

Siemens  
EcoTech



SIRIUS soft starter 200-480 V 1100 A, 110-250 V AC Spring-type terminals

<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="#">3VA2716-7AB05-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 500 V <a href="#">3VA2716-7AB05-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li>• of the gG fuse usable up to 690 V 3x3NA3365-6; Type of coordination 1, Iq = 65 kA</li> <li>• of full range R fuse link for semiconductor protection usable up to 690 V <a href="#">3NB3354-1KK26; Type of coordination 2, Iq = 65 kA</a></li> <li>• of back-up R fuse link for semiconductor protection usable up to 690 V 3x3NE3340-8; Type of coordination 2, Iq = 65 kA</li> </ul>

General technical data	
<b>starting voltage [%]</b>	20 ... 100 %
<b>stopping voltage [%]</b>	50 %; non-adjustable
<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</b>	5 (based on IEC 61557-12)
<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>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
<b>insulation voltage rated value</b>	480 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>	1 400 V
<b>service factor</b>	1.15
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for protective separation</b>	
• between main and auxiliary circuit	480 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>recovery time after overload trip adjustable</b>	60 ... 1 800 s
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>	02/11/2019
<b>SVHC substance name</b>	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Dicyclohexyl phthalate (DCHP) - 84-61-7 Dodecamethylcyclohexasiloxane (D6) - 540-97-6 Lead titanium trioxide - 12060-00-3
<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) / When using the motor overload protection according to ATEX, an upstream contactor is required in inside-delta circuit.
• evaluation of thermistor motor protection	Yes; Type A PTC or Klixon / Thermoclick
• inside-delta circuit	Yes
• 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	No
• spring-loaded terminal	Yes
• <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
• 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
<b>Power Electronics</b>	
<b>operational current</b>	
• at 40 °C rated value	1 100 A

<ul style="list-style-type: none"> <li>• at 40 °C rated value minimum</li> <li>• at 50 °C rated value</li> <li>• at 60 °C rated value</li> </ul>	220 A 979 A 890 A
<b>operational current at inside-delta circuit</b>	
<ul style="list-style-type: none"> <li>• at 40 °C rated value</li> <li>• at 50 °C rated value</li> <li>• at 60 °C rated value</li> </ul>	1 905 A 1 695 A 1 541 A
<b>operating voltage</b>	
<ul style="list-style-type: none"> <li>• rated value</li> <li>• at inside-delta circuit rated value</li> </ul>	200 ... 480 V 200 ... 480 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>	
<ul style="list-style-type: none"> <li>• at 230 V at 40 °C rated value</li> <li>• at 230 V at inside-delta circuit at 40 °C rated value</li> <li>• at 400 V at 40 °C rated value</li> <li>• at 400 V at inside-delta circuit at 40 °C rated value</li> </ul>	315 kW 560 kW 560 kW 1 000 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>	
<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>	330 W 270 W 223 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>	18 502 W 15 568 W 13 552 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>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	110 ... 250 V 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 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>	100 mA
<b>holding current in bypass operation rated value</b>	210 mA
<b>inrush current by closing the bypass contacts maximum</b>	1 A
inrush current peak at application of control supply voltage maximum	44 A
duration of inrush current peak at application of control supply voltage	1.7 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>	764 mm
<b>width</b>	478 mm
<b>depth</b>	241 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>	61 kg
Connections/ Terminals	
<b>type of electrical connection</b>	
• for main current circuit	busbar connection
• for control circuit	spring-loaded terminals
<b>width of connection bar maximum</b>	55 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 (50 ... 240 mm <sup>2</sup> )
• for DIN cable lug for main contacts finely stranded	2x (70 ... 240 mm <sup>2</sup> )
<b>type of connectable conductor cross-sections</b>	
• for control circuit solid	2x (0.25 ... 1.5 mm <sup>2</sup> )
• for control circuit finely stranded with core end processing	2x (0.25 ... 1.5 mm <sup>2</sup> )
• for AWG cables for control circuit solid	2x (24 ... 16)
• for AWG cables for control circuit finely stranded with core end processing	2x (24 ... 16)
<b>wire length</b>	
• between soft starter and motor maximum	800 m
• at the digital inputs at DC maximum	1 000 m
<b>tightening torque</b>	
• for main contacts with screw-type terminals	20 ... 35 N·m
• for auxiliary and control contacts with screw-type terminals	0.8 ... 1.2 N·m
<b>tightening torque [lbf·in]</b>	
• for main contacts with screw-type terminals	177 ... 310 lbf·in
• for auxiliary and control contacts with screw-type terminals	7 ... 10.3 lbf·in
Ambient conditions	
installation altitude at height above sea level maximum	5 000 m; Derating as of 1000 m, see catalog
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above
• during storage and transport	-40 ... +80 °C
<b>environmental category</b>	
• during operation according to IEC 60721	3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6

- during storage according to IEC 60721
- during transport according to IEC 60721

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)

#### Environmental footprint

Siemens Eco Profile (SEP)

Siemens EcoTech

**EMC emitted interference**

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

#### Communication/ Protocol

**communication module is supported**

- |                         |     |
|-------------------------|-----|
| • PROFINET standard     | Yes |
| • PROFINET high-feature | Yes |
| • EtherNet/IP           | Yes |
| • Modbus RTU            | Yes |
| • Modbus TCP            | Yes |
| • PROFIBUS              | 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 J / L, max. 3000 A; Iq = 85 kA  |
| — usable for High Faults up to 575/600 V according to UL                             | Type: Class J / L, max. 3000 A; Iq = 100 kA |
| — usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL | Type: Class J / L, max. 3000 A; Iq = 85 kA  |
| — usable for High Faults at inside-delta circuit up to 575/600 V according to UL     | Type: Class J / L, max. 3000 A; Iq = 100 kA |

**operating power [hp] for 3-phase motors**

- |   |          |
|---|----------|
| • at 200/208 V at 50 °C rated value                         | 350 hp   |
| • at 220/230 V at 50 °C rated value                         | 400 hp   |
| • at 460/480 V at 50 °C rated value                         | 850 hp   |
| • at 200/208 V at inside-delta circuit at 50 °C rated value | 600 hp   |
| • at 220/230 V at inside-delta circuit at 50 °C rated value | 700 hp   |
| • at 460/480 V at inside-delta circuit at 50 °C rated value | 1 500 hp |

**contact rating of auxiliary contacts according to UL**

R300-B300

Electrical Safety

**protection class IP on the front according to IEC 60529**

IP00

#### ATEX

**Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX**

SIL1

**PFHD with high demand rate according to IEC 61508 relating to ATEX**

5E-7 1/h

**PFDavg with low demand rate according to IEC 61508 relating to ATEX**

0.008

**hardware fault tolerance according to IEC 61508 relating to ATEX**

0

**T1 value for proof test interval or service life according to IEC 61508 relating to ATEX**

3 a

**certificate of suitability**

- |  |                     |
|--|---------------------|
| • ATEX                                   | Yes                 |
| • IECEx                                  | Yes                 |
| • according to ATEX directive 2014/34/EU | BVS 18 ATEX F 003 X |

**type of protection according to ATEX directive 2014/34/EU**

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]

#### Approvals Certificates

General Product Approval



[Confirmation](#)



EMV

For use in hazardous locations

Test Certificates

Marine / Shipping



[KC](#)



[Type Test Certificates/Test Report](#)



Marine / Shipping

other

Environment



[Confirmation](#)



Siemens EcoTech



Environment

[Environmental Confirmations](#)

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=3RW5556-2HA14>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5556-2HA14>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5556-2HA14>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5556-2HA14&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5556-2HA14&lang=en)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5556-2HA14/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5556-2HA14&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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

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