



SIRIUS soft starter 200-600 V 47 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</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 circuit breaker usable at 400 V at inside-delta circuit</li> <li>of circuit breaker usable at 500 V at inside-delta circuit</li> <li>of the gG fuse usable up to 690 V</li> <li>of the gG fuse usable at inside-delta circuit up to 500 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> </ul>	<ul style="list-style-type: none"> <li><a href="#">3RW5980-0HS00</a></li> <li><a href="#">3RW5980-0HF00</a></li> <li><a href="#">3RW5980-0CS00</a></li> <li><a href="#">3RW5980-0CP00</a></li> <li><a href="#">3RW5980-0CT00</a></li> <li><a href="#">3RW5980-0CR00</a></li> <li><a href="#">3RW5980-0CE00</a></li> <li><a href="#">3RV2032-4JA10: Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li><a href="#">3RV2032-4JA10: Type of coordination 1, Iq = 10 kA, CLASS 10</a></li> <li><a href="#">3RV2032-4RA10: Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li><a href="#">3RV2032-4RA10: Type of coordination 1, Iq = 10 kA, CLASS 10</a></li> <li><a href="#">3NA3824-6; Type of coordination 1, Iq = 65 kA</a></li> <li><a href="#">3NA3824-6; Type of coordination 1, Iq = 65 kA</a></li> <li><a href="#">3NE1021-2; Type of coordination 2, Iq = 65 kA</a></li> <li><a href="#">3NE8024-1; 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>	
<ul style="list-style-type: none"> <li>CE marking</li> <li>UL approval</li> <li>CSA approval</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>
<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>	<ul style="list-style-type: none"> <li>No</li> <li>Yes</li> <li>Yes</li> </ul>
<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>	

<ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for control circuit</li> </ul>	100 ms 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>	
<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
<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>	5.2 kg
<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> </ul>	Yes Yes Yes Yes Yes Yes Yes; Full motor protection (thermistor motor protection and electronic motor overload protection)
<ul style="list-style-type: none"> <li>• evaluation of thermistor motor protection</li> <li>• inside-delta circuit</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>• <b>firmware update</b></li> <li>• <b>removable terminal for control circuit</b></li> <li>• torque control</li> <li>• analog output</li> </ul>	Yes; Type A PTC or Klixon / Thermoclick Yes 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 Yes No No
<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>	47 A 41.6 A 36.2 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>	81.4 A 72 A 62.7 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 ... 600 V 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</b>	10 %

<b>inside-delta circuit</b>	
<b>operating power for 3-phase motors</b>	
• at 230 V at 40 °C rated value	11 kW
• at 230 V at inside-delta circuit at 40 °C rated value	22 kW
• at 400 V at 40 °C rated value	22 kW
• at 400 V at inside-delta circuit at 40 °C rated value	45 kW
• at 500 V at 40 °C rated value	30 kW
• at 500 V at inside-delta circuit at 40 °C rated value	45 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	20 A
• at rotary coding switch on switch position 2	21.8 A
• at rotary coding switch on switch position 3	23.6 A
• at rotary coding switch on switch position 4	25.4 A
• at rotary coding switch on switch position 5	27.2 A
• at rotary coding switch on switch position 6	29 A
• at rotary coding switch on switch position 7	30.8 A
• at rotary coding switch on switch position 8	32.6 A
• at rotary coding switch on switch position 9	34.4 A
• at rotary coding switch on switch position 10	36.2 A
• at rotary coding switch on switch position 11	38 A
• at rotary coding switch on switch position 12	39.8 A
• at rotary coding switch on switch position 13	41.6 A
• at rotary coding switch on switch position 14	43.4 A
• at rotary coding switch on switch position 15	45.2 A
• at rotary coding switch on switch position 16	47 A
• minimum	20 A
<b>adjustable motor current</b>	
• for inside-delta circuit at rotary coding switch on switch position 1	34.6 A
• for inside-delta circuit at rotary coding switch on switch position 2	37.8 A
• for inside-delta circuit at rotary coding switch on switch position 3	40.9 A
• for inside-delta circuit at rotary coding switch on switch position 4	44 A
• for inside-delta circuit at rotary coding switch on switch position 5	47.1 A
• for inside-delta circuit at rotary coding switch on switch position 6	50.2 A
• for inside-delta circuit at rotary coding switch on switch position 7	53.3 A
• for inside-delta circuit at rotary coding switch on switch position 8	56.5 A
• for inside-delta circuit at rotary coding switch on switch position 9	59.6 A
• for inside-delta circuit at rotary coding switch on switch position 10	62.7 A
• for inside-delta circuit at rotary coding switch on switch position 11	65.8 A
• for inside-delta circuit at rotary coding switch on switch position 12	68.9 A
• for inside-delta circuit at rotary coding switch on switch position 13	72.1 A
• for inside-delta circuit at rotary coding switch on switch position 14	75.2 A
• for inside-delta circuit at rotary coding switch on switch position 15	78.3 A
• for inside-delta circuit at rotary coding switch on switch position 16	81.4 A
• at inside-delta circuit minimum	34.6 A
<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 after startup</li> <li>• at 50 °C after startup</li> <li>• at 60 °C after startup</li> </ul>	26 W 24 W 23 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>	606 W 522 W 438 W
<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 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
<b>Inputs/ Outputs</b>	
<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
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	+/- 10° rotation possible and can be tilted forward or backward on vertical mounting surface
<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>	10 mm 0 mm 100 mm 75 mm 5 mm
<b>weight without packaging</b>	5.2 kg

## Connections/ Terminals

<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 [CO <sub>2</sub> eq] during operation	242 kg
global warming potential [CO <sub>2</sub> 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> </ul>	Yes

• EtherNet/IP	Yes
• Modbus RTU	Yes
• Modbus TCP	Yes
• PROFIBUS	Yes

### UL/CSA ratings

<b>manufacturer's article number</b> <ul style="list-style-type: none"> <li>• of circuit breaker usable for Standard Faults <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>• 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> <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>	Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA Siemens type: 3VA51, max. 60 A; Iq max = 65 kA Siemens type: 3VA51, max. 90 A; Iq = 5 kA Siemens type: 3VA51, max. 60 A; Iq max = 65 kA Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA Siemens type: 3VA51, max. 90 A; Iq = 5 kA  Type: Class RK5 / K5, max. 175 A; Iq = 5 kA Type: Class J / L, max. 175 A; Iq = 100 kA  Type: Class RK5 / K5, max. 175 A; Iq = 5 kA Type: Class J / L, max. 175 A; Iq = 100 kA
<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>	10 hp 10 hp 30 hp 40 hp 20 hp 25 hp 50 hp 60 hp
<b>contact rating of auxiliary contacts according to UL</b>	R300-B300

Electrical Safety	
<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

### Approvals Certificates

General Product Approval	EMV
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EMV	Test Certificates	Maritime application
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[KC](#)

[Type Test Certificates/Test Report](#)



other	Environment
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[Confirmation](#)

Siemens EcoTech



[Environmental Confirmations](#)

### 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=3RW5224-1TC05>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-1TC05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1TC05>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5224-1TC05&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-1TC05&lang=en)

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

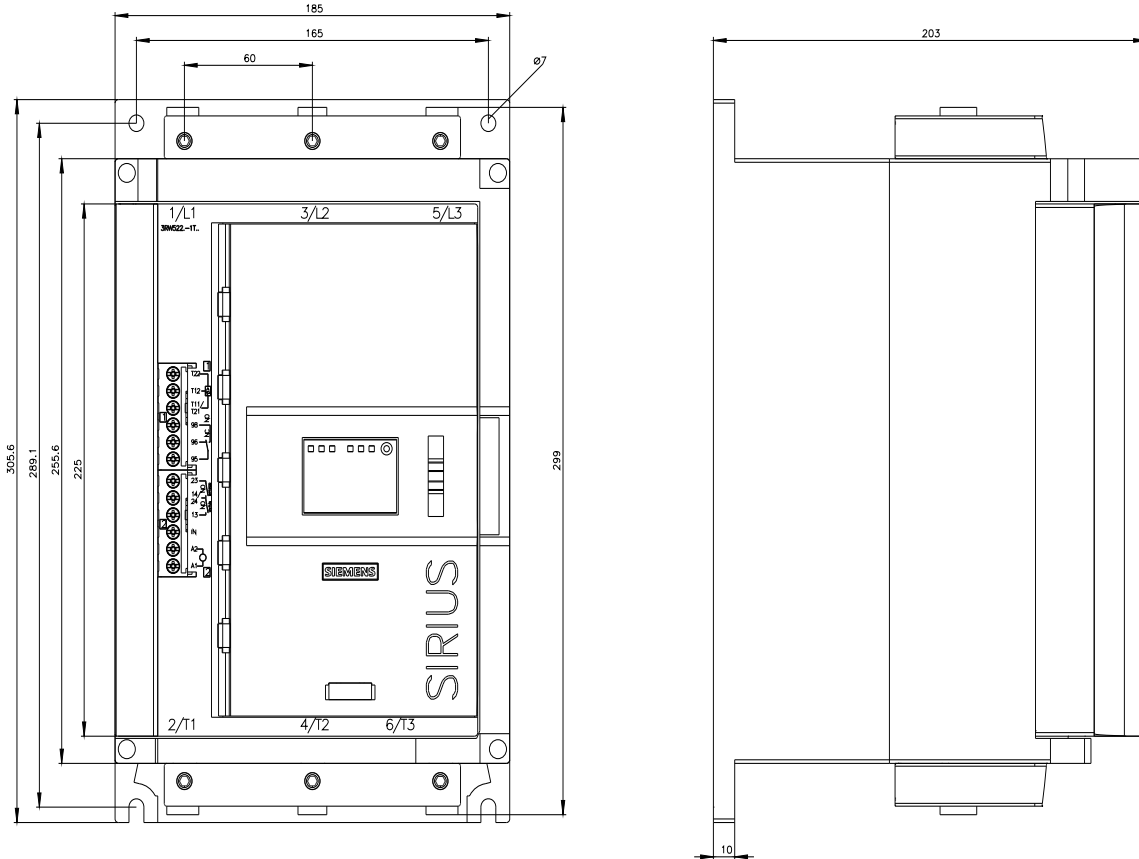
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1TC05/char>

Characteristic: Installation altitude

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-1TC05&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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