

Siemens  
EcoTech



SIRIUS soft starter 200-480 V 171 A, 110-250 V AC Screw terminals Analog output



product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW50
manufacturer's article number	<ul style="list-style-type: none"> <li>• of standard HMI module usable <a href="#">3RW5980-0HS01</a></li> <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 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 assignment 1, I<sub>q</sub> = 20 kA</a></li> <li>• of circuit breaker usable at 500 V <a href="#">3VA2220-7MN32-0AA0; Type of assignment 1, I<sub>q</sub> = 20 kA</a></li> <li>• of the gG fuse usable up to 690 V <a href="#">3NA3244-6; Type of coordination 1, I<sub>q</sub> = 65 kA</a></li> <li>• of full range R fuse link for semiconductor protection usable up to 690 V <a href="#">3NE1 230-0; Type of coordination 2, I<sub>q</sub> = 65 kA</a></li> <li>• of back-up R fuse link for semiconductor protection usable up to 690 V <a href="#">3NE3 335; Type of coordination 2, I<sub>q</sub> = 65 kA</a></li> <li>• of line contactor usable up to 480 V <a href="#">3RT1056</a></li> <li>• of line contactor usable up to 690 V <a href="#">3RT1064</a></li> </ul>
General technical data	
starting voltage [%]	30 ... 100 %
stopping voltage [%]	50 %; non-adjustable
start-up ramp time of soft starter	0 ... 20 s
ramp-down time of soft starter	0 ... 20 s
current limiting value [%] adjustable	130 ... 700 %
certificate of suitability	<ul style="list-style-type: none"> <li>• CE marking Yes</li> <li>• UL approval Yes</li> <li>• CSA approval Yes</li> </ul>
product component	<ul style="list-style-type: none"> <li>• HMI-High Feature No</li> <li>• is supported HMI-Standard Yes</li> <li>• is supported HMI-High Feature Yes</li> </ul>
product feature integrated bypass contact system	Yes
number of controlled phases	2
buffering time in the event of power failure	

<ul style="list-style-type: none"> <li>• for main current circuit</li> </ul>	100 ms
<ul style="list-style-type: none"> <li>• for control circuit</li> </ul>	100 ms
<b>insulation voltage rated value</b>	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>	1 400 V
<b>service factor</b>	1
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for protective separation</b> <ul style="list-style-type: none"> <li>• between main and auxiliary circuit</li> </ul>	600 V
<b>shock resistance</b>	15 g / 11 ms, from 12 g / 11 ms with potential contact lifting
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>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
<b>product function</b> <ul style="list-style-type: none"> <li>• ramp-up (soft starting)</li> <li>• ramp-down (soft stop)</li> <li>• Soft Torque</li> <li>• adjustable current limitation</li> <li>• pump ramp down</li> <li>• intrinsic device protection</li> <li>• motor overload protection</li> <li>• evaluation of thermistor motor protection</li> <li>• auto-RESET</li> <li>• manual RESET</li> <li>• remote reset</li> <li>• communication function</li> <li>• operating measured value display</li> <li>• error logbook</li> <li>• via software parameterizable</li> <li>• via software configurable</li> <li>• <b>PROFenergy</b></li> <li>• voltage ramp</li> <li>• torque control</li> <li>• analog output</li> </ul>	Yes Yes Yes Yes Yes Yes Yes; Electronic motor overload protection No Yes Yes Yes; By turning off the control supply voltage Yes Yes; Only in conjunction with special accessories Yes; Only in conjunction with special accessories No Yes Yes; in connection with the PROFINET Standard communication module Yes No Yes; 4 ... 20 mA (default) / 0 ... 10 V (parameterizable with High Feature HMI)
<b>Power Electronics</b>	
<b>operational current</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>	171 A 153 A 141 A
<b>operating voltage</b> <ul style="list-style-type: none"> <li>• rated value</li> </ul>	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 3-phase motors</b> <ul style="list-style-type: none"> <li>• at 230 V at 40 °C rated value</li> <li>• at 400 V at 40 °C rated value</li> </ul>	45 kW 90 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> <ul style="list-style-type: none"> <li>• at rotary coding switch on switch position 1</li> <li>• at rotary coding switch on switch position 2</li> <li>• at rotary coding switch on switch position 3</li> <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> </ul>	81 A 87 A 93 A 99 A 105 A 111 A

<ul style="list-style-type: none"> <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>	117 A 123 A 129 A 135 A 141 A 147 A 153 A 159 A 165 A 171 A 81 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>	29 W 23 W 20 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>	1 751 W 1 478 W 1 308 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>	30 mA
<b>holding current in bypass operation rated value</b>	80 mA
<b>inrush current by closing the bypass contacts maximum</b>	2.5 A
inrush current peak at application of control supply voltage maximum	12.2 A
duration of inrush current peak at application of control supply voltage	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
<b>Inputs/ Outputs</b>	
<b>number of digital inputs</b>	1
<b>number of digital outputs</b> <ul style="list-style-type: none"> <li>• not parameterizable</li> </ul>	3 2
<b>digital output version</b>	2 normally-open contacts (NO) / 1 changeover contact (CO)
<b>number of analog outputs</b>	1
<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> <li>• at DC-13 at 24 V rated value</li> </ul>	3 A 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>	198 mm

<b>width</b>	120 mm
<b>depth</b>	249 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>	5.2 kg
<b>Connections/ Terminals</b>	
<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>type of connectable conductor cross-sections for main contacts for box terminal</b>	
• using the front clamping point solid	16 ... 120 mm <sup>2</sup>
• using the front clamping point finely stranded with core end processing	16 ... 120 mm <sup>2</sup>
• using the front clamping point finely stranded without core end processing	10 ... 120 mm <sup>2</sup>
• using the front clamping point stranded	16 ... 70 mm <sup>2</sup>
• using the back clamping point solid	16 ... 120 mm <sup>2</sup>
• r box terminal using the back clamping point	6 ... 250 kcmil
• using both clamping points solid	max. 1x 95 mm <sup>2</sup> , 1x 120 mm <sup>2</sup>
• using both clamping points finely stranded with core end processing	max. 1x 95 mm <sup>2</sup> , 1x 120 mm <sup>2</sup>
• using both clamping points finely stranded without core end processing	max. 1x 95 mm <sup>2</sup> , 1x 120 mm <sup>2</sup>
• using both clamping points stranded	max. 2x 120 mm <sup>2</sup>
• using the back clamping point finely stranded with core end processing	16 ... 120 mm <sup>2</sup>
• using the back clamping point finely stranded without core end processing	10 ... 120 mm <sup>2</sup>
• using the back clamping point stranded	16 ... 120 mm <sup>2</sup>
<b>type of connectable conductor cross-sections</b>	
• for AWG cables for main current circuit solid	4 ... 250 kcmil
• for DIN cable lug for main contacts stranded	16 ... 95 mm <sup>2</sup>
• for DIN cable lug for main contacts finely stranded	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> )
• for AWG cables for control circuit solid	1x (20 ... 12), 2x (20 ... 14)
<b>wire length</b>	
• between soft starter and motor maximum	800 m
• at the digital inputs at AC maximum	1 000 m
<b>tightening torque</b>	
• for main contacts with screw-type terminals	10 ... 14 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	89 ... 124 lbf·in
• for auxiliary and control contacts with screw-type terminals	7 ... 10.3 lbf·in
<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>	
• 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	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4

• during transport according to IEC 60721	2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)
<b>Environmental footprint</b>	
Siemens Eco Profile (SEP)	Siemens EcoTech
<b>EMC emitted interference</b>	acc. to IEC 60947-4-2: Class A
<b>Communication/ Protocol</b>	
<b>communication module is supported</b>	
• PROFINET standard	Yes
• EtherNet/IP	Yes
• Modbus RTU	Yes
• Modbus TCP	Yes
• PROFIBUS	Yes
<b>UL/CSA ratings</b>	
<b>manufacturer's article number</b>	
• <b>of circuit breaker</b>	
— usable for Standard Faults at 460/480 V according to UL	Siemens type: 3VA5225, max. 250 A; Iq = 10 kA
— usable for High Faults at 460/480 V according to UL	Siemens type: 3VA52, max. 250 A; Iq max = 65 kA
• <b>of the fuse</b>	
— usable for Standard Faults up to 575/600 V according to UL	Type: Class RK5 / K5, max. 400 A; Iq = 10 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J, max. 350 A; Iq = 100 kA
<b>operating power [hp] for 3-phase motors</b>	
• at 200/208 V at 50 °C rated value	50 hp
• at 220/230 V at 50 °C rated value	50 hp
• at 460/480 V at 50 °C rated value	100 hp
<b>Electrical Safety</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>Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX</b>	SIL1
<b>PFHD with high demand rate according to IEC 61508 relating to ATEX</b>	9E-6 1/h
<b>PFDavg with low demand rate according to IEC 61508 relating to ATEX</b>	0.09
<b>hardware fault tolerance according to IEC 61508 relating to ATEX</b>	0
<b>T1 value for proof test interval or service life according to IEC 61508 relating to ATEX</b>	3 a
<b>certificate of suitability</b>	
• ATEX	Yes
• IECEx	Yes
• UKEX	Yes
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	



[Confirmation](#)



<b>EMV</b>	<b>For use in hazardous locations</b>	<b>Test Certificates</b>	<b>Marine / Shipping</b>
<a href="#">KC</a>	 IECEx	 ATEX	 ABS
		<a href="#">Miscellaneous</a>	<a href="#">Type Test Certificates/Test Report</a>
<b>Marine / Shipping</b>	<b>other</b>	<b>Environment</b>	

## 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=3RW5056-6AB14>

### Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5056-6AB14>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-6AB14>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5056-6AB14&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5056-6AB14&lang=en)

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

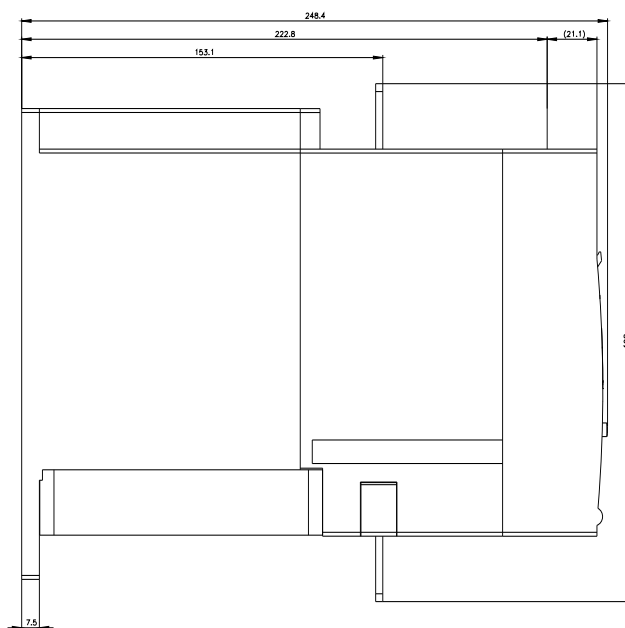
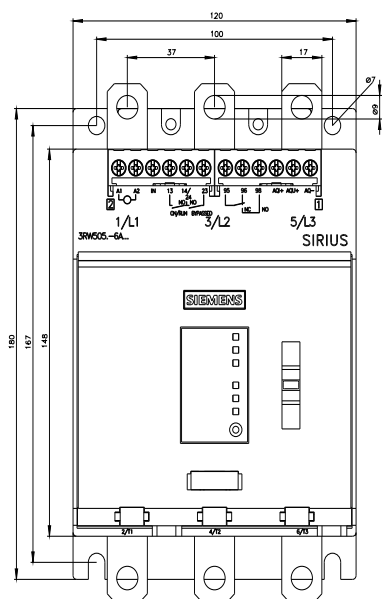
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-6AB14/char>

### Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5056-6AB14&objecttype=14&gridview=view1>

### Simulation Tool for Soft Starters (STS)

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





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