

CONTACTOR, AC3: 37KW/400V, 1NO+1NC, 230VAC 50/60HZ, 3-POLE, 3NO, SIZE: S3, SCREW TERMINALS

|                          |                 |
|--------------------------|-----------------|
| product brandname        | SIRIUS          |
| Product designation      | Power contactor |
| Product type designation | 3RT2            |

### General technical data

|                                                                                                                                                                                                                                                 |                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Size of contactor                                                                                                                                                                                                                               | S3                                                              |
| Product extension                                                                                                                                                                                                                               |                                                                 |
| <ul style="list-style-type: none"> <li>function module for communication</li> <li>Auxiliary switch</li> </ul>                                                                                                                                   | No<br>Yes                                                       |
| Insulation voltage                                                                                                                                                                                                                              |                                                                 |
| <ul style="list-style-type: none"> <li>rated value</li> </ul>                                                                                                                                                                                   | 1 000 V                                                         |
| Degree of pollution                                                                                                                                                                                                                             | 3                                                               |
| Surge voltage resistance rated value                                                                                                                                                                                                            | 6 kV                                                            |
| maximum permissible voltage for safe isolation                                                                                                                                                                                                  |                                                                 |
| <ul style="list-style-type: none"> <li>between coil and main contacts acc. to EN 60947-1</li> </ul>                                                                                                                                             | 400 V                                                           |
| Protection class IP                                                                                                                                                                                                                             |                                                                 |
| <ul style="list-style-type: none"> <li>on the front</li> <li>of the terminal</li> </ul>                                                                                                                                                         | IP20<br>IP00                                                    |
| Shock resistance                                                                                                                                                                                                                                |                                                                 |
| <ul style="list-style-type: none"> <li>at rectangular impulse               <ul style="list-style-type: none"> <li>at AC</li> </ul> </li> <li>with sine pulse               <ul style="list-style-type: none"> <li>at AC</li> </ul> </li> </ul> | 6.7 g / 5 ms, 4.0 g / 10 ms<br><br>10.6 g / 5 ms, 6.3 g / 10 ms |
| Mechanical service life (switching cycles)                                                                                                                                                                                                      |                                                                 |
| <ul style="list-style-type: none"> <li>of contactor typical</li> <li>of the contactor with added electronics-compatible auxiliary switch block typical</li> <li>of the contactor with added auxiliary switch block typical</li> </ul>           | 10 000 000<br>5 000 000<br>10 000 000                           |

### Ambient conditions

|                                                                                            |                                  |
|--------------------------------------------------------------------------------------------|----------------------------------|
| Installation altitude at height above sea level maximum                                    | 2 000 m                          |
| Ambient temperature                                                                        |                                  |
| <ul style="list-style-type: none"> <li>during operation</li> <li>during storage</li> </ul> | -25 ... +60 °C<br>-55 ... +80 °C |

| 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                  |
| 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                    | 125 A              |
| • at AC-1                                                     |                    |
| — up to 690 V at ambient temperature 40 °C rated value        | 125 A              |
| — up to 690 V at ambient temperature 60 °C rated value        | 105 A              |
| • at AC-2 at 400 V rated value                                | 80 A               |
| • at AC-3                                                     |                    |
| — at 400 V rated value                                        | 80 A               |
| — at 500 V rated value                                        | 80 A               |
| — at 690 V rated value                                        | 58 A               |
| Connectable conductor cross-section in main circuit at AC-1   |                    |
| • at 60 °C minimum permissible                                | 35 mm <sup>2</sup> |
| • at 40 °C minimum permissible                                | 50 mm <sup>2</sup> |
| Operating current for approx. 200000 operating cycles at AC-4 |                    |
| • at 400 V rated value                                        | 34 A               |
| • at 690 V rated value                                        | 24 A               |
| Operating current                                             |                    |
| • at 1 current path at DC-1                                   |                    |
| — at 24 V rated value                                         | 100 A              |
| — at 110 V rated value                                        | 9 A                |
| — at 220 V rated value                                        | 2 A                |
| — at 440 V rated value                                        | 0.6 A              |
| — at 600 V rated value                                        | 0.4 A              |
| • with 2 current paths in series at DC-1                      |                    |
| — at 24 V rated value                                         | 100 A              |
| — at 110 V rated value                                        | 100 A              |
| — at 220 V rated value                                        | 10 A               |
| — at 440 V rated value                                        | 1.8 A              |
| — at 600 V rated value                                        | 1 A                |
| • with 3 current paths in series at DC-1                      |                    |
| — at 24 V rated value                                         | 100 A              |

|                                                                    |         |
|--------------------------------------------------------------------|---------|
| — at 110 V rated value                                             | 100 A   |
| — at 220 V rated value                                             | 80 A    |
| — at 440 V rated value                                             | 4.5 A   |
| — at 600 V rated value                                             | 2.6 A   |
| <b>Operating current</b>                                           |         |
| • at 1 current path at DC-3 at DC-5                                |         |
| — at 24 V rated value                                              | 40 A    |
| — at 110 V rated value                                             | 2.5 A   |
| — at 220 V rated value                                             | 1 A     |
| — at 440 V rated value                                             | 0.15 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                                             | 100 A   |
| — at 220 V rated value                                             | 7 A     |
| — at 24 V rated value                                              | 100 A   |
| — at 440 V rated value                                             | 0.42 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                                             | 100 A   |
| — at 220 V rated value                                             | 35 A    |
| — at 24 V rated value                                              | 100 A   |
| — at 440 V rated value                                             | 0.8 A   |
| — at 600 V rated value                                             | 0.35 A  |
| <b>Operating power</b>                                             |         |
| • at AC-1                                                          |         |
| — at 230 V rated value                                             | 47 kW   |
| — at 230 V at 60 °C rated value                                    | 40 kW   |
| — at 400 V rated value                                             | 82 kW   |
| — at 400 V at 60 °C rated value                                    | 69 kW   |
| — at 690 V rated value                                             | 142 kW  |
| — at 690 V at 60 °C rated value                                    | 119 kW  |
| • at AC-2 at 400 V rated value                                     | 37 kW   |
| • at AC-3                                                          |         |
| — at 230 V rated value                                             | 22 kW   |
| — at 400 V rated value                                             | 37 kW   |
| — at 500 V rated value                                             | 45 kW   |
| — at 690 V rated value                                             | 55 kW   |
| <b>Operating power for approx. 200000 operating cycles at AC-4</b> |         |
| • at 400 V rated value                                             | 17.9 kW |
| • at 690 V rated value                                             | 21.8 kW |

|                                                                                               |           |
|-----------------------------------------------------------------------------------------------|-----------|
| <b>Thermal short-time current limited to 10 s</b>                                             | 760 A     |
| <b>Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor</b> | 5.3 W     |
| <b>No-load switching frequency</b>                                                            |           |
| • at AC                                                                                       | 5 000 1/h |
| <b>Operating frequency</b>                                                                    |           |
| • at AC-1 maximum                                                                             | 900 1/h   |
| • at AC-2 maximum                                                                             | 400 1/h   |
| • at AC-3 maximum                                                                             | 1 000 1/h |
| • at AC-4 maximum                                                                             | 300 1/h   |

#### Control circuit/ Control

|                                                                                       |              |
|---------------------------------------------------------------------------------------|--------------|
| <b>Type of voltage of the control supply voltage</b>                                  | AC           |
| <b>Control supply voltage at AC</b>                                                   |              |
| • at 50 Hz rated value                                                                | 230 V        |
| • at 60 Hz rated value                                                                | 230 V        |
| <b>Operating range factor control supply voltage rated value of magnet coil at AC</b> |              |
| • at 50 Hz                                                                            | 0.8 ... 1.1  |
| • at 60 Hz                                                                            | 0.85 ... 1.1 |
| <b>Apparent pick-up power of magnet coil at AC</b>                                    |              |
| • at 50 Hz                                                                            | 348 V·A      |
| • at 60 Hz                                                                            | 296 V·A      |
| <b>Inductive power factor with closing power of the coil</b>                          |              |
| • at 50 Hz                                                                            | 0.62         |
| • at 60 Hz                                                                            | 0.55         |
| <b>Apparent holding power of magnet coil at AC</b>                                    |              |
| • at 50 Hz                                                                            | 25 V·A       |
| • at 60 Hz                                                                            | 18 V·A       |
| <b>Inductive power factor with the holding power of the coil</b>                      |              |
| • at 50 Hz                                                                            | 0.35         |
| • at 60 Hz                                                                            | 0.41         |
| <b>Closing delay</b>                                                                  |              |
| • at AC                                                                               | 13 ... 50 ms |
| <b>Opening delay</b>                                                                  |              |
| • at AC                                                                               | 10 ... 21 ms |
| <b>Arcing time</b>                                                                    | 10 ... 20 ms |

#### Auxiliary circuit

|                              |   |
|------------------------------|---|
| <b>Number of NC contacts</b> |   |
| • for auxiliary contacts     |   |
| — instantaneous contact      | 1 |
| <b>Number of NO contacts</b> |   |

|                                                                                                                                                       |                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <ul style="list-style-type: none"> <li>• for auxiliary contacts <ul style="list-style-type: none"> <li>— instantaneous contact</li> </ul> </li> </ul> | 1                                               |
| Operating current at AC-12 maximum                                                                                                                    | 10 A                                            |
| <b>Operating current at AC-15</b>                                                                                                                     |                                                 |
| <ul style="list-style-type: none"> <li>• at 230 V rated value</li> </ul>                                                                              | 6 A                                             |
| <ul style="list-style-type: none"> <li>• at 400 V rated value</li> </ul>                                                                              | 3 A                                             |
| <ul style="list-style-type: none"> <li>• at 500 V rated value</li> </ul>                                                                              | 2 A                                             |
| <ul style="list-style-type: none"> <li>• at 690 V rated value</li> </ul>                                                                              | 1 A                                             |
| <b>Operating current at DC-12</b>                                                                                                                     |                                                 |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> </ul>                                                                               | 10 A                                            |
| <ul style="list-style-type: none"> <li>• at 48 V rated value</li> </ul>                                                                               | 6 A                                             |
| <ul style="list-style-type: none"> <li>• at 60 V rated value</li> </ul>                                                                               | 6 A                                             |
| <ul style="list-style-type: none"> <li>• at 110 V rated value</li> </ul>                                                                              | 3 A                                             |
| <ul style="list-style-type: none"> <li>• at 125 V rated value</li> </ul>                                                                              | 2 A                                             |
| <ul style="list-style-type: none"> <li>• at 220 V rated value</li> </ul>                                                                              | 1 A                                             |
| <ul style="list-style-type: none"> <li>• at 600 V rated value</li> </ul>                                                                              | 0.15 A                                          |
| <b>Operating current at DC-13</b>                                                                                                                     |                                                 |
| <ul style="list-style-type: none"> <li>• at 24 V rated value</li> </ul>                                                                               | 10 A                                            |
| <ul style="list-style-type: none"> <li>• at 48 V rated value</li> </ul>                                                                               | 2 A                                             |
| <ul style="list-style-type: none"> <li>• at 60 V rated value</li> </ul>                                                                               | 2 A                                             |
| <ul style="list-style-type: none"> <li>• at 110 V rated value</li> </ul>                                                                              | 1 A                                             |
| <ul style="list-style-type: none"> <li>• at 125 V rated value</li> </ul>                                                                              | 0.9 A                                           |
| <ul style="list-style-type: none"> <li>• at 220 V rated value</li> </ul>                                                                              | 0.3 A                                           |
| <ul style="list-style-type: none"> <li>• at 600 V rated value</li> </ul>                                                                              | 0.1 A                                           |
| <b>Contact reliability of auxiliary contacts</b>                                                                                                      | 1 faulty switching per 100 million (17 V, 1 mA) |

#### UL/CSA ratings

|                                                                                                                                                             |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Full-load current (FLA) for three-phase AC motor</b>                                                                                                     |             |
| <ul style="list-style-type: none"> <li>• at 480 V rated value</li> </ul>                                                                                    | 77 A        |
| <ul style="list-style-type: none"> <li>• at 600 V rated value</li> </ul>                                                                                    | 62 A        |
| <b>Yielded mechanical performance [hp]</b>                                                                                                                  |             |
| <ul style="list-style-type: none"> <li>• for single-phase AC motor <ul style="list-style-type: none"> <li>— at 110/120 V rated value</li> </ul> </li> </ul> | 7.5 hp      |
| <ul style="list-style-type: none"> <li>— at 230 V rated value</li> </ul>                                                                                    | 15 hp       |
| <ul style="list-style-type: none"> <li>• for three-phase AC motor <ul style="list-style-type: none"> <li>— at 200/208 V rated value</li> </ul> </li> </ul>  | 25 hp       |
| <ul style="list-style-type: none"> <li>— at 220/230 V rated value</li> </ul>                                                                                | 30 hp       |
| <ul style="list-style-type: none"> <li>— at 460/480 V rated value</li> </ul>                                                                                | 60 hp       |
| <ul style="list-style-type: none"> <li>— at 575/600 V rated value</li> </ul>                                                                                | 60 hp       |
| <b>Contact rating of auxiliary contacts according to UL</b>                                                                                                 | A600 / P600 |

#### Short-circuit protection

|                                |  |
|--------------------------------|--|
| <b>Design of the fuse link</b> |  |
|--------------------------------|--|

- for short-circuit protection of the main circuit
  - with type of coordination 1 required
  - with type of assignment 2 required
- for short-circuit protection of the auxiliary switch required

gL/gG NH 3NA, DIAZED 5SB, NEOZED 5SE: 250 A  
 gL/gG NH 3NA, DIAZED 5SB, NEOZED 5SE: 160 A  
 fuse gG: 10 A

## Installation/ mounting/ dimensions

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mounting position</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface |
| <b>Mounting type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 50022                                               |
| <ul style="list-style-type: none"> <li>• Side-by-side mounting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Yes                                                                                                                                  |
| <b>Height</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 140 mm                                                                                                                               |
| <b>Width</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 70 mm                                                                                                                                |
| <b>Depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 152 mm                                                                                                                               |
| <b>Required spacing</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• with side-by-side mounting               <ul style="list-style-type: none"> <li>— forwards</li> <li>— Backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts               <ul style="list-style-type: none"> <li>— forwards</li> <li>— Backwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>• for live parts               <ul style="list-style-type: none"> <li>— forwards</li> <li>— Backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul> | 0 mm<br>0 mm<br>0 mm<br>0 mm<br>0 mm<br><br>0 mm<br>0 mm<br>10 mm<br>10 mm<br>10 mm<br><br>0 mm<br>0 mm<br>10 mm<br>10 mm<br>10 mm   |

## Connections/Terminals

|                                                                                                                                                                                   |                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>Type of electrical connection</b>                                                                                                                                              |                                              |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control current circuit</li> </ul>                                                 | screw-type terminals<br>screw-type terminals |
| <b>Type of connectable conductor cross-sections</b>                                                                                                                               |                                              |
| <ul style="list-style-type: none"> <li>• for main contacts               <ul style="list-style-type: none"> <li>— finely stranded with core end processing</li> </ul> </li> </ul> | 2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²)     |

|                                                     |                                                                       |
|-----------------------------------------------------|-----------------------------------------------------------------------|
| • at AWG conductors for main contacts               | 2x (10 ... 1/0), 1x (10 ... 2)                                        |
| <b>Type of connectable conductor cross-sections</b> |                                                                       |
| • for auxiliary contacts                            |                                                                       |
| — single or multi-stranded                          | 2x (0,5 ... 1,5 mm <sup>2</sup> ), 2x (0,75 ... 2,5 mm <sup>2</sup> ) |
| — finely stranded with core end processing          | 2x (0.5 ... 1.5 mm <sup>2</sup> ), 2x (0.75 ... 2.5 mm <sup>2</sup> ) |
| • at AWG conductors for auxiliary contacts          | 2x (20 ... 16), 2x (18 ... 14)                                        |

#### Safety related data

|                                                                           |                                                                  |
|---------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>B10 value</b>                                                          |                                                                  |
| • with high demand rate acc. to SN 31920                                  | 1 000 000                                                        |
| <b>Proportion of dangerous failures</b>                                   |                                                                  |
| • with low demand rate acc. to SN 31920                                   | 40 %                                                             |
| • with high demand rate acc. to SN 31920                                  | 73 %                                                             |
| <b>Product function</b>                                                   |                                                                  |
| • Mirror contact acc. to IEC 60947-4-1                                    | Yes                                                              |
| • positively driven operation acc. to IEC 60947-5-1                       | No                                                               |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b> | 20 y                                                             |
| <b>Protection against electrical shock</b>                                | finger-safe when touched vertically from front acc. to IEC 60529 |

#### Certificates/approvals

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



|                          |              |
|--------------------------|--------------|
| <b>Shipping Approval</b> | <b>other</b> |
|--------------------------|--------------|



[Bestätigungen](#)

#### 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=3RT2045-1AL20>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2045-1AL20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2045-1AL20>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2045-1AL20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2045-1AL20&lang=en)

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