

Siemens  
EcoTech



SIRIUS soft starter 200-600 V 93 A, 24 V AC/DC Screw terminals Thermistor input



<b>product brand name</b>	SIRIUS
<b>product category</b>	Hybrid switching devices
<b>product designation</b>	Soft starter
<b>product type designation</b>	3RW52
<b>manufacturer's article number</b>	<ul style="list-style-type: none"> <li>• of standard HMI module usable <a href="#">3RW5980-0HS00</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="#">3VA2216-7MN32-0AA0; Type of coordination 1, Iq = 15 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 500 V <a href="#">3VA2216-7MN32-0AA0; Type of coordination 1, Iq = 10 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 400 V at inside-delta circuit <a href="#">3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 15 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 500 V at inside-delta circuit <a href="#">3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 10 kA, CLASS 10</a></li> <li>• of the gG fuse usable up to 690 V <a href="#">3NA3136-6; 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="#">3NA3136-6; 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="#">3NE1224-0; 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="#">3NE4124; Type of coordination 2, Iq = 65 kA</a></li> </ul>
<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>current limiting value [%] adjustable</b>	130 ... 700 %
<b>certificate of suitability</b>	
• CE marking	Yes
• UL approval	Yes
• CSA approval	Yes
<b>product component</b>	
• HMI-High Feature	No
• 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>	3

<b>buffering time in the event of power failure</b>	
• for main current circuit	100 ms
• for control circuit	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>	1 800 V
<b>service factor</b>	1
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for protective separation</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>	02/15/2018
<b>SVHC substance name</b>	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4
<b>Weight</b>	6.9 kg
<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
• inside-delta circuit	Yes
• 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>PROFenergy</b>	Yes; in connection with the PROFINET Standard communication module
• <b>firmware update</b>	Yes
• <b>removable terminal for control circuit</b>	Yes
• torque control	No
• analog output	No
<b>Power Electronics</b>	
<b>operational current</b>	
• at 40 °C rated value	93 A
• at 50 °C rated value	82.5 A
• at 60 °C rated value	75.5 A
<b>operational current at inside-delta circuit</b>	
• at 40 °C rated value	161 A
• at 50 °C rated value	143 A
• at 60 °C rated value	131 A
<b>operating voltage</b>	
• rated value	200 ... 600 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	22 kW
• at 230 V at inside-delta circuit at 40 °C rated value	45 kW
• at 400 V at 40 °C rated value	45 kW
• at 400 V at inside-delta circuit at 40 °C rated value	90 kW
• at 500 V at 40 °C rated value	55 kW
• at 500 V at inside-delta circuit at 40 °C rated value	110 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	40.5 A
• at rotary coding switch on switch position 2	44 A
• at rotary coding switch on switch position 3	47.5 A
• at rotary coding switch on switch position 4	51 A
• at rotary coding switch on switch position 5	54.5 A
• at rotary coding switch on switch position 6	58 A
• at rotary coding switch on switch position 7	61.5 A
• at rotary coding switch on switch position 8	65 A
• at rotary coding switch on switch position 9	68.5 A
• at rotary coding switch on switch position 10	72 A
• at rotary coding switch on switch position 11	75.5 A
• at rotary coding switch on switch position 12	79 A
• at rotary coding switch on switch position 13	82.5 A
• at rotary coding switch on switch position 14	86 A
• at rotary coding switch on switch position 15	89.5 A
• at rotary coding switch on switch position 16	93 A
• minimum	40.5 A
<b>adjustable motor current</b>	
• for inside-delta circuit at rotary coding switch on switch position 1	70.1 A
• for inside-delta circuit at rotary coding switch on switch position 2	76.2 A
• for inside-delta circuit at rotary coding switch on switch position 3	82.3 A
• for inside-delta circuit at rotary coding switch on switch position 4	88.3 A
• for inside-delta circuit at rotary coding switch on switch position 5	94.4 A
• for inside-delta circuit at rotary coding switch on switch position 6	100 A
• for inside-delta circuit at rotary coding switch on switch position 7	107 A
• for inside-delta circuit at rotary coding switch on switch position 8	113 A
• for inside-delta circuit at rotary coding switch on switch position 9	119 A
• for inside-delta circuit at rotary coding switch on switch position 10	125 A
• for inside-delta circuit at rotary coding switch on switch position 11	131 A
• for inside-delta circuit at rotary coding switch on switch position 12	137 A
• for inside-delta circuit at rotary coding switch on switch position 13	143 A
• for inside-delta circuit at rotary coding switch on switch position 14	149 A
• for inside-delta circuit at rotary coding switch on switch position 15	155 A

<ul style="list-style-type: none"> <li>• for inside-delta circuit at rotary coding switch on switch position 16</li> <li>• at inside-delta circuit minimum</li> </ul>	161 A 70.1 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>	40 W 37 W 35 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>	1 270 W 1 077 W 959 W

#### Control circuit/ Control

<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 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 at DC rated value</b>	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>	380 mA
<b>inrush current by closing the bypass contacts maximum</b>	7.6 A
inrush current peak at application of control supply voltage maximum	3.3 A
duration of inrush current peak at application of control supply voltage	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











#### Inputs/ Outputs

<b>number of digital inputs</b>	1
<b>number of digital outputs</b>	3
<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> <li>• at DC-13 at 24 V rated value</li> </ul>	3 A 1 A

#### 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>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	

<ul style="list-style-type: none"> <li>• forwards</li> <li>• backwards</li> <li>• upwards</li> <li>• downwards</li> <li>• at the side</li> </ul>	<p>10 mm</p> <p>0 mm</p> <p>100 mm</p> <p>75 mm</p> <p>5 mm</p>
<b>weight without packaging</b>	6.9 kg
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
<ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for control circuit</li> </ul>	<p>box terminal</p> <p>screw-type terminals</p>
<b>width of connection bar maximum</b>	25 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> <li>• with conductor cross-section = 1.5 mm<sup>2</sup> maximum</li> <li>• with conductor cross-section = 2.5 mm<sup>2</sup> maximum</li> </ul>	<p>50 m</p> <p>150 m</p> <p>250 m</p>
<b>type of connectable conductor cross-sections for main contacts for box terminal</b>	
<ul style="list-style-type: none"> <li>• using the front clamping point solid</li> <li>• using the front clamping point finely stranded with core end processing</li> <li>• using the front clamping point stranded</li> <li>• using the back clamping point solid</li> <li>• r box terminal using the back clamping point</li> <li>• using both clamping points solid</li> <li>• using both clamping points finely stranded with core end processing</li> <li>• using both clamping points stranded</li> <li>• using the back clamping point finely stranded with core end processing</li> <li>• using the back clamping point stranded</li> </ul>	<p>1x (2.5 ... 16 mm<sup>2</sup>)</p> <p>1x (2.5 ... 50 mm<sup>2</sup>)</p> <p>1x (10 ... 70 mm<sup>2</sup>)</p> <p>1x (2.5 ... 16 mm<sup>2</sup>)</p> <p>1x (10 ... 2/0)</p> <p>2x (2.5 ... 16 mm<sup>2</sup>)</p> <p>2x (2.5 ... 35 mm<sup>2</sup>)</p> <p>2x (6 ... 16 mm<sup>2</sup>), 2x (10 ... 50 mm<sup>2</sup>)</p> <p>1x (2.5 ... 50 mm<sup>2</sup>)</p> <p>1x (10 ... 70 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>• for AWG cables 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>
<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> <li>• at the digital inputs at DC maximum</li> </ul>	<p>800 m</p> <p>100 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>4.5 ... 6 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>40 ... 53 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 catalog
<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>Environmental footprint</b>	
global warming potential [CO <sub>2</sub> eq] total	296 kg
global warming potential [CO <sub>2</sub> eq] during manufacturing	67.7 kg
global warming potential [CO <sub>2</sub> eq] during sales	1.84 kg

global warming potential [CO2 eq] during operation	242 kg	
global warming potential [CO2 eq] after end of life	-15.7 kg	
Siemens Eco Profile (SEP)	Siemens EcoTech	
<b>Electromagnetic compatibility</b>		
<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>● <b>of circuit breaker usable for Standard Faults</b> <ul style="list-style-type: none"> <li>— at 460/480 V according to UL</li> <li>— 60/480 V according to UL</li> <li>— at 460/480 V at inside-delta circuit according to UL</li> <li>— 60/480 V at inside-delta circuit according to UL</li> <li>— at 575/600 V according to UL</li> <li>— 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>	<p>Siemens type: 3VA51, max. 125 A; Iq = 10 kA</p> <p>Siemens type: 3VA51, max. 125 A; Iq max = 65 kA</p> <p>Siemens type: 3VA51, max. 125 A; Iq = 10 kA</p> <p>Siemens type: 3VA51, max. 125 A; Iq max = 65 kA</p> <p>Siemens type: 3VA51, max. 125 A; Iq = 10 kA</p> <p>Siemens type: 3VA51, max. 125 A; Iq = 10 kA</p> <p>Type: Class RK5 / K5, max. 300 A; Iq = 10 kA</p> <p>Type: Class J / L, max. 250 A; Iq = 100 kA</p> <p>Type: Class RK5 / K5, max. 300 A; Iq = 10 kA</p> <p>Type: Class J / L, max. 250 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> <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 value</li> <li>● at 460/480 V at inside-delta circuit at 50 °C rated value</li> <li>● at 575/600 V at inside-delta circuit at 50 °C rated value</li> </ul>	<p>25 hp</p> <p>30 hp</p> <p>60 hp</p> <p>75 hp</p> <p>40 hp</p> <p>50 hp</p> <p>100 hp</p> <p>125 hp</p>	
<b>contact rating of auxiliary contacts according to UL</b>	R300-B300	
<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>Approvals Certificates</b>		
<b>General Product Approval</b>	<b>EMV</b>	
     		
<b>EMV</b>	<b>Test Certificates</b>	<b>Maritime application</b>
<a href="#">KC</a>	<a href="#">Type Test Certificates/Test Report</a>	   
<b>other</b>	<b>Environment</b>	



Confirmation



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Environmental Con-  
firmations

#### Further information

##### Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

##### Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

##### 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=3RW5227-1TC05>

##### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5227-1TC05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5227-1TC05>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5227-1TC05&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5227-1TC05&lang=en)

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

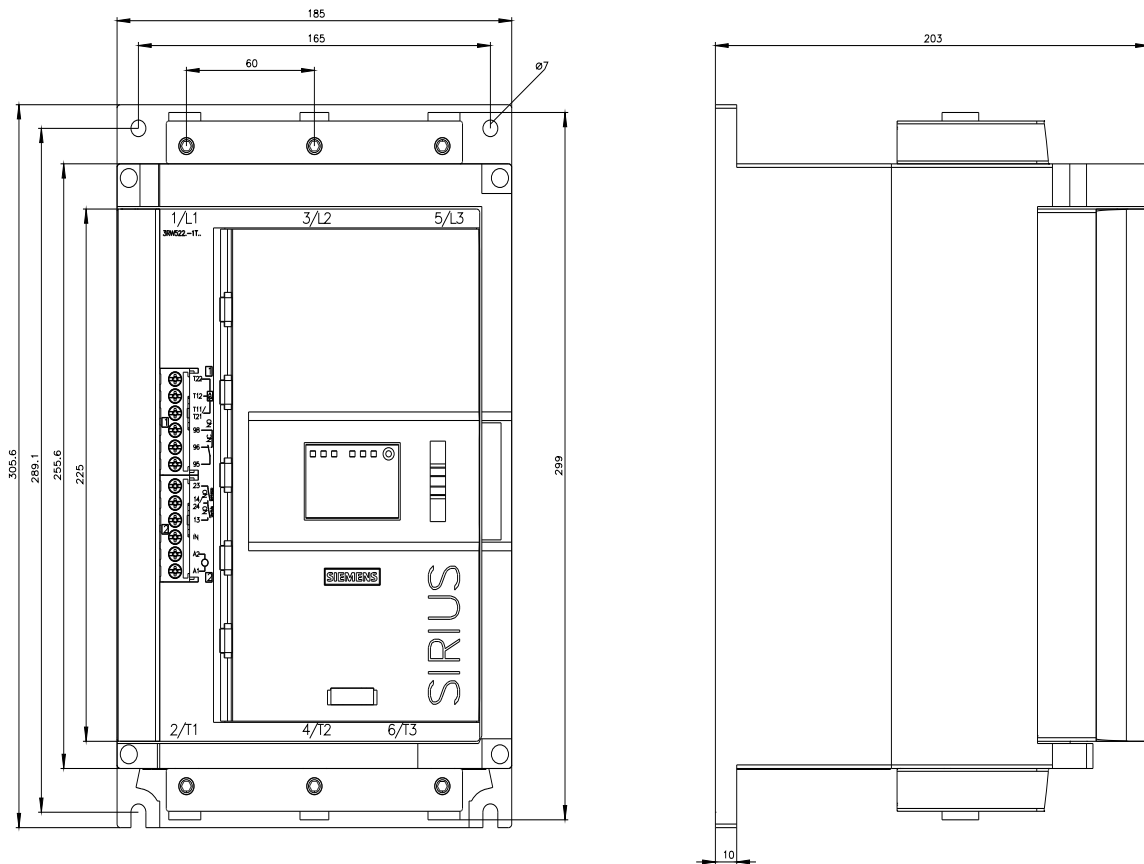
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5227-1TC05/char>

##### Characteristic: Installation altitude

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5227-1TC05&objecttype=14&gridview=view1>

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

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





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