



SIRIUS soft starter 200-690 V 143 A, 110-250 V AC Screw terminals

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|--|--|
| <b>product brand name</b>                    | SIRIUS   |
| <b>product category</b>                      | Hybrid switching devices   |
| <b>product designation</b>                   | Soft starter   |
| <b>product type designation</b>              | 3RW55  |
| <b>manufacturer's article number</b>         | <ul style="list-style-type: none"> <li>• of high feature HMI module usable <a href="#">3RW5980-0HF00</a></li> <li>• of communication module PROFINET standard usable <a href="#">3RW5980-0CS00</a></li> <li>• of communication module PROFINET high-feature usable <a href="#">3RW5950-0CH00</a></li> <li>• of communication module PROFIBUS usable <a href="#">3RW5980-0CP00</a></li> <li>• of communication module Modbus TCP usable <a href="#">3RW5980-0CT00</a></li> <li>• of communication module Modbus RTU usable <a href="#">3RW5980-0CR00</a></li> <li>• of communication module Ethernet/IP <a href="#">3RW5980-0CE00</a></li> <li>• of circuit breaker usable at 400 V <a href="#">3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 400 V at inside-delta circuit <a href="#">3VA2325-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li>• of the gG fuse usable up to 690 V <a href="#">3NA3244-6; Type of coordination 1, Iq = 65 kA</a></li> <li>• of the gG fuse usable at inside-delta circuit up to 500 V <a href="#">3NA3244-6; Type of coordination 1, Iq = 65 kA</a></li> <li>• of full range R fuse link for semiconductor protection usable up to 690 V <a href="#">3NE1227-0; Type of coordination 2, Iq = 65 kA</a></li> <li>• of back-up R fuse link for semiconductor protection usable up to 690 V <a href="#">3NE3233; Type of coordination 2, Iq = 65 kA</a></li> </ul> |
| <b>General technical data</b>                |  |
| <b>starting voltage [%]</b>                  | 20 ... 100 %   |
| <b>stopping voltage [%]</b>                  | 50 ... 50 %  |
| <b>start-up ramp time of soft starter</b>    | 0 ... 360 s  |
| <b>ramp-down time of soft starter</b>        | 0 ... 360 s  |
| <b>start torque [%]</b>                      | 10 ... 100 %   |
| <b>stopping torque [%]</b>                   | 10 ... 100 %   |
| <b>torque limitation [%]</b>                 | 20 ... 200 %   |
| <b>current limiting value [%] adjustable</b> | 125 ... 800 %  |
| <b>breakaway voltage [%] adjustable</b>      | 40 ... 100 %   |
| <b>breakaway time adjustable</b>             | 0 ... 2 s  |
| <b>number of parameter sets</b>              | 3  |
| <b>accuracy class acc. to IEC 61557-12</b>   | 5 %  |
| <b>certificate of suitability</b>            |  |
| • CE marking                                 | Yes  |
| • UL approval                                | Yes  |
| • CSA approval                               | Yes  |

|   |   |
|---|---|
| <b>product component</b>                                |   |
| • HMI-High Feature                                      | Yes   |
| • is supported HMI-High Feature                         | Yes   |
| <b>product feature integrated bypass contact system</b> | Yes   |
| <b>number of controlled phases</b>                      | 3   |
| <b>trip class</b>                                       | CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2                                      |
| <b>current unbalance limiting value [%]</b>             | 10 ... 60 %   |
| <b>ground-fault monitoring limiting value [%]</b>       | 10 ... 95 %   |
| <b>buffering time in the event of power failure</b>     |   |
| • for main current circuit                              | 100 ms  |
| • for control circuit                                   | 100 ms  |
| <b>idle time adjustable</b>                             | 0 ... 255 s   |
| insulation voltage rated value                          | 690 V   |
| <b>degree of pollution</b>                              | 3, acc. to IEC 60947-4-2  |
| <b>impulse voltage rated value</b>                      | 8 kV  |
| <b>blocking voltage of the thyristor maximum</b>        | 1 800 V   |
| <b>service factor</b>                                   | 1.15  |
| <b>surge voltage resistance rated value</b>             | 8 kV  |
| <b>maximum permissible voltage for safe isolation</b>   |   |
| • between main and auxiliary circuit                    | 690 V; does not apply for thermistor connection   |
| <b>shock resistance</b>                                 | 15 g / 11 ms, from 6 g / 11 ms with potential contact lifting                                     |
| <b>vibration resistance</b>                             | 15 mm up to 6 Hz; 2 g up to 500 Hz  |
| <b>recovery time after overload trip adjustable</b>     | 60 ... 1 800 s  |
| utilization category acc. to IEC 60947-4-2              | AC 53a  |
| <b>reference code acc. to IEC 81346-2</b>               | Q   |
| <b>Substance Prohibitance (Date)</b>                    | 15.02.2018  |
| <b>product function</b>                                 |   |
| • ramp-up (soft starting)                               | Yes   |
| • ramp-down (soft stop)                                 | Yes   |
| • breakaway pulse                                       | Yes   |
| • adjustable current limitation                         | Yes   |
| • creep speed in both directions of rotation            | Yes   |
| • pump ramp down  | Yes   |
| • DC braking  | Yes   |
| • motor heating   | Yes   |
| • slave pointer function                                | Yes   |
| • trace function  | Yes   |
| • intrinsic device protection                           | Yes   |
| • motor overload protection                             | Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) |
| • evaluation of thermistor motor protection             | Yes; Type A PTC or Klixon / Thermoclick   |
| • inside-delta circuit                                  | Yes; Only up to 600 V operating voltage   |
| • auto-RESET  | Yes   |
| • manual RESET  | Yes   |
| • remote reset  | Yes   |
| • communication function                                | Yes   |
| • operating measured value display                      | Yes   |
| • event list  | Yes   |
| • error logbook   | Yes   |
| • via software parameterizable                          | Yes   |
| • via software configurable                             | Yes   |
| • screw terminal  | Yes   |
| • spring-loaded terminal                                | No  |
| • <b>PROFInergy</b>                                     | Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules     |
| • <b>firmware update</b>                                | Yes   |
| • <b>removable terminal for control circuit</b>         | Yes   |
| • voltage ramp  | Yes   |
| • torque control  | Yes   |
| • combined braking                                      | Yes   |
| • analog output   | Yes; 4 ... 20 mA (default) / 0 ... 10 V   |

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|--|-----|
| • programmable control inputs/outputs        | Yes |
| • condition monitoring                       | Yes |
| • automatic parameterisation                 | Yes |
| • application wizards                        | Yes |
| • alternative run-down                       | Yes |
| • emergency operation mode                   | Yes |
| • reversing operation                        | Yes |
| • soft starting at heavy starting conditions | Yes |

### Power Electronics

|   |  |
|---|--|
| <b>operational current</b>  |  |
| • at 40 °C rated value  | 143 A  |
| • at 40 °C rated value minimum  | 29 A   |
| • at 50 °C rated value  | 128 A  |
| • at 60 °C rated value  | 118 A  |
| <b>operational current at inside-delta circuit</b>                                  |  |
| • at 40 °C rated value  | 248 A  |
| • at 50 °C rated value  | 222 A  |
| • at 60 °C rated value  | 204 A  |
| <b>operating voltage</b>  |  |
| • rated value   | 200 ... 690 V  |
| • at inside-delta circuit rated value   | 200 ... 600 V  |
| <b>relative negative tolerance of the operating voltage</b>                         | -15 %  |
| <b>relative positive tolerance of the operating voltage</b>                         | 10 %   |
| <b>relative negative tolerance of the operating voltage at inside-delta circuit</b> | -15 %  |
| <b>relative positive tolerance of the operating voltage at inside-delta circuit</b> | 10 %   |
| <b>operating power for 3-phase motors</b>   |  |
| • at 230 V at 40 °C rated value   | 37 kW  |
| • at 230 V at inside-delta circuit at 40 °C rated value                             | 75 kW  |
| • at 400 V at 40 °C rated value   | 75 kW  |
| • at 400 V at inside-delta circuit at 40 °C rated value                             | 132 kW   |
| • at 500 V at 40 °C rated value   | 90 kW  |
| • at 500 V at inside-delta circuit at 40 °C rated value                             | 160 kW   |
| • at 690 V at 40 °C rated value   | 132 kW   |
| <b>Operating frequency 1 rated value</b>  | 50 Hz  |
| <b>Operating frequency 2 rated value</b>  | 60 Hz  |
| <b>relative negative tolerance of the operating frequency</b>                       | -10 %  |
| <b>relative positive tolerance of the operating frequency</b>                       | 10 %   |
| <b>minimum load [%]</b>   | 10 %; Relative to set le   |
| <b>power loss [W] for rated value of the current at AC</b>                          |  |
| • at 40 °C after startup  | 43 W   |
| • at 50 °C after startup  | 38 W   |
| • at 60 °C after startup  | 35 W   |
| <b>power loss [W] at AC at current limitation 350 %</b>                             |  |
| • at 40 °C during startup   | 2 115 W  |
| • at 50 °C during startup   | 1 795 W  |
| • at 60 °C during startup   | 1 593 W  |
| <b>type of the motor protection</b>   | Electronic, tripping in the event of thermal overload of the motor |
| <b>Control circuit/ Control</b>   |  |
| <b>type of voltage of the control supply voltage</b>                                | AC   |
| <b>control supply voltage at AC</b>   |  |
| • at 50 Hz  | 110 ... 250 V  |
| • at 60 Hz  | 110 ... 250 V  |
| <b>relative negative tolerance of the control supply voltage at AC at 50 Hz</b>     | -15 %  |
| <b>relative positive tolerance of the control supply voltage at AC at 50 Hz</b>     | 10 %   |
| <b>relative negative tolerance of the control supply voltage at AC at 60 Hz</b>     | -15 %  |
| <b>relative positive tolerance of the control supply</b>                            | 10 %   |

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|--|--|
| <b>voltage at AC at 60 Hz</b>  |  |
| <b>control supply voltage frequency</b>                                    | 50 ... 60 Hz   |
| <b>relative negative tolerance of the control supply voltage frequency</b> | -10 %  |
| <b>relative positive tolerance of the control supply voltage frequency</b> | 10 %   |
| <b>control supply current in standby mode rated value</b>                  | 100 mA   |
| <b>holding current in bypass operation rated value</b>                     | 180 mA   |
| <b>locked-rotor current at close of bypass contact maximum</b>             | 0.8 A  |
| inrush current peak at application of control supply voltage maximum       | 43 A   |
| duration of inrush current peak at application of control supply voltage   | 1.6 ms   |
| <b>design of the overvoltage protection</b>                                | Varistor   |
| <b>design of short-circuit protection for control circuit</b>              | 4 A gG fuse (I <sub>cu</sub> =1 kA), 6 A quick-acting fuse (I <sub>cu</sub> =1 kA), C1 miniature circuit breaker (I <sub>cu</sub> = 600 A), C6 miniature circuit breaker (I <sub>cu</sub> = 300 A); Is not part of scope of supply |

| Inputs/ Outputs  |   |
|--|---|
| <b>number of digital inputs</b>                        | 4   |
| • parameterizable                                      | 4   |
| • <b>number of digital outputs</b>                     | 4   |
| • number of digital outputs parameterizable            | 3   |
| • number of digital outputs not parameterizable        | 1   |
| <b>digital output version</b>                          | 3 normally-open contacts (NO) / 1 changeover contact (CO) |
| <b>number of analog outputs</b>                        | 1   |
| <b>switching capacity current of the relay outputs</b> |   |
| • at AC-15 at 250 V rated value                        | 3 A   |
| • at DC-13 at 24 V rated value                         | 1 A   |

| Installation/ mounting/ dimensions          |  |
|---|--|
| <b>mounting position</b>                    | Vertical (can be rotated +/- 90° and tilted forward or backward +/- 22.5°) |
| <b>fastening method</b>                     | screw fixing   |
| <b>height</b>                               | 306 mm   |
| <b>width</b>                                | 185 mm   |
| <b>depth</b>                                | 203 mm   |
| required spacing with side-by-side mounting |  |
| • forwards                                  | 10 mm  |
| • backwards                                 | 0 mm   |
| • upwards                                   | 100 mm   |
| • downwards                                 | 75 mm  |
| • at the side                               | 5 mm   |
| <b>weight without packaging</b>             | 8.5 kg   |

| Connections/ Terminals   |  |
|--|--|
| <b>type of electrical connection</b>                           |  |
| • for main current circuit                                     | busbar connection  |
| • for control circuit  | screw-type terminals   |
| <b>width of connection bar maximum</b>                         | 25 mm  |
| <b>wire length for thermistor connection</b>                   |  |
| • with conductor cross-section = 0.5 mm <sup>2</sup> maximum   | 50 m   |
| • with conductor cross-section = 1.5 mm <sup>2</sup> maximum   | 150 m  |
| • with conductor cross-section = 2.5 mm <sup>2</sup> maximum   | 250 m  |
| <b>type of connectable conductor cross-sections</b>            |  |
| • for DIN cable lug for main contacts stranded                 | 2x (16 ... 95 mm <sup>2</sup> )                                      |
| • for DIN cable lug for main contacts finely stranded          | 2x (25 ... 120 mm <sup>2</sup> )                                     |
| <b>type of connectable conductor cross-sections</b>            |  |
| • for control circuit solid                                    | 1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| • for control circuit finely stranded with core end processing | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| • at AWG cables for control circuit solid                      | 1x (20 ... 12), 2x (20 ... 14)                                       |
| <b>wire length</b>   |  |
| • between soft starter and motor maximum                       | 800 m  |

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|---|---|
| <ul style="list-style-type: none"> <li>at the digital inputs at DC maximum</li> </ul>   | 1 000 m   |
| <b>tightening torque</b> <ul style="list-style-type: none"> <li>for main contacts with screw-type terminals</li> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>  | 10 ... 14 N·m<br>0.8 ... 1.2 N·m  |
| <b>tightening torque [lbf·in]</b> <ul style="list-style-type: none"> <li>for main contacts with screw-type terminals</li> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>   | 89 ... 124 lbf·in<br>7 ... 10.3 lbf·in  |
| <b>Ambient conditions</b>   |   |
| installation altitude at height above sea level maximum   | 2 000 m; Derating as of 1000 m, see catalog   |
| <b>ambient temperature</b> <ul style="list-style-type: none"> <li>during operation</li> <li>during storage and transport</li> </ul>   | -25 ... +60 °C; Please observe derating at temperatures of 40 °C or above<br>-40 ... +80 °C   |
| <b>environmental category</b> <ul style="list-style-type: none"> <li>during operation acc. to IEC 60721</li> <li>during storage acc. to IEC 60721</li> <li>during transport acc. to IEC 60721</li> </ul>  | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6<br>1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4<br>2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)   |
| <b>EMC emitted interference</b>   | acc. to IEC 60947-4-2: Class A  |
| <b>Communication/ Protocol</b>  |   |
| <b>communication module is supported</b> <ul style="list-style-type: none"> <li>PROFINET standard</li> <li>PROFINET high-feature</li> <li>EtherNet/IP</li> <li>Modbus RTU</li> <li>Modbus TCP</li> <li>PROFIBUS</li> </ul>  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| <b>UL/CSA ratings</b>   |   |
| <b>manufacturer's article number</b> <ul style="list-style-type: none"> <li><b>of circuit breaker</b> <ul style="list-style-type: none"> <li>usable for Standard Faults at 460/480 V according to UL</li> <li>usable for High Faults at 460/480 V according to UL</li> <li>usable for Standard Faults at 460/480 V at inside-delta circuit according to UL</li> <li>usable for High Faults at 460/480 V at inside-delta circuit according to UL</li> <li>usable for Standard Faults at 575/600 V according to UL</li> <li>usable for High Faults at 575/600 V at inside-delta circuit according to UL</li> <li>usable for Standard Faults at 575/600 V at inside-delta circuit according to UL</li> </ul> </li> <li><b>of the fuse</b> <ul style="list-style-type: none"> <li>usable for Standard Faults up to 575/600 V according to UL</li> <li>usable for High Faults up to 575/600 V according to UL</li> <li>usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL</li> <li>usable for High Faults at inside-delta circuit up to 575/600 V according to UL</li> </ul> </li> </ul> | Siemens type: 3VA52, max. 250 A; Iq = 10 kA<br>Siemens type: 3VA52, max. 250 A; Iq max = 65 kA<br>Siemens type: 3VA52, max. 250 A; Iq = 10 kA<br>Siemens type: 3VA52, max. 250 A; Iq max = 65 kA<br>Siemens type: 3VA52, max. 250 A; Iq = 10 kA<br>Siemens type: 3VA52, max. 250 A; Iq max = 65 kA<br>Siemens type: 3VA52, max. 250 A; Iq = 10 kA<br>Type: Class RK5 / K5, max. 350 A; Iq = 10 kA<br>Type: Class J / L, max. 350 A; Iq = 100 kA<br>Type: Class RK5 / K5, max. 350 A; Iq = 10 kA<br>Type: Class J / L, max. 350 A; Iq = 100 kA |
| <b>operating power [hp] for 3-phase motors</b> <ul style="list-style-type: none"> <li>at 200/208 V at 50 °C rated value</li> <li>at 220/230 V at 50 °C rated value</li> <li>at 460/480 V at 50 °C rated value</li> <li>at 575/600 V at 50 °C rated value</li> <li>at 200/208 V at inside-delta circuit at 50 °C rated value</li> <li>at 220/230 V at inside-delta circuit at 50 °C rated</li> </ul>   | 40 hp<br>40 hp<br>100 hp<br>125 hp<br>75 hp<br>75 hp  |

|   |           |
|---|-----------|
| value   |           |
| • at 460/480 V at inside-delta circuit at 50 °C rated value | 150 hp    |
| • at 575/600 V at inside-delta circuit at 50 °C rated value | 200 hp    |
| <b>contact rating of auxiliary contacts according to UL</b> | R300-B300 |

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|---|---|
| <b>Safety related data</b>                                |   |
| <b>protection class IP on the front acc. to IEC 60529</b> | IP00; IP20 with cover                                       |
| <b>touch protection on the front acc. to IEC 60529</b>    | finger-safe, for vertical contact from the front with cover |
| <b>electromagnetic compatibility</b>                      | acc. to IEC 60947-4-2                                       |

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| <b>ATEX</b>  |  |
| <b>certificate of suitability</b>  |  |
| • ATEX   | Yes  |
| • IECEx  | Yes  |
| • according to ATEX directive 2014/34/EU   | BVS 18 ATEX F 003 X  |
| <b>type of protection according to ATEX directive 2014/34/EU</b>                           | II (2)G [Ex eb Gb] [Ex db Gb] [Ex pxb Gb], II (2)D [Ex tb Db] [Ex pxb Db], I (M2) [Ex db Mb] |
| <b>hardware fault tolerance acc. to IEC 61508 relating to ATEX</b>                         | 0  |
| <b>PFDAvg with low demand rate acc. to IEC 61508 relating to ATEX</b>                      | 0.008  |
| <b>PFHD with high demand rate acc. to EN 62061 relating to ATEX</b>                        | 0.0000005 1/h  |
| <b>Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX</b>                     | SIL1   |
| <b>T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX</b> | 3 y  |

|                                |     |                                |
|--------------------------------|-----|--------------------------------|
| <b>Certificates/ approvals</b> |     |                                |
| General Product Approval       | EMC | For use in hazardous locations |



|                                |                           |                   |                   |
|--------------------------------|---------------------------|-------------------|-------------------|
| For use in hazardous locations | Declaration of Conformity | Test Certificates | Marine / Shipping |
|--------------------------------|---------------------------|-------------------|-------------------|



[Type Test Certificates/Test Report](#)



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



[Confirmation](#)

**Further information**

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=3RW5535-6HA16>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5535-6HA16>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5535-6HA16>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5535-6HA16&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5535-6HA16&lang=en)

**Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5535-6HA16/char>

**Characteristic: Installation altitude**

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5535-6HA16&objecttype=14&gridview=view1>

**Simulation Tool for Soft Starters (STS)**

<https://support.industry.siemens.com/cs/ww/en/view/101494917>





