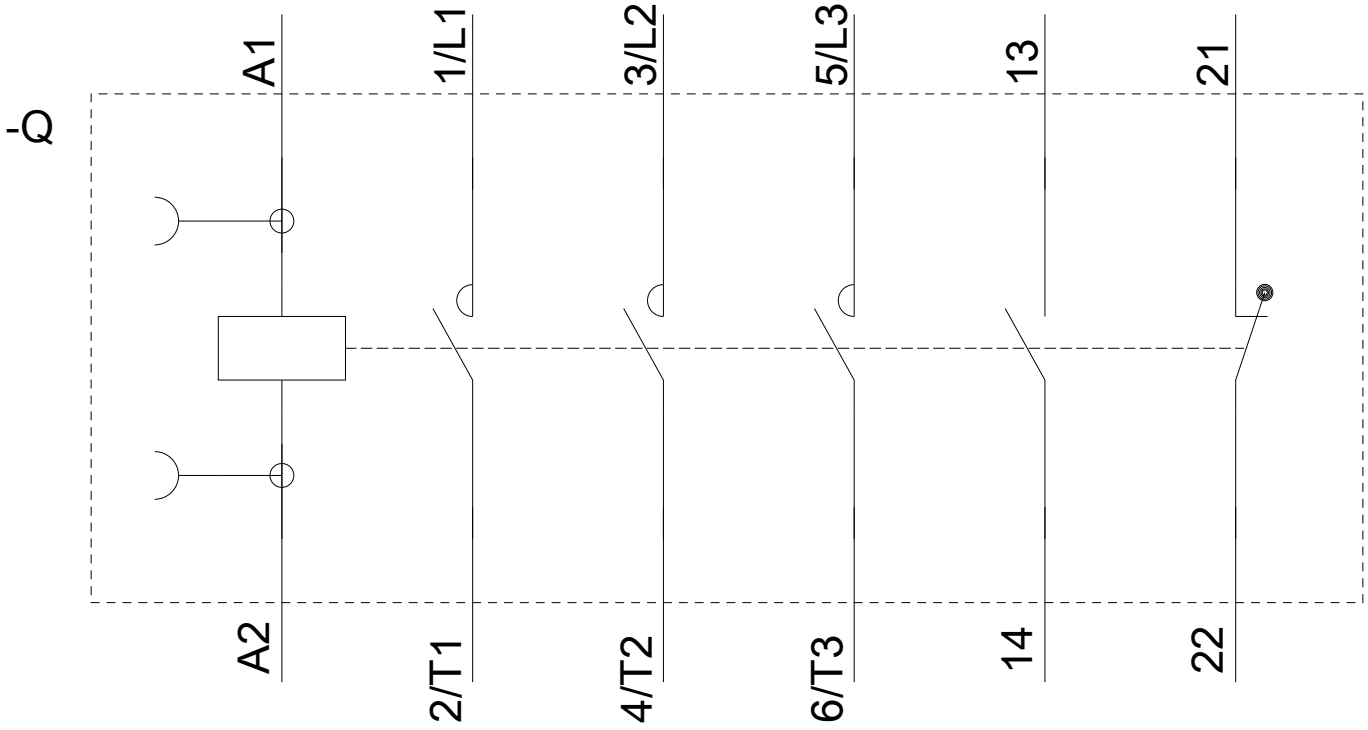
Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com





Subject to change without notice
© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com




**last modified:** 07/02/2020


Subject to change without notice
© Copyright Siemens

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com