

power contactor, AC-3 95 A, 45 kW / 400 V 2 NO + 2 NC, 230 V AC, 50/60 Hz 3-pole, 3 NO, Size S3 screw terminal



Figure similar

| | |
|---|-----------------|
| Product brand name | SIRIUS |
| Product designation | Power contactor |
| Product type designation | 3RT2 |
| General technical data | |
| Size of contactor | S3 |
| Product extension | |
| • function module for communication | No |
| • Auxiliary switch | Yes |
| Surge voltage resistance | |
| • of main circuit rated value | 8 kV |
| • of auxiliary circuit rated value | 6 kV |
| maximum permissible voltage for safe isolation | |
| • between coil and main contacts acc. to EN 60947-1 | 690 V |
| Protection class IP | |
| • on the front | IP20 |
| • of the terminal | IP00 |

| | |
|---|------------------------------|
| Shock resistance at rectangular impulse | |
| • at AC | 6.7 g / 5 ms, 4.0 g / 10 ms |
| Shock resistance with sine pulse | |
| • at AC | 10.6 g / 5 ms, 6.3 g / 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 |
| 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 | 1 000 V |
| Operating current | |
| • at AC-1 at 400 V | |
| — at ambient temperature 40 °C rated value | 130 A |
| • at AC-1 | |
| — up to 690 V at ambient temperature 40 °C rated value | 130 A |
| — up to 690 V at ambient temperature 60 °C rated value | 110 A |
| — up to 1000 V at ambient temperature 40 °C rated value | 70 A |
| — up to 1000 V at ambient temperature 60 °C rated value | 60 A |
| • at AC-2 at 400 V rated value | 95 A |
| • at AC-3 | |
| — at 400 V rated value | 95 A |
| — at 500 V rated value | 95 A |
| — at 690 V rated value | 78 A |
| • at AC-4 at 400 V rated value | 80 A |

| | |
|--|--|
| Connectable conductor cross-section in main circuit at AC-1 | |
| <ul style="list-style-type: none"> • at 60 °C minimum permissible • at 40 °C minimum permissible | <p>35 mm²</p> <p>50 mm²</p> |
| Operating current for approx. 200000 operating cycles at AC-4 | |
| <ul style="list-style-type: none"> • at 400 V rated value • at 690 V rated value | <p>42 A</p> <p>30 A</p> |
| Operating current | |
| <ul style="list-style-type: none"> • at 1 current path at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 3 current paths in series at DC-1 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value | <p>100 A</p> <p>9 A</p> <p>2 A</p> <p>0.6 A</p> <p>0.4 A</p> <p>100 A</p> <p>100 A</p> <p>10 A</p> <p>1.8 A</p> <p>1 A</p> <p>100 A</p> <p>100 A</p> <p>80 A</p> <p>4.5 A</p> <p>2.6 A</p> |
| Operating current | |
| <ul style="list-style-type: none"> • at 1 current path at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 2 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value • with 3 current paths in series at DC-3 at DC-5 <ul style="list-style-type: none"> — at 24 V rated value | <p>40 A</p> <p>2.5 A</p> <p>1 A</p> <p>0.15 A</p> <p>0.06 A</p> <p>100 A</p> <p>100 A</p> <p>7 A</p> <p>0.42 A</p> <p>0.16 A</p> <p>100 A</p> |

| | |
|---|--------------|
| — at 110 V rated value | 100 A |
| — at 220 V rated value | 35 A |
| — at 440 V rated value | 0.8 A |
| — at 600 V rated value | 0.35 A |
| Operating power | |
| • at AC-1 | |
| — at 230 V rated value | 49 kW |
| — at 230 V at 60 °C rated value | 42 kW |
| — at 400 V rated value | 86 kW |
| — at 400 V at 60 °C rated value | 72 kW |
| — at 690 V rated value | 148 kW |
| — at 690 V at 60 °C rated value | 125 kW |
| • at AC-2 at 400 V rated value | 45 kW |
| • at AC-3 | |
| — at 230 V rated value | 22 kW |
| — at 400 V rated value | 45 kW |
| — at 500 V rated value | 55 kW |
| — at 690 V rated value | 75 kW |
| Operating power for approx. 200000 operating cycles at AC-4 | |
| • at 400 V rated value | 22 kW |
| • at 690 V rated value | 27.4 kW |
| Thermal short-time current limited to 10 s | 760 A |
| Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor | 6.6 W |
| No-load switching frequency | |
| • at AC | 5 000 1/h |
| Operating frequency | |
| • at AC-1 maximum | 900 1/h |
| • at AC-2 maximum | 350 1/h |
| • at AC-3 maximum | 850 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 | 230 V |
| • at 60 Hz rated value | 230 V |
| Operating range factor control supply voltage rated value of magnet coil at AC | |
| • at 50 Hz | 0.8 ... 1.1 |
| • at 60 Hz | 0.85 ... 1.1 |
| Apparent pick-up power of magnet coil at AC | |

| | |
|--|--------------------|
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 348 V·A 296 V·A |
| Inductive power factor with closing power of the coil | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 0.62 0.55 |
| Apparent holding power of magnet coil at AC | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 25 V·A 18 V·A |
| Inductive power factor with the holding power of the coil | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 0.35 0.41 |
| Closing delay | |
| <ul style="list-style-type: none"> • at AC | 13 ... 50 ms |
| Opening delay | |
| <ul style="list-style-type: none"> • at AC | 10 ... 21 ms |
| Arcing time | 10 ... 20 ms |

| Auxiliary circuit | |
|---|---|
| Number of NC contacts for auxiliary contacts | |
| <ul style="list-style-type: none"> • instantaneous contact | 2 |
| Number of NO contacts for auxiliary contacts | |
| <ul style="list-style-type: none"> • instantaneous contact | 2 |
| Operating current at AC-12 maximum | 10 A |
| Operating current at AC-15 | |
| <ul style="list-style-type: none"> • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value | 6 A 3 A 2 A 1 A |
| Operating current at DC-12 | |
| <ul style="list-style-type: none"> • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value | 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A |
| Operating current at DC-13 | |
| <ul style="list-style-type: none"> • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value | 6 A 2 A 2 A 1 A 0.9 A |

| | |
|--|---|
| <ul style="list-style-type: none"> • at 220 V rated value | 0.3 A |
| <ul style="list-style-type: none"> • 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 | |
| <ul style="list-style-type: none"> • at 480 V rated value | 96 A |
| <ul style="list-style-type: none"> • at 600 V rated value | 77 A |
| Yielded mechanical performance [hp] | |
| <ul style="list-style-type: none"> • for single-phase AC motor <ul style="list-style-type: none"> — at 110/120 V rated value — at 230 V rated value • for three-phase AC motor <ul style="list-style-type: none"> — at 200/208 V rated value — at 220/230 V rated value — at 460/480 V rated value — at 575/600 V rated value | 10 hp 20 hp 30 hp 30 hp 75 hp 75 hp |
| Contact rating of auxiliary contacts according to UL | A600 / P600 |

Short-circuit protection

| | |
|---|---|
| Design of the fuse link | |
| <ul style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — with type of coordination 1 required — with type of assignment 2 required • for short-circuit protection of the auxiliary switch required | gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA) gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA) fuse gG: 10 A |

Installation/ mounting/ dimensions

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|---|--|
| 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 |
| <ul style="list-style-type: none"> • Side-by-side mounting | Yes |
| Height | 140 mm |
| Width | 70 mm |
| Depth | 195 mm |
| Required spacing | |
| <ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side | 20 mm 10 mm 10 mm 0 mm |

| | |
|----------------------|-------|
| • for grounded parts | |
| — forwards | 20 mm |
| — upwards | 10 mm |
| — at the side | 10 mm |
| — downwards | 10 mm |
| • for live parts | |
| — forwards | 20 mm |
| — upwards | 10 mm |
| — downwards | 10 mm |
| — at the side | 10 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 | |
| — finely stranded with core end processing | 2x (2.5 ... 35 mm ²), 1x (2.5 ... 50 mm ²) |
| • at AWG conductors for main contacts | 2x (10 ... 1/0), 1x (10 ... 2) |
| Connectable conductor cross-section for main contacts | |
| • solid | 2.5 ... 16 mm ² |
| • stranded | 6 ... 70 mm ² |
| • finely stranded with core end processing | 2.5 ... 50 mm ² |
| Connectable conductor cross-section for auxiliary contacts | |
| • single or multi-stranded | 0.5 ... 2.5 mm ² |
| • finely stranded with core end processing | 0.5 ... 2.5 mm ² |
| Type of connectable conductor cross-sections | |
| • for auxiliary contacts | |
| — single or multi-stranded | 2x (0,5 ... 1,5 mm ²), 2x (0,75 ... 2,5 mm ²) |
| — finely stranded with core end processing | 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²) |
| • at AWG conductors for auxiliary contacts | 2x (20 ... 16), 2x (18 ... 14) |
| AWG number as coded connectable conductor cross section | |
| • for main contacts | 10 ... 2 |
| • for auxiliary contacts | 20 ... 14 |

Safety related data

| | |
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| 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 |
| • positively driven operation acc. to IEC 60947-5-1 | No |
| T1 value for proof test interval or service life acc. to IEC 61508 | 20 y |
| Protection against electrical shock | finger-safe when touched vertically from front acc. to IEC 60529 |

Certificates/approvals

| | | |
|---------------------------------|------------|----------------------------------|
| General Product Approval | EMC | Declaration of Conformity |
|---------------------------------|------------|----------------------------------|



| | |
|--------------------------|--------------|
| Test Certificates | other |
|--------------------------|--------------|

[Special Test Certificate](#)

[Confirmation](#)

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=3RT2046-1AL24>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AL24>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AL24>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

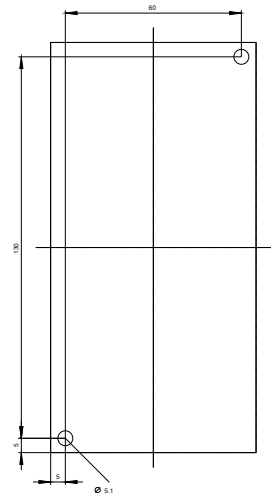
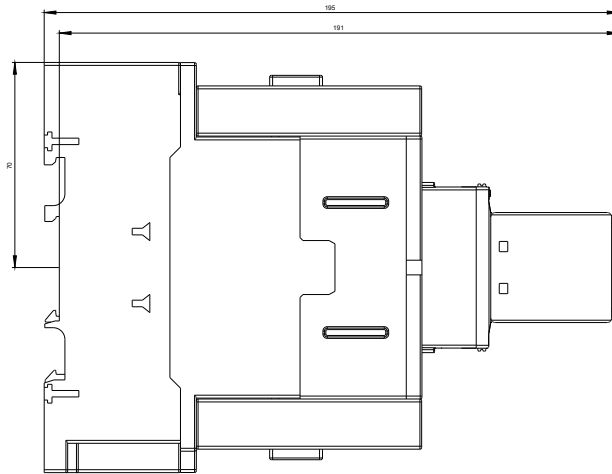
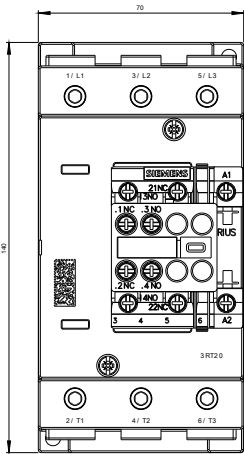
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AL24&lang=en

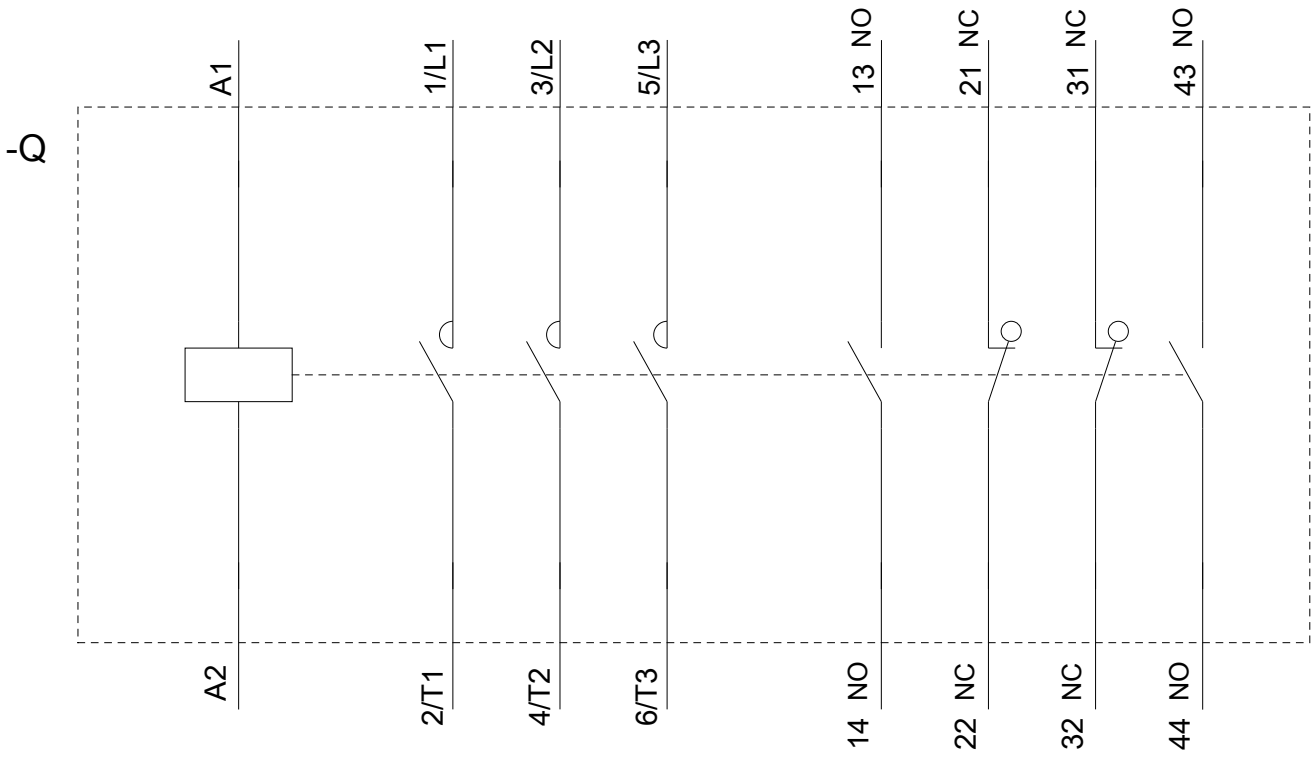
Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AL24/char>

Further characteristics (e.g. electrical endurance, switching frequency)

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AL24&objecttype=14&gridview=view1>





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