

## Data sheet

**3RH2140-1AF00**



Contactor relay, 4 NO, 110 V AC, 50 / 60 Hz, Size S00, screw terminal

|                                                                                       |                            |
|---------------------------------------------------------------------------------------|----------------------------|
| product brand name                                                                    | SIRIUS                     |
| product designation                                                                   | Auxiliary contactor        |
| product type designation                                                              | 3RH2                       |
| General technical data                                                                |                            |
| size of contactor                                                                     | S00                        |
| product extension auxiliary switch                                                    | Yes                        |
| insulation voltage with degree of pollution 3 at AC rated value                       | 690 V                      |
| degree of pollution                                                                   | 3                          |
| surge voltage resistance rated value                                                  | 6 kV                       |
| shock resistance at rectangular impulse                                               |                            |
| • at AC                                                                               | 7,3g / 5 ms, 4,7g / 10 ms  |
| shock resistance with sine pulse                                                      |                            |
| • at AC                                                                               | 11,4g / 5 ms, 7,3g / 10 ms |
| mechanical service life (operating cycles)                                            |                            |
| • of contactor typical                                                                | 30 000 000                 |
| • 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                                               | K                          |
| Substance Prohibitance (Date)                                                         | 10/01/2009                 |
| Ambient conditions                                                                    |                            |
| installation altitude at height above sea level maximum                               | 2 000 m                    |
| ambient temperature                                                                   |                            |
| • during operation                                                                    | -25 ... +60 °C             |
| • during storage                                                                      | -55 ... +80 °C             |
| relative humidity minimum                                                             | 10 %                       |
| relative humidity at 55 °C according to IEC 60068-2-30 maximum                        | 95 %                       |
| Main circuit                                                                          |                            |
| no-load switching frequency                                                           |                            |
| • at AC                                                                               | 10 000 1/h                 |
| • at DC                                                                               | 10 000 1/h                 |
| Control circuit/ Control                                                              |                            |
| type of voltage of the control supply voltage                                         | AC                         |
| control supply voltage at AC                                                          |                            |
| • at 50 Hz rated value                                                                | 110 V                      |
| • at 60 Hz rated value                                                                | 110 V                      |
| control supply voltage frequency                                                      |                            |
| • 1 rated value                                                                       | 50 Hz                      |
| • 2 rated value                                                                       | 60 Hz                      |

|                                                                                       |              |
|---------------------------------------------------------------------------------------|--------------|
| <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>                                    | 37 VA        |
| <b>inductive power factor with closing power of the coil</b>                          | 0.8          |
| <b>apparent holding power of magnet coil at AC</b>                                    | 5.7 VA       |
| <b>inductive power factor with the holding power of the coil</b>                      | 0.25         |
| <b>closing delay</b>                                                                  |              |
| • at AC                                                                               | 8 ... 33 ms  |
| <b>opening delay</b>                                                                  |              |
| • at AC                                                                               | 4 ... 15 ms  |
| <b>arcing time</b>                                                                    | 10 ... 15 ms |

#### Auxiliary circuit

|                                                                    |           |
|--------------------------------------------------------------------|-----------|
| <b>number of NO contacts for auxiliary contacts</b>                | 4         |
| • instantaneous contact                                            | 4         |
| <b>identification number and letter for switching elements</b>     | 40 E      |
| operational current at AC-12 maximum                               | 10 A      |
| <b>operational current at AC-15</b>                                |           |
| • at 230 V rated value                                             | 10 A      |
| • at 400 V rated value                                             | 3 A       |
| • at 500 V rated value                                             | 2 A       |
| • at 690 V rated value                                             | 1 A       |
| <b>operational current at 1 current path at DC-12</b>              |           |
| • at 24 V rated value                                              | 10 A      |
| • at 110 V rated value                                             | 3 A       |
| • at 220 V rated value                                             | 1 A       |
| • at 440 V rated value                                             | 0.3 A     |
| • at 600 V rated value                                             | 0.15 A    |
| <b>operational current with 2 current paths in series at DC-12</b> |           |
| • at 24 V rated value                                              | 10 A      |
| • at 60 V rated value                                              | 10 A      |
| • at 110 V rated value                                             | 4 A       |
| • at 220 V rated value                                             | 2 A       |
| • at 440 V rated value                                             | 1.3 A     |
| • at 600 V rated value                                             | 0.65 A    |
| <b>operational current with 3 current paths in series at DC-12</b> |           |
| • at 24 V rated value                                              | 10 A      |
| • at 60 V rated value                                              | 10 A      |
| • at 110 V rated value                                             | 10 A      |
| • at 220 V rated value                                             | 3.6 A     |
| • at 440 V rated value                                             | 2.5 A     |
| • at 600 V rated value                                             | 1.8 A     |
| <b>operating frequency at DC-12 maximum</b>                        | 1 000 1/h |
| <b>operational current at 1 current path at DC-13</b>              |           |
| • at 24 V rated value                                              | 10 A      |
| • at 110 V rated value                                             | 1 A       |
| • at 220 V rated value                                             | 0.3 A     |
| • at 440 V rated value                                             | 0.14 A    |
| • at 600 V rated value                                             | 0.1 A     |
| <b>operational current with 2 current paths in series at DC-13</b> |           |
| • at 24 V rated value                                              | 10 A      |
| • at 60 V rated value                                              | 3.5 A     |
| • at 110 V rated value                                             | 1.3 A     |
| • at 220 V rated value                                             | 0.9 A     |
| • at 440 V rated value                                             | 0.2 A     |
| • at 600 V rated value                                             | 0.1 A     |
| <b>operational current with 3 current paths in series at DC-13</b> |           |
| • at 24 V rated value                                              | 10 A      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• at 60 V rated value</li> <li>• at 110 V rated value</li> <li>• at 220 V rated value</li> <li>• at 440 V rated value</li> <li>• at 600 V rated value</li> </ul>                                                                                                                                                                                                                                                                                                                       | 4.7 A<br>3 A<br>1.2 A<br>0.5 A<br>0.26 A<br>1 000 1/h<br>C characteristic: 6 A; 0.4 kA                                                        |
| <b>operating frequency at DC-13 maximum</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                               |
| design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                               |
| <b>contact reliability of auxiliary contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1 faulty switching per 100 million (17 V, 1 mA)                                                                                               |
| <b>UL/CSA ratings</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                               |
| <b>contact rating of auxiliary contacts according to UL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | A600 / Q600                                                                                                                                   |
| <b>Short-circuit protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                               |
| design of the fuse link for short-circuit protection of the auxiliary switch required                                                                                                                                                                                                                                                                                                                                                                                                                                         | fuse gL/gG: 10 A                                                                                                                              |
| <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          |
| <b>fastening method</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | screw and snap-on mounting onto 35 mm DIN rail                                                                                                |
| <b>height</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 57.5 mm                                                                                                                                       |
| <b>width</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 45 mm                                                                                                                                         |
| <b>depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 73 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>— 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>— 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>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul> | 10 mm<br>10 mm<br>10 mm<br>0 mm<br><br>10 mm<br>10 mm<br>6 mm<br>10 mm<br><br>10 mm<br>10 mm<br>10 mm<br>6 mm                                 |
| <b>Connections/ Terminals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                               |
| type of electrical connection for auxiliary and control circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                               | screw-type terminals                                                                                                                          |
| <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 or stranded</li> <li>— finely stranded with core end processing</li> </ul> </li> <li>• at AWG cables for auxiliary contacts</li> </ul>                                                                                                                                                                                                                                                                         | 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), 2x 4 mm²<br>2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)<br>2x (20 ... 16), 2x (18 ... 14), 2x 12 |
| <b>Safety related data</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                               |
| product function positively driven operation according to IEC 60947-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Yes                                                                                                                                           |
| B10 value with high demand rate according to SN 31920                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1 000 000; With 0.3 x I <sub>e</sub>                                                                                                          |
| <b>proportion of dangerous failures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• with low demand rate according to SN 31920</li> <li>• with high demand rate according to SN 31920</li> </ul>                                                                                                                                                                                                                                                                                                                                                                         | 40 %<br>73 %                                                                                                                                  |
| failure rate [FIT] with low demand rate according to SN 31920                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 100 FIT                                                                                                                                       |
| T1 value for proof test interval or service life according to IEC 61508                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20 a                                                                                                                                          |
| <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>Certificates/ approvals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                               |
| <b>General Product Approval</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                               |



[Confirmation](#)



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|     |                                       |                           |                   |
|-----|---------------------------------------|---------------------------|-------------------|
| EMC | Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates |
|-----|---------------------------------------|---------------------------|-------------------|



[Type Examination Certificate](#)



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

#### Marine / Shipping



|                   |       |         |
|-------------------|-------|---------|
| Marine / Shipping | other | Railway |
|-------------------|-------|---------|



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[Vibration and Shock](#)

#### Further information

##### Information on the packaging

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

##### 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=3RH2140-1AF00>

##### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RH2140-1AF00>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RH2140-1AF00>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RH2140-1AF00&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RH2140-1AF00&lang=en)

##### Characteristic: Tripping characteristics, I<sub>t</sub>, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RH2140-1AF00/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RH2140-1AF00&objecttype=14&gridview=view1>



