



SIRIUS soft starter 200-600 V 570 A, 24 V AC/DC Spring-loaded terminals Thermistor input

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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>  | 3RW50  |
| <b>manufacturer's article number</b>   |  |
| <ul style="list-style-type: none"> <li>• of standard HMI module usable</li> <li>• of high feature HMI module usable</li> <li>• of communication module PROFINET standard usable</li> <li>• of communication module PROFIBUS usable</li> <li>• of communication module Modbus TCP usable</li> <li>• of communication module Modbus RTU usable</li> <li>• of communication module Ethernet/IP</li> <li>• of circuit breaker usable at 400 V</li> <li>• of circuit breaker usable at 500 V</li> <li>• of the gG fuse usable up to 690 V</li> <li>• of full range R fuse link for semiconductor protection usable up to 690 V</li> <li>• of back-up R fuse link for semiconductor protection usable up to 690 V</li> <li>• of line contactor usable up to 480 V</li> <li>• of line contactor usable up to 690 V</li> </ul> | <a href="#">3RW5980-0HS01</a><br><a href="#">3RW5980-0HF00</a><br><a href="#">3RW5980-0CS00</a><br><br><a href="#">3RW5980-0CP00</a><br><a href="#">3RW5980-0CT00</a><br><a href="#">3RW5980-0CR00</a><br><a href="#">3RW5980-0CE00</a><br><a href="#">3VA2580-6HN32-0AA0: Type of assignment 1, Iq = 65 kA</a><br><a href="#">3VA2580-6HN32-0AA0: Type of assignment 1, Iq = 65 kA</a><br>2x3NA3365-6; Type of coordination 1, Iq = 65 kA<br><a href="#">3NE1 437-2: Type of coordination 2, Iq = 65 kA</a><br><br><a href="#">3NE3 340-8: Type of coordination 2, Iq = 65 kA</a> |
|  | 3TF68<br>3TF68   |
| <b>General technical data</b>  |  |
| <b>starting voltage [%]</b>  | 30 ... 100 %   |
| <b>stopping voltage [%]</b>  | 50 %; non-adjustable   |
| <b>start-up ramp time of soft starter</b>  | 0 ... 20 s   |
| <b>ramp-down time of soft starter</b>  | 0 ... 20 s   |
| <b>current limiting value [%] adjustable</b>   | 130 ... 700 %  |
| <b>accuracy class according to IEC 61557-12</b>  | 5 %  |
| <b>certificate of suitability</b>  |  |
| <ul style="list-style-type: none"> <li>• CE marking</li> <li>• UL approval</li> <li>• CSA approval</li> </ul>  | Yes<br>Yes<br>Yes  |
| <b>product component</b>   |  |
| <ul style="list-style-type: none"> <li>• HMI-High Feature</li> <li>• is supported HMI-Standard</li> <li>• is supported HMI-High Feature</li> </ul>   | No<br>Yes<br>Yes   |
| <b>product feature integrated bypass contact system</b>  | Yes  |
| <b>number of controlled phases</b>   | 2  |
| <b>trip class</b>  | CLASS 10A / 10E (preset) / 20E; acc. to IEC 60947-4-2  |

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|---|---|
| <b>buffering time in the event of power failure</b>           |   |
| • for main current circuit                                    | 100 ms  |
| • for control circuit   | 100 ms  |
| insulation voltage rated value                                | 600 V   |
| <b>degree of pollution</b>                                    | 3, acc. to IEC 60947-4-2  |
| <b>impulse voltage rated value</b>                            | 6 kV  |
| <b>blocking voltage of the thyristor maximum</b>              | 1 600 V   |
| <b>service factor</b>   | 1   |
| <b>surge voltage resistance rated value</b>                   | 6 kV  |
| <b>maximum permissible voltage for safe isolation</b>         |   |
| • between main and auxiliary circuit                          | 600 V   |
| <b>shock resistance</b>                                       | 15 g / 11 ms, from 12 g / 11 ms with potential contact lifting                                    |
| <b>vibration resistance</b>                                   | 15 mm to 6 Hz; 2g to 500 Hz   |
| utilization category according to IEC 60947-4-2               | AC-53a  |
| <b>reference code according to IEC 81346-2</b>                | Q   |
| <b>Substance Prohibitance (Date)</b>                          | 09/23/2019  |
| <b>product function</b>                                       |   |
| • ramp-up (soft starting)                                     | Yes   |
| • ramp-down (soft stop)                                       | Yes   |
| • Soft Torque   | Yes   |
| • adjustable current limitation                               | Yes   |
| • pump ramp down  | 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   |
| • auto-RESET  | Yes   |
| • manual RESET  | Yes   |
| • remote reset  | Yes; By turning off the control supply voltage  |
| • communication function                                      | Yes   |
| • operating measured value display                            | Yes; Only in conjunction with special accessories   |
| • error logbook   | Yes; Only in conjunction with special accessories   |
| • via software parameterizable                                | No  |
| • via software configurable                                   | Yes   |
| • <b>PROFInergy</b>   | Yes; in connection with the PROFINET Standard communication module                                |
| • voltage ramp  | Yes   |
| • torque control  | No  |
| • analog output   | No  |
| <b>Power Electronics</b>                                      |   |
| <b>operational current</b>                                    |   |
| • at 40 °C rated value  | 570 A   |
| • at 50 °C rated value  | 504 A   |
| • at 60 °C rated value  | 460 A   |
| <b>operating voltage</b>                                      |   |
| • 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>operating power for 3-phase motors</b>                     |   |
| • at 230 V at 40 °C rated value                               | 160 kW  |
| • at 400 V at 40 °C rated value                               | 315 kW  |
| • at 500 V at 40 °C rated value                               | 355 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>adjustable motor current</b>                               |   |
| • at rotary coding switch on switch position 1                | 240 A   |
| • at rotary coding switch on switch position 2                | 262 A   |
| • at rotary coding switch on switch position 3                | 284 A   |

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| <ul style="list-style-type: none"> <li>• at rotary coding switch on switch position 4</li> <li>• at rotary coding switch on switch position 5</li> <li>• at rotary coding switch on switch position 6</li> <li>• at rotary coding switch on switch position 7</li> <li>• at rotary coding switch on switch position 8</li> <li>• at rotary coding switch on switch position 9</li> <li>• at rotary coding switch on switch position 10</li> <li>• at rotary coding switch on switch position 11</li> <li>• at rotary coding switch on switch position 12</li> <li>• at rotary coding switch on switch position 13</li> <li>• at rotary coding switch on switch position 14</li> <li>• at rotary coding switch on switch position 15</li> <li>• at rotary coding switch on switch position 16</li> <li>• minimum</li> </ul> | 306 A<br>328 A<br>350 A<br>372 A<br>394 A<br>416 A<br>438 A<br>460 A<br>482 A<br>504 A<br>526 A<br>548 A<br>570 A<br>240 A   |
| <b>minimum load [%]</b>  | 15 %; Relative to smallest settable I <sub>e</sub>   |
| <b>power loss [W] for rated value of the current at AC</b>   |  |
| <ul style="list-style-type: none"> <li>• at 40 °C after startup</li> <li>• at 50 °C after startup</li> <li>• at 60 °C after startup</li> </ul>   | 73 W<br>57 W<br>47 W   |
| <b>power loss [W] at AC at current limitation 350 %</b>  |  |
| <ul style="list-style-type: none"> <li>• at 40 °C during startup</li> <li>• at 50 °C during startup</li> <li>• at 60 °C during startup</li> </ul>  | 7 019 W<br>5 801 W<br>5 048 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/DC  |
| <b>control supply voltage at AC</b>  |  |
| <ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> <li>• at 60 Hz rated value</li> </ul>   | 24 V<br>24 V   |
| <b>relative negative tolerance of the control supply voltage at AC at 50 Hz</b>  | -20 %  |
| <b>relative positive tolerance of the control supply voltage at AC at 50 Hz</b>  | 20 %   |
| <b>relative negative tolerance of the control supply voltage at AC at 60 Hz</b>  | -20 %  |
| <b>relative positive tolerance of the control supply voltage at AC at 60 Hz</b>  | 20 %   |
| <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 voltage</b>  |  |
| <ul style="list-style-type: none"> <li>• at DC rated value</li> </ul>  | 24 V   |
| <b>relative negative tolerance of the control supply voltage at DC</b>   | -20 %  |
| <b>relative positive tolerance of the control supply voltage at DC</b>   | 20 %   |
| <b>control supply current in standby mode rated value</b>  | 160 mA   |
| <b>holding current in bypass operation rated value</b>   | 490 mA   |
| <b>locked-rotor current at close of bypass contact maximum</b>   | 7.6 A  |
| <b>inrush current peak at application of control supply voltage maximum</b>  | 3.3 A  |
| <b>duration of inrush current peak at application of control supply voltage</b>  | 12.1 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 |
| <b>Inputs/ Outputs</b>   |  |
| <b>number of digital inputs</b>  | 1  |
| <b>number of digital outputs</b>   | 3  |

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|---|--|
| <ul style="list-style-type: none"> <li>not parameterizable</li> </ul>   | 2  |
| <b>digital output version</b>   | 2 normally-open contacts (NO) / 1 changeover contact (CO)  |
| <b>number of analog outputs</b>   | 0  |
| <b>switching capacity current of the relay outputs</b>  |  |
| <ul style="list-style-type: none"> <li>at AC-15 at 250 V rated value</li> </ul>   | 3 A  |
| <ul style="list-style-type: none"> <li>at DC-13 at 24 V rated value</li> </ul>  | 1 A  |
| <b>Installation/ mounting/ dimensions</b>   |  |
| <b>mounting position</b>  | with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back |
| <b>fastening method</b>   | screw fixing   |
| <b>height</b>   | 230 mm   |
| <b>width</b>  | 160 mm   |
| <b>depth</b>  | 282 mm   |
| required spacing with side-by-side mounting   |  |
| <ul style="list-style-type: none"> <li>forwards</li> </ul>  | 10 mm  |
| <ul style="list-style-type: none"> <li>backwards</li> </ul>   | 0 mm   |
| <ul style="list-style-type: none"> <li>upwards</li> </ul>   | 100 mm   |
| <ul style="list-style-type: none"> <li>downwards</li> </ul>   | 75 mm  |
| <ul style="list-style-type: none"> <li>at the side</li> </ul>   | 5 mm   |
| <b>weight without packaging</b>   | 7.3 kg   |
| <b>Connections/ Terminals</b>   |  |
| <b>type of electrical connection</b>  |  |
| <ul style="list-style-type: none"> <li>for main current circuit</li> </ul>  | busbar connection  |
| <ul style="list-style-type: none"> <li>for control circuit</li> </ul>   | spring-loaded terminals  |
| <b>width of connection bar maximum</b>  | 35 mm; with connection cover 3RT1966-4EA1 maximum length 45 mm   |
| <b>wire length for thermistor connection</b>  |  |
| <ul style="list-style-type: none"> <li>with conductor cross-section = 0.5 mm<sup>2</sup> maximum</li> </ul>   | 50 m   |
| <ul style="list-style-type: none"> <li>with conductor cross-section = 1.5 mm<sup>2</sup> maximum</li> </ul>   | 150 m  |
| <ul style="list-style-type: none"> <li>with conductor cross-section = 2.5 mm<sup>2</sup> maximum</li> </ul>   | 250 m  |
| <b>type of connectable conductor cross-sections</b>   |  |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the front clamping point solid</li> </ul>                                       | 95 ... 300 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the front clamping point finely stranded with core end processing</li> </ul>    | 70 ... 240 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the front clamping point finely stranded without core end processing</li> </ul> | 70 ... 240 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the front clamping point stranded</li> </ul>                                    | 95 ... 300 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>at AWG cables for main contacts for box terminal using the front clamping point</li> </ul>                               | 3/0 ... 600 kcmil  |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the back clamping point solid</li> </ul>  | 120 ... 240 mm <sup>2</sup>  |
| <ul style="list-style-type: none"> <li>at AWG cables for main contacts for box terminal using the back clamping point</li> </ul>                                | 250 ... 500 kcmil  |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using both clamping points solid</li> </ul>   | min. 2x 70 mm <sup>2</sup> , max. 2x 240 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using both clamping points finely stranded with core end processing</li> </ul>        | min. 2x 50 mm <sup>2</sup> , max. 2x 185 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using both clamping points finely stranded without core end processing</li> </ul>     | min. 2x 50 mm <sup>2</sup> , max. 2x 185 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using both clamping points stranded</li> </ul>  | min. 2x 70 mm <sup>2</sup> , max. 2x 240 mm <sup>2</sup>   |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the back clamping point finely stranded with core end processing</li> </ul>     | 120 ... 185 mm <sup>2</sup>  |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the back clamping point finely stranded without core end processing</li> </ul>  | 120 ... 185 mm <sup>2</sup>  |
| <ul style="list-style-type: none"> <li>for main contacts for box terminal using the back clamping point stranded</li> </ul>                                     | 120 ... 240 mm <sup>2</sup>  |
| <b>type of connectable conductor cross-sections</b>   |  |

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|--|--|
| <ul style="list-style-type: none"> <li>• at AWG cables for main current circuit solid</li> <li>• for DIN cable lug for main contacts stranded</li> <li>• for DIN cable lug for main contacts finely stranded</li> </ul>  | <p>2/0 ... 500 kcmil</p> <p>50 ... 240 mm<sup>2</sup></p> <p>70 ... 240 mm<sup>2</sup></p>   |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>• for control circuit solid</li> <li>• for control circuit finely stranded with core end processing</li> <li>• at AWG cables for control circuit solid</li> <li>• at AWG cables for control circuit finely stranded with core end processing</li> </ul> | <p>2x (0.25 ... 1.5 mm<sup>2</sup>)</p> <p>2x (0.25 ... 1.5 mm<sup>2</sup>)</p> <p>2x (24 ... 16)</p> <p>2x (24 ... 16)</p>  |
| <b>wire length</b> <ul style="list-style-type: none"> <li>• between soft starter and motor maximum</li> <li>• at the digital inputs at AC maximum</li> </ul>   | <p>800 m</p> <p>1 000 m</p>  |
| <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>   | <p>14 ... 24 N·m</p> <p>0.8 ... 1.2 N·m</p>  |
| <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>  | <p>124 ... 210 lbf·in</p> <p>7 ... 10.3 lbf·in</p>   |
| <b>Ambient conditions</b>  |  |
| installation altitude at height above sea level maximum  | 5 000 m; derating as of 1000 m, see Manual   |
| <b>ambient temperature</b> <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage and transport</li> </ul>  | <p>-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above</p> <p>-40 ... +80 °C</p>   |
| <b>environmental category</b> <ul style="list-style-type: none"> <li>• during operation according to IEC 60721</li> <li>• during storage according to IEC 60721</li> <li>• during transport according to IEC 60721</li> </ul>  | <p>3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6</p> <p>1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4</p> <p>2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)</p> |
| <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>• EtherNet/IP</li> <li>• Modbus RTU</li> <li>• Modbus TCP</li> <li>• PROFIBUS</li> </ul>  | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>   |
| <b>UL/CSA ratings</b>  |  |
| <b>manufacturer's article number</b> <ul style="list-style-type: none"> <li>• of the fuse <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> </ul> </li> </ul>   | <p>Type: Class L, max. 1600 A; Iq = 30 kA</p> <p>Type: Class L, max. 1200 A; Iq = 100 kA</p>   |
| <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> </ul>  | <p>150 hp</p> <p>200 hp</p> <p>400 hp</p> <p>500 hp</p>  |
| <b>Safety related data</b>   |  |
| <b>protection class IP on the front according to IEC 60529</b>   | IP00; IP20 with cover  |
| <b>touch protection on the front according to IEC 60529</b>  | finger-safe, for vertical contact from the front with cover  |
| <b>ATEX</b>  |  |
| <b>certificate of suitability</b> <ul style="list-style-type: none"> <li>• ATEX</li> <li>• IECEx</li> </ul>  | <p>Yes</p> <p>Yes</p>  |
| <b>hardware fault tolerance according to IEC 61508</b>   | 0  |

|  |          |
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| relating to ATEX   |          |
| PFDAvg with low demand rate according to IEC 61508 relating to ATEX                      | 0.09     |
| PFHD with high demand rate according to EN 62061 relating to ATEX                        | 9E-6 1/h |
| Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX                     | SIL1     |
| T1 value for proof test interval or service life according to IEC 61508 relating to ATEX | 3 y      |

#### Certificates/ approvals

|                          |                                |
|--------------------------|--------------------------------|
| General Product Approval | For use in hazardous locations |
|--------------------------|--------------------------------|



[Confirmation](#)



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



[Type Test Certificates/Test Report](#)



#### 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=3RW5077-2TB05>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5077-2TB05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-2TB05>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5077-2TB05&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5077-2TB05&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-2TB05/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5077-2TB05&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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

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4/11/2022

