

SIRIUS soft starter 200-480 V 570 A, 110-250 V AC Screw terminals  
Thermistor input



Figure similar

<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 HMI module usable <a href="#">3RW5980-0HS01</a></li> <li>• of HMI-Modul high-feature usable <a href="#">3RW5980-0HF00</a></li> <li>• of communication module PROFINET standard usable <a href="#">3RW5980-0CS00</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="#">3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA</a></li> <li>• of circuit breaker usable at 500 V <a href="#">3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA</a></li> <li>• of the gG fuse usable up to 690 V <a href="#">2x3NA3365-6; 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="#">3NE1 437-2; Type of coordination 2, Iq = 65 kA</a></li> </ul>

- of back-up R fuse link for semiconductor protection usable up to 690 V
- of line contactor usable up to 480 V
- of line contactor usable up to 690 V

[3NE3 340-8; Type of coordination 2, I<sub>q</sub> = 65 kA](#)

3TF68

3TF68

#### General technical data

<b>Starting voltage [%]</b>	30 ... 100 %
<b>Stopping voltage [%]</b>	50 ... 50 %
<b>Start-up ramp time of soft starter</b>	0 ... 20 s
<b>Stopping time of soft starter</b>	0 ... 20 s
<b>Current limiting value [%] adjustable</b>	130 ... 700 %
<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>	
• is supported HMI-Standard	Yes
• is supported HMI-High Feature	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
<b>Recovery time</b>	300 s
<b>Insulation voltage</b>	
• rated value	600 V
<b>Degree of pollution</b>	3, acc. to IEC 60947-4-2
<b>Impulse voltage rated value</b>	6 V
<b>Blocking voltage of the thyristor maximum</b>	1 600 V
<b>Service factor</b>	1
<b>Protection class IP</b>	IP00; IP20 with additional terminal covers for vertical touching from the front
<b>Reference code acc. to DIN EN 81346-2</b>	Q
<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
• PROFINET	Yes; in connection with the PROFINET Standard communication module
• voltage ramp	Yes
• torque control	No
• analog output	No

## Power Electronics

<b>Operating 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 ... 480 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 three-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 encoding switch on switch position 1	240 A
• at rotary encoding switch on switch position 2	262 A
• at rotary encoding switch on switch position 3	284 A
• at rotary encoding switch on switch position 4	306 A
• at rotary encoding switch on switch position 5	328 A
• at rotary encoding switch on switch position 6	350 A
• at rotary encoding switch on switch position 7	372 A
• at rotary encoding switch on switch position 8	394 A
• at rotary encoding switch on switch position 9	416 A
• at rotary encoding switch on switch position 10	438 A
• at rotary encoding switch on switch position 11	460 A

<ul style="list-style-type: none"> <li>• at rotary encoding switch on switch position 12</li> <li>• at rotary encoding switch on switch position 13</li> <li>• at rotary encoding switch on switch position 14</li> <li>• at rotary encoding switch on switch position 15</li> <li>• at rotary encoding switch on switch position 16</li> <li>• minimum</li> </ul>	<p>482 A</p> <p>504 A</p> <p>526 A</p> <p>548 A</p> <p>570 A</p> <p>240 A</p>
<b>Minimum load [%]</b>	15 %; Relative to smallest settable le
<b>Power loss [W] for rated value of the current at AC</b>	
<ul style="list-style-type: none"> <li>• at 40 °C to power-up</li> <li>• at 50 °C to power-up</li> <li>• at 60 °C to power-up</li> </ul>	<p>73 W</p> <p>57 W</p> <p>47 W</p>
<b>Power loss [W] at AC at AC</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>	<p>7 019 W</p> <p>5 801 W</p> <p>5 048 W</p>
<b>Type of the motor protection</b>	Electronic, tripping in the event of thermal overload of the motor

Control circuit/ Control	
<b>Type of voltage of the control supply voltage</b>	AC
<b>Control supply voltage at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	<p>110 ... 250 V</p> <p>110 ... 250 V</p>
<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 voltage at AC at 60 Hz</b>	10 %
<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>	30 mA
<b>Holding current in the by-pass mode operating rated value</b>	105 mA
<b>Starting current at close of by-pass contact maximum</b>	2.2 A
<b>Inrush current peak at connect of control supply voltage maximum</b>	12.2 A
<b>Duration of inrush current peak at connect of control supply voltage</b>	2.2 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
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### Inputs/ Outputs

<b>Number of digital inputs</b>	1
<b>Number of inputs for thermistor connection</b>	1; Type A PTC or Klixon / Thermoclick
<b>Number of digital outputs</b>	3
• not parameterizable	2
<b>Digital output version</b>	2 normally-open contacts (NO) / 1 changeover contact (CO)
<b>Number of analog outputs</b>	0

### Installation/ mounting/ dimensions

<b>Mounting position</b>	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
<b>Mounting type</b>	screw fixing
<b>Height</b>	230 mm
<b>Width</b>	160 mm
<b>Depth</b>	282 mm
<b>Required spacing with side-by-side mounting</b>	
• forwards	10 mm
• Backwards	0 mm
• upwards	100 mm
• downwards	75 mm
• at the side	5 mm
<b>Installation altitude at height above sea level maximum</b>	5 000 m; Derating as of 1000 m, see manual
<b>Weight without packaging</b>	7.3 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>	45 mm
<b>Type of connectable conductor cross-sections</b>	
• for main contacts for box terminal using the front clamping point solid	95 ... 300 mm <sup>2</sup>
• for main contacts for box terminal using the front clamping point finely stranded with core end processing	70 ... 240 mm <sup>2</sup>
• for main contacts for box terminal using the front clamping point finely stranded without core end processing	70 ... 240 mm <sup>2</sup>
• for main contacts for box terminal using the front clamping point stranded	95 ... 300 mm <sup>2</sup>

<ul style="list-style-type: none"> <li>• at AWG conductors for main contacts for box terminal using the front clamping point</li> <li>• for main contacts for box terminal using the back clamping point solid</li> <li>• at AWG conductors for main contacts for box terminal using the back clamping point</li> <li>• for main contacts for box terminal using both clamping points solid</li> <li>• for main contacts for box terminal using both clamping points finely stranded with core end processing</li> <li>• for main contacts for box terminal using both clamping points finely stranded without core end processing</li> <li>• for main contacts for box terminal using both clamping points stranded</li> <li>• for main contacts for box terminal using the back clamping point finely stranded with core end processing</li> <li>• for main contacts for box terminal using the back clamping point finely stranded without core end processing</li> <li>• for main contacts for box terminal using the back clamping point stranded</li> </ul>	<p>3/0 ... 600 kcmil</p> <p>120 ... 240 mm<sup>2</sup></p> <p>250 ... 500 kcmil</p> <p>min. 2x 70 mm<sup>2</sup>, max. 2x 240 mm<sup>2</sup></p> <p>min. 2x 50 mm<sup>2</sup>, max. 2x 185 mm<sup>2</sup></p> <p>min. 2x 50 mm<sup>2</sup>, max. 2x 185 mm<sup>2</sup></p> <p>min. 2x 70 mm<sup>2</sup>, max. 2x 240 mm<sup>2</sup></p> <p>120 ... 185 mm<sup>2</sup></p> <p>120 ... 185 mm<sup>2</sup></p> <p>120 ... 240 mm<sup>2</sup></p>
<p><b>Type of connectable conductor cross-sections</b></p> <ul style="list-style-type: none"> <li>• at AWG conductors 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>
<p><b>Type of connectable conductor cross-sections</b></p> <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 conductors for control circuit solid</li> </ul>	<p>1x (0.5 ... 4.0 mm<sup>2</sup>), 2x (0.5 ... 2.5 mm<sup>2</sup>)</p> <p>1x (0.5 ... 2.5 mm<sup>2</sup>), 2x (0.5 ... 1.5 mm<sup>2</sup>)</p> <p>1x (20 ... 12), 2x (20 ... 14)</p>
<p><b>Wire length</b></p> <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>
<p><b>Tightening torque</b></p> <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>
<p><b>Tightening torque [lbf·in]</b></p> <ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	<p>124 ... 210 lbf·in</p>

- for auxiliary and control contacts with screw-type terminals

7 ... 10.3 lbf·in

### Ambient conditions

#### Ambient temperature

- during operation
- during storage and transport

-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above

-40 ... +80 °C

#### Environmental category

- during operation acc. to IEC 60721
- during storage acc. to IEC 60721
- during transport acc. to IEC 60721

3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6  
1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4  
2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)

#### EMC emitted interference

acc. to IEC 60947-4-2: Class A

### Communication/ Protocol

#### Communication module is supported

- PROFINET standard
- EtherNet/IP
- Modbus RTU
- Modbus TCP
- PROFIBUS

Yes

Yes

Yes

Yes

Yes

### UL/CSA ratings

#### Manufacturer's article number

##### • of the fuse

— usable for Standard Faults up to 575/600 V according to UL

Type: Class L, max. 1600 A; I<sub>q</sub> = 30 kA

— usable for High Faults up to 575/600 V according to UL

Type: Class L, max. 1200 A; I<sub>q</sub> = 100 kA

#### Operating power [hp] for three-phase motors

- at 200/208 V at 50 °C rated value
- at 220/230 V at 50 °C rated value
- at 460/480 V at 50 °C rated value
- at 575/600 V at 50 °C rated value

125 hp

150 hp

300 hp

400 hp

### ATEX

#### Certificate of suitability

- ATEX
- IECEx

Yes

Yes

#### Hardware fault tolerance acc. to IEC 61508 relating to ATEX

0


#### PFDavg with low demand rate acc. to IEC 61508 relating to ATEX

0.09

PFHD with high demand rate acc. to EN 62061 relating to ATEX	0.000009 1/h
Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX	SIL1
T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX	3 y

### Certificates/ approvals

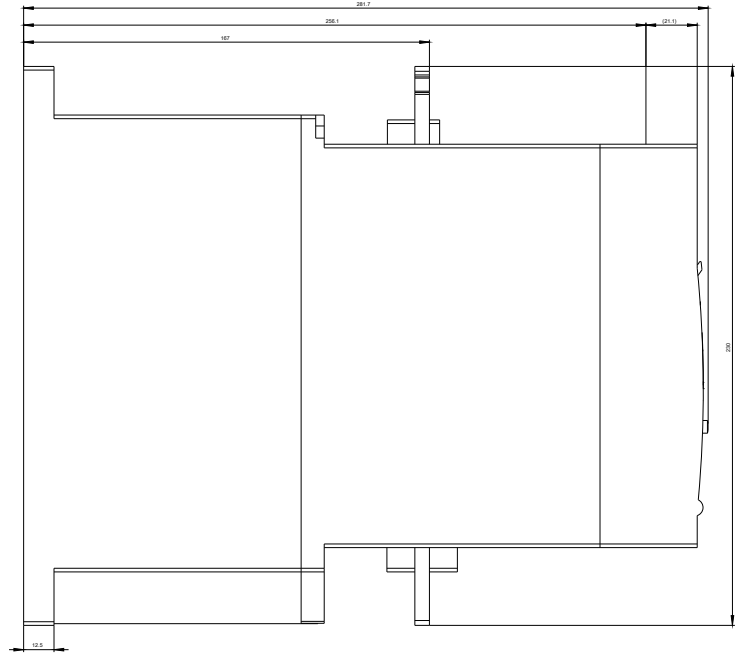
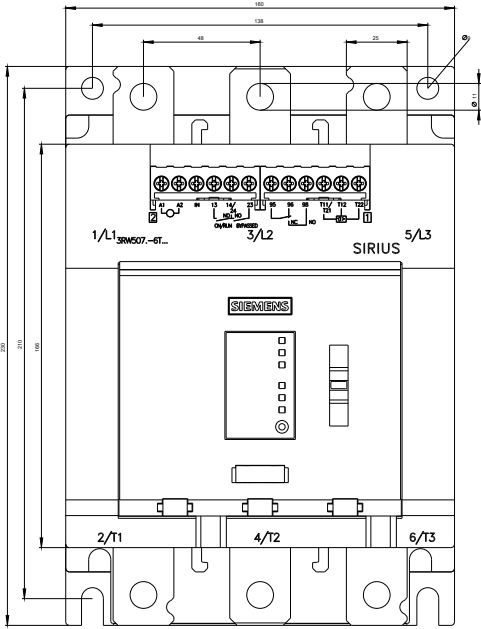
General Product Approval	For use in hazardous locations
 CCC  CSA  UL	 EAC  IECEX  ATEX

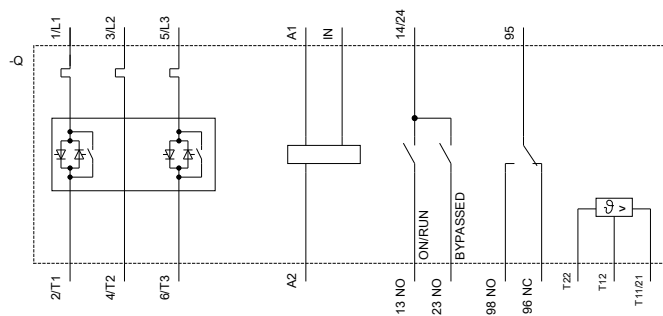
Declaration of Conformity	Test Certificates	other
 EG-Konf.	<a href="#">Miscellaneous</a> <a href="#">Type Test Certificates/Test Report</a>	<a href="#">Confirmation</a>

### 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=3RW5077-6TB14>
- Cax online generator**  
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5077-6TB14>
- Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**  
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-6TB14>
- Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**  
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5077-6TB14&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5077-6TB14&lang=en)
- Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**  
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-6TB14/char>
- Characteristic: Installation altitude**  
<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5077-6TB14&objecttype=14&gridview=view1>







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