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## Data sheet 3RT2446-1NB30



contactor AC-1, 140 A, 690 V / 40 °C, 3-pole, 20-33 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, main circuit: box terminal, control and auxiliary circuit: screw terminal size: S3

| | |
|---|---|
| **product brand name** | SIRIUS |
| **product designation** | Contactor |
| **product type designation** | 3RT24 |
| **General technical data** | |
| **size of contactor** | S3 |
| **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 | 29.4 W |
| ● at AC in hot operating state per pole | 9.8 W |
| ● without load current share typical | 1.8 W |
| **type of calculation of power loss current-dependent** | quadratic |
| **insulation voltage** | |
| ● of main circuit with degree of pollution 3 rated value | 1 000 V |
| ● of auxiliary circuit with degree of pollution 3 rated value | 690 V |
| **surge voltage resistance** | |
| ● of main circuit rated value | 8 kV |
| ● of auxiliary circuit rated value | 6 kV |
| **shock resistance at rectangular impulse** | |
| ● at AC | 10.3 g / 5 ms, 6,7 g / 10 ms |
| ● at DC | 6.7 g / 5 ms, 4 g / 10 ms |
| **shock resistance with sine pulse** | |
| ● at AC | 16.3 g / 5 ms, 10.5 g / 10 ms |
| ● at DC | 10.6 g / 5 ms, 6.3 g / 10 ms |
| **mechanical service life (operating cycles)** | |
| ● of contactor typical | 10 000 000 |
| ● of the contactor with added electronically optimized auxiliary switch block typical | 5 000 000 |
| ● of the contactor with added auxiliary switch block typical | 10 000 000 |
| **reference code according to IEC 81346-2** | Q |
| **Substance Prohibitance (day/month/year)** | 04/27/2017 |
| **SVHC substance name** | Lead CAS-No. 7439-92-1<br>Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5<br>Melamine CAS-No. 108-78-1 |
| **Net Weight** | 1.764 kg |
| **Ambient conditions** | |
| installation altitude at height above sea level maximum | 2 000 m |


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| | |
|---|---|
| **ambient temperature** | |
| ● during operation | -25 ... +60 °C |
| ● during storage | -55 ... +80 °C |
| **relative humidity minimum** | 10 % |
| **relative humidity at 55 °C according to IEC 60068-2-30 maximum** | 95 % |
| **Main circuit** | |
| **number of poles for main current circuit** | 3 |
| **number of NO contacts for main contacts** | 3 |
| **number of NC contacts for main contacts** | 0 |
| **type of voltage for main current circuit** | AC |
| **operational current** | |
| ● at AC-1 | |
| — up to 690 V at ambient temperature 40 °C rated value | 140 A |
| — up to 690 V at ambient temperature 55 °C rated value | 130 A |
| — up to 690 V at ambient temperature 60 °C rated value | 130 A |
| ● at AC-3 | |
| — at 400 V rated value | 44 A |
| — at 690 V rated value | 44 A |
| minimum cross-section in main circuit at maximum AC-1 rated value | 50 mm² |
| **operational current** | |
| **● at 1 current path at DC-1** | |
| — at 24 V rated value | 130 A |
| — at 60 V rated value | 80 A |
| — at 110 V rated value | 12 A |
| — at 220 V rated value | 2.5 A |
| — at 440 V rated value | 0.8 A |
| — at 600 V rated value | 0.48 A |
| **● with 2 current paths in series at DC-1** | |
| — at 24 V rated value | 130 A |
| — at 60 V rated value | 130 A |
| — at 110 V rated value | 130 A |
| — at 220 V rated value | 13 A |
| — at 440 V rated value | 2.4 A |
| — at 600 V rated value | 1.3 A |
| **● with 3 current paths in series at DC-1** | |
| — at 24 V rated value | 130 A |
| — at 60 V rated value | 130 A |
| — at 110 V rated value | 130 A |
| — at 220 V rated value | 130 A |
| — at 440 V rated value | 6 A |
| — at 600 V rated value | 3.4 A |
| **● at 1 current path at DC-3 at DC-5** | |
| — at 24 V rated value | 6 A |
| — at 60 V rated value | 3 A |
| — at 110 V rated value | 1.25 A |
| — at 220 V rated value | 0.35 A |
| — at 440 V rated value | 0.15 A |
| — at 600 V rated value | 0.1 A |
| **● with 2 current paths in series at DC-3 at DC-5** | |
| — at 24 V rated value | 130 A |
| — at 60 V rated value | 130 A |
| — at 110 V rated value | 130 A |
| — at 220 V rated value | 1.75 A |
| — at 440 V rated value | 0.42 A |
| — at 600 V rated value | 0.27 A |


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| | |
|---|---|
| **● with 3 current paths in series at DC-3 at DC-5** | |
| — at 24 V rated value | 130 A |
| — at 60 V rated value | 130 A |
| — at 110 V rated value | 130 A |
| — at 220 V rated value | 4 A |
| — at 440 V rated value | 0.8 A |
| — at 600 V rated value | 0.45 A |
| **no-load switching frequency** | |
| ● at AC | 1 000 1/h |
| ● at DC | 1 000 1/h |
| **operating frequency** | |
| ● at AC-1 maximum | 650 1/h |
| **Control circuit/ Control** | |
| **type of voltage** | AC/DC |
| **type of voltage of the control supply voltage** | AC/DC |
| **control supply voltage at AC** | |
| ● at 50 Hz rated value | 20 ... 33 V |
| ● at 60 Hz rated value | 20 ... 33 V |
| **control supply voltage at DC rated value** | 20 ... 33 V |
| **operating range factor control supply voltage rated value of magnet coil at DC** | |
| ● initial value | 0.8 |
| ● full-scale value | 1.1 |
| **operating range factor control supply voltage rated value of magnet coil at AC** | |
| ● at 50 Hz | 0.8 ... 1.1 |
| ● at 60 Hz | 0.8 ... 1.1 |
| **design of the surge suppressor** | with varistor |
| **inrush current peak** | 6.5 A |
| **duration of inrush current peak** | 50 µs |
| **pickup current mean value** | 3.2 A |
| **pickup current peak** | 6.5 A |
| **duration of pickup current** | 150 ms |
| **holding current mean value** | 75 mA |
| **apparent pick-up power of magnet coil at AC** | |
| ● at 50 Hz | 163 V·A |
| ● at 60 Hz | 163 V·A |
| **apparent holding power of magnet coil at AC** | |
| ● at 50 Hz | 3.5 V·A |
| ● at 60 Hz | 3.5 V·A |
| **closing power of magnet coil at DC** | 76 W |
| **holding power of magnet coil at DC** | 1.8 W |
| **closing delay** | |
| ● at AC | 50 ... 70 ms |
| ● at DC | 50 ... 70 ms |
| **opening delay** | |
| ● at AC | 38 ... 57 ms |
| ● at DC | 38 ... 57 ms |
| **arcing time** | 10 ... 20 ms |
| **control version of the switch operating mechanism** | Standard A1 - A2 |
| **Auxiliary circuit** | |
| **number of NC contacts for auxiliary contacts** | 1 |
| ● attachable | 2 |
| ● instantaneous contact | 1 |
| **number of NO contacts for auxiliary contacts** | 1 |
| ● attachable | 2 |
| ● instantaneous contact | 1 |
| operational current at AC-12 maximum | 10 A |
| **operational current at AC-15** | |


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| | |
|---|---|
| ● at 230 V rated value | 6 A |
| ● at 400 V rated value | 3 A |
| ● at 500 V rated value | 2 A |
| ● at 690 V rated value | 1 A |
| **operational 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) |
| **Short-circuit protection** | |
| design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V | C characteristic: 10 A; 0.4 kA |
| **design of the fuse link** | |
| ● for short-circuit protection of the main circuit | |
| — with type of coordination 1 required | gG: 250 A (690 V,100 kA) |
| — with type of coordination 2 required | gR: 250 A (690 V, 100 kA) |
| ● for short-circuit protection of the auxiliary switch required | gG: 10 A (690 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 |
| fastening method side-by-side mounting | Yes |
| **fastening method** | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715 |
| **height** | 140 mm |
| **width** | 70 mm |
| **depth** | 152 mm |
| **required spacing** | |
| ● with side-by-side mounting | |
| — forwards | 20 mm |
| — upwards | 10 mm |
| — downwards | 10 mm |
| — at the side | 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 | box terminal |
| ● for auxiliary and control circuit | screw-type terminals |
| ● at contactor for auxiliary contacts | Screw-type terminals |
| ● of magnet coil | screw terminal |
| **type of connectable conductor cross-sections** | |
| ● for main contacts | |
| — solid | 2x (2.5 ... 16 mm²) |
| — stranded | 2x (2,5 ... 16 mm²), 2x (10 ... 50 mm²), 1x (10 ... 70 mm²) |
| — solid or stranded | 2x (2.5 ... 16 mm²), 2x (10 ... 50 mm²), 1x (10 ... 70 mm²) |
| — finely stranded with core end processing | 2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²) |
| ● for AWG cables for main contacts | 2x (10 ... 1/0), 1x (10 ... 2/0) |
| **connectable conductor cross-section for main contacts** | |


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| | |
|---|---|
| ● solid | 2.5 ... 16 mm² |
| ● solid or stranded | 4 ... 70 mm² |
| ● stranded | 6 ... 70 mm² |
| ● finely stranded with core end processing | 2.5 ... 50 mm² |
| **connectable conductor cross-section for auxiliary contacts** | |
| ● solid or 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 | |
| — solid | 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) |
| — solid or 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 cables for auxiliary contacts | 2x (20 ... 16), 2x (18 ... 14) |
| **AWG number extended as coded connectable conductor cross section for main contacts** | 10 ... 2/0 |
| **AWG number as coded connectable conductor cross section for auxiliary contacts** | 20 ... 14 |

## Safety related data

| | |
|---|---|
| **product function** | |
| ● **mirror contact according to IEC 60947-4-1** | Yes |
| ● **positively driven operation according to IEC 60947-5-1** | No |
| **service life maximum** | 20 a |

### Electrical Safety

| | |
|---|---|
| **protection class IP on the front according to IEC 60529** | IP20 |
| **touch protection on the front according to IEC 60529** | finger-safe, for vertical contact from the front |

## Approvals Certificates

| Environment | General Product Approval |
|---|---|
| Environmental Confirmations | CCC, cULus, KC, EAC, CE EG-Konf. |

| General Product Approval | EMV | Test Certificates | | Maritime application | |
|---|---|---|---|---|---|
| UKCA | RCM | Special Test Certificate | Type Test Certificates/Test Report | ABS | DNV |

| Maritime application | | | other | | Railway |
|---|---|---|---|---|---|
| LRS | PRS | RINA | Confirmation | 产品合格 QC PASS | Special Test Certificate |

## Further information

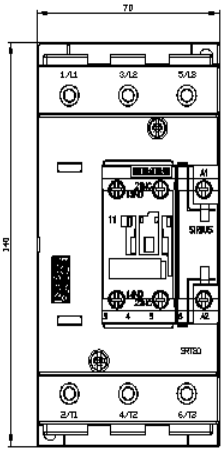
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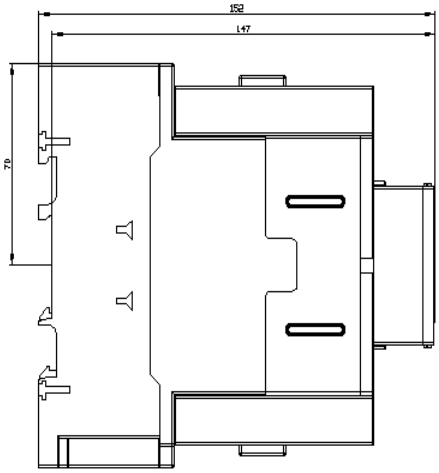

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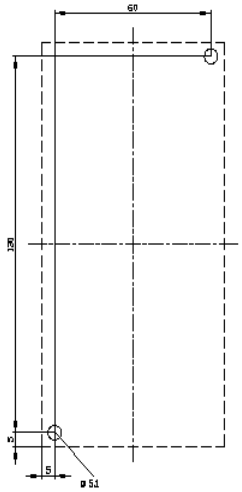
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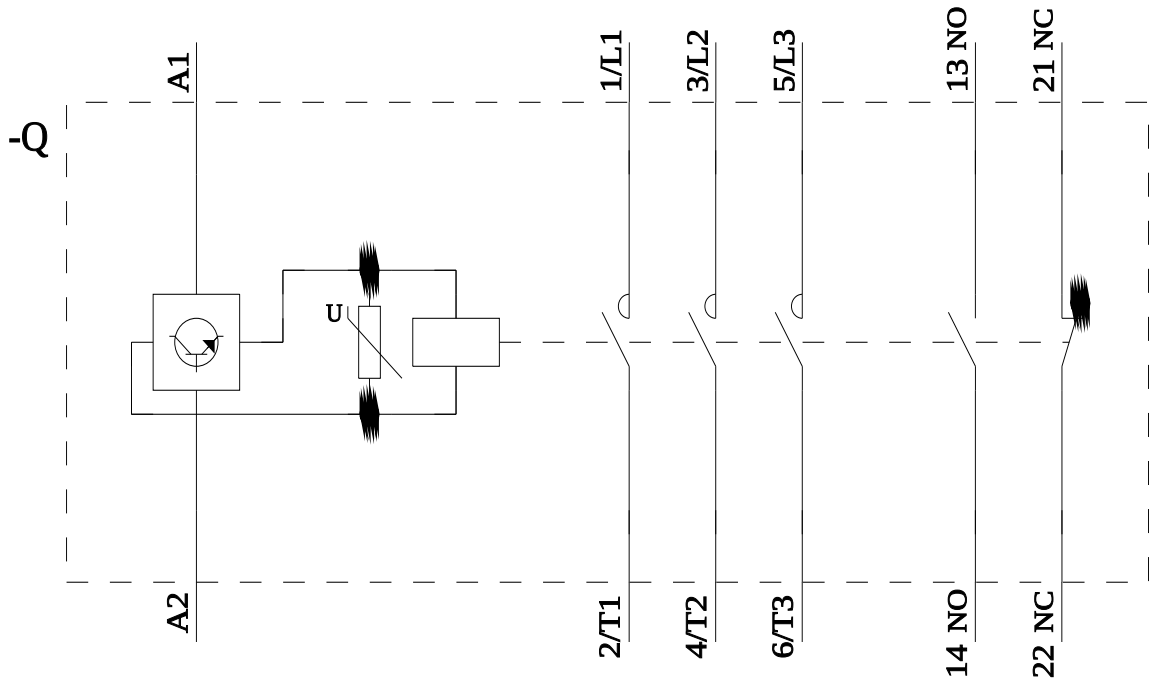




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