

contactor AC-1, 140 A, 690 V / 40 °C, 3-pole, 24 V AC, 50/60 Hz, 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                         |
| <b>General technical data</b>                                                         |                               |
| 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                                                  | 8.8 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  |
| shock resistance with sine pulse                                                      |                               |
| • at AC                                                                               | 16.3 g / 5 ms, 10.5 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)                                               | 03/01/2017                    |
| Net Weight                                                                            | 1.707 kg                      |
| <b>Ambient conditions</b>                                                             |                               |
| installation altitude at height above sea level maximum                               | 2 000 m                       |
| 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 %                          |
| <b>Main circuit</b>                                                                   |                               |
| 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 mm <sup>2</sup> |
| <b>operational current</b>                                        |                    |
| • <b>at 1 current path at DC-1</b>                                |                    |
| — 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             |
| • <b>with 2 current paths in series at DC-1</b>                   |                    |
| — 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              |
| • <b>with 3 current paths in series at DC-1</b>                   |                    |
| — 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              |
| • <b>at 1 current path at DC-3 at DC-5</b>                        |                    |
| — 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              |
| • <b>with 2 current paths in series at DC-3 at DC-5</b>           |                    |
| — 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             |
| • <b>with 3 current paths in series at DC-3 at DC-5</b>           |                    |
| — 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             |
| <b>no-load switching frequency</b>                                |                    |
| • at AC                                                           | 5 000 1/h          |
| <b>operating frequency</b>                                        |                    |
| • at AC-1 maximum                                                 | 650 1/h            |
| <b>Control circuit/ Control</b>                                   |                    |
| <b>type of voltage</b>                                            | AC                 |
| <b>type of voltage of the control supply voltage</b>              | AC                 |
| <b>control supply voltage at AC</b>                               |                    |
| • at 50 Hz rated value                                            | 24 V               |

|                                                                                                                                                                                                                                                |                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>                                                                                                                                                                       | 24 V                                                                                                                                 |
| <b>operating range factor control supply voltage rated value of magnet coil at AC</b>                                                                                                                                                          |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                                                                                                                                                                                   | 0.8 ... 1.1                                                                                                                          |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                                                                                                                                                                                   | 0.85 ... 1.1                                                                                                                         |
| <b>apparent pick-up power of magnet coil at AC</b>                                                                                                                                                                                             |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                                                                                                                                                                                   | 348 VA                                                                                                                               |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                                                                                                                                                                                   | 296 VA                                                                                                                               |
| <b>inductive power factor with closing power of the coil</b>                                                                                                                                                                                   |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                                                                                                                                                                                   | 0.62                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                                                                                                                                                                                   | 0.55                                                                                                                                 |
| <b>apparent holding power of magnet coil at AC</b>                                                                                                                                                                                             |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                                                                                                                                                                                   | 25 VA                                                                                                                                |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                                                                                                                                                                                   | 18 VA                                                                                                                                |
| <b>inductive power factor with the holding power of the coil</b>                                                                                                                                                                               |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at 50 Hz</li> </ul>                                                                                                                                                                                   | 0.35                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• at 60 Hz</li> </ul>                                                                                                                                                                                   | 0.41                                                                                                                                 |
| <b>closing delay</b>                                                                                                                                                                                                                           |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>                                                                                                                                                                                      | 13 ... 50 ms                                                                                                                         |
| <b>opening delay</b>                                                                                                                                                                                                                           |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• at AC</li> </ul>                                                                                                                                                                                      | 10 ... 21 ms                                                                                                                         |
| <b>arcing time</b>                                                                                                                                                                                                                             | 10 ... 20 ms                                                                                                                         |
| <b>control version of the switch operating mechanism</b>                                                                                                                                                                                       | Standard A1 - A2                                                                                                                     |
| <b>Auxiliary circuit</b>                                                                                                                                                                                                                       |                                                                                                                                      |
| <b>number of NC contacts for auxiliary contacts</b>                                                                                                                                                                                            | 1                                                                                                                                    |
| <ul style="list-style-type: none"> <li>• attachable</li> </ul>                                                                                                                                                                                 | 2                                                                                                                                    |
| <ul style="list-style-type: none"> <li>• instantaneous contact</li> </ul>                                                                                                                                                                      | 1                                                                                                                                    |
| <b>number of NO contacts for auxiliary contacts</b>                                                                                                                                                                                            | 1                                                                                                                                    |
| <ul style="list-style-type: none"> <li>• attachable</li> </ul>                                                                                                                                                                                 | 2                                                                                                                                    |
| <ul style="list-style-type: none"> <li>• instantaneous contact</li> </ul>                                                                                                                                                                      | 1                                                                                                                                    |
| operational current at AC-12 maximum                                                                                                                                                                                                           | 10 A                                                                                                                                 |
| <b>operational 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>operational 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)                                                                                      |
| <b>Short-circuit protection</b>                                                                                                                                                                                                                |                                                                                                                                      |
| 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                                                                                                       |
| <b>design of the fuse link</b>                                                                                                                                                                                                                 |                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• for short-circuit protection of the main circuit <ul style="list-style-type: none"> <li>— with type of coordination 1 required</li> <li>— with type of coordination 2 required</li> </ul> </li> </ul> | gG: 250 A (690 V, 100 kA)<br>gR: 250 A (690 V, 100 kA)                                                                               |
| <ul style="list-style-type: none"> <li>• for short-circuit protection of the auxiliary switch required</li> </ul>                                                                                                                              | gG: 10 A (690 V, 1 kA)                                                                                                               |
| <b>Installation/ mounting/ dimensions</b>                                                                                                                                                                                                      |                                                                                                                                      |
| <b>mounting position</b>                                                                                                                                                                                                                       | +/-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                                                                                                                                  |
| <b>fastening method</b>                                                                                                                                                                                                                        | screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715                                                             |
| <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 20 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 0 mm</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— at the side 10 mm</li> <li>— downwards 10 mm</li> </ul> </li> <li>• for live parts <ul style="list-style-type: none"> <li>— forwards 20 mm</li> <li>— upwards 10 mm</li> <li>— downwards 10 mm</li> <li>— at the side 10 mm</li> </ul> </li> </ul>       |                                                                                |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
| <b>type of electrical connection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for auxiliary and control circuit</li> <li>• at contactor for auxiliary contacts</li> <li>• of magnet coil</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                         | box terminal<br>screw-type terminals<br>Screw-type terminals<br>screw terminal |
| <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>— solid 2x (2.5 ... 16 mm<sup>2</sup>)</li> <li>— stranded 2x (2.5 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>), 1x (10 ... 70 mm<sup>2</sup>)</li> <li>— solid or stranded 2x (2.5 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>), 1x (10 ... 70 mm<sup>2</sup>)</li> <li>— finely stranded with core end processing 2x (2.5 ... 35 mm<sup>2</sup>), 1x (2.5 ... 50 mm<sup>2</sup>)</li> </ul> </li> <li>• for AWG cables for main contacts 2x (10 ... 1/0), 1x (10 ... 2/0)</li> </ul> |                                                                                |
| <b>connectable conductor cross-section for main contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |
| <ul style="list-style-type: none"> <li>• solid 2.5 ... 16 mm<sup>2</sup></li> <li>• solid or stranded 4 ... 70 mm<sup>2</sup></li> <li>• stranded 6 ... 70 mm<sup>2</sup></li> <li>• finely stranded with core end processing 2.5 ... 50 mm<sup>2</sup></li> </ul>                                                                                                                                                                                                                                                                                                                                         |                                                                                |
| <b>connectable conductor cross-section for auxiliary contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                |
| <ul style="list-style-type: none"> <li>• solid or stranded 0.5 ... 2.5 mm<sup>2</sup></li> <li>• finely stranded with core end processing 0.5 ... 2.5 mm<sup>2</sup></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                |
| <b>type of connectable conductor cross-sections</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                |
| <ul style="list-style-type: none"> <li>• for auxiliary contacts <ul style="list-style-type: none"> <li>— solid 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> <li>— solid or stranded 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> <li>— finely stranded with core end processing 2x (0.5 ... 1.5 mm<sup>2</sup>), 2x (0.75 ... 2.5 mm<sup>2</sup>)</li> </ul> </li> <li>• for AWG cables for auxiliary contacts 2x (20 ... 16), 2x (18 ... 14)</li> </ul>                                                                                               |                                                                                |
| <b>AWG number extended as coded connectable conductor cross section for main contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10 ... 2/0                                                                     |
| <b>AWG number as coded connectable conductor cross section for auxiliary contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 20 ... 14                                                                      |
| <b>Safety related data</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                |
| <b>product function</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                |
| <ul style="list-style-type: none"> <li>• mirror contact according to IEC 60947-4-1</li> <li>• positively driven operation according to IEC 60947-5-1</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            | Yes<br>No                                                                      |
| <b>service life maximum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20 a                                                                           |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                |
| <b>protection class IP on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | IP20                                                                           |
| <b>touch protection on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | finger-safe, for vertical contact from the front                               |
| <b>Approvals Certificates</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                |
| <b>Environment</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>General Product Approval</b>                                                |

[Environmental Con-  
firmations](#)



EG-Konf.

General Product Ap-  
proval

EMV

Test Certificates

Maritime application



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



Maritime application

other

Railway



LRS



RINA



RMRS

[Confirmation](#)



[Special Test Certificate](#)

Dangerous goods

[Transport Information](#)

#### Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2446-1AC20>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AC20>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2446-1AC20&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2446-1AC20&lang=en)

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2446-1AC20>

Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP='HAUPT'></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP='HAUPT'></mmp_prod_no>)

last modified:

7/18/2026