

SIRIUS soft starter 200-600 V 13 A, 110-250 V AC spring-type terminals



product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW55
manufacturer's article number	<ul style="list-style-type: none"> <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 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="#">3RV2032-4TA10; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 500 V <a href="#">3RV2032-4TA10; Type of coordination 1, Iq = 18 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 400 V at inside-delta circuit <a href="#">3RV2032-4DA10; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> </ul>

- of circuit breaker usable at 500 V at inside-delta circuit
- of the gG fuse usable up to 690 V
- of the gG fuse usable at inside-delta circuit up to 500 V
- of full range R fuse link for semiconductor protection usable up to 690 V
- of back-up R fuse link for semiconductor protection usable up to 690 V

[3RV2032-4DA10; Type of coordination 1, I<sub>q</sub> = 18 kA, CLASS 10](#)

[3NA3820-6; Type of coordination 1, I<sub>q</sub> = 65 kA](#)

[3NA3820-6; Type of coordination 1, I<sub>q</sub> = 65 kA](#)

[3NE1815-0; Type of coordination 2, I<sub>q</sub> = 65 kA](#)

[3NE8017-1; Type of coordination 2, I<sub>q</sub> = 65 kA](#)

## General technical data

<b>starting voltage [%]</b>	20 ... 100 %
<b>stopping voltage [%]</b>	50 ... 50 %
<b>start-up ramp time of soft starter</b>	0 ... 360 s
<b>stopping time of soft starter</b>	0 ... 360 s
<b>start torque [%]</b>	10 ... 100 %
<b>stopping torque [%]</b>	10 ... 100 %
<b>torque limit [%]</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 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>	
• 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>trip class</b>	CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2
<b>current unbalance limiting value [%]</b>	10 ... 60 %
<b>ground-fault monitoring limiting value [%]</b>	10 ... 95 %
<b>recovery time after overload trip adjustable</b>	60 ... 1 800 s
<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</b>	
• rated value	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>	1 600 V
<b>service factor</b>	1.15
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for safe isolation</b>	
• between main and auxiliary circuit	600 V; does not apply for thermistor connection
<b>protection class IP</b>	IP00
<b>usage category acc. to IEC 60947-4-2</b>	AC 53a
<b>shock resistance</b>	15 g / 11 ms, from 6 g / 11 ms with potential contact lifting
<b>vibration resistance</b>	15 mm up to 6 Hz; 2 g up to 500 Hz
<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
• 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-type terminal	Yes
• PROFINergy	Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules
• firmware update	Yes

• removable terminal for control circuit	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

## Power Electronics

<b>operating current</b>	
• at 40 °C rated value	13 A
• at 40 °C rated value minimum	2.5 A
• at 50 °C rated value	11.5 A
• at 60 °C rated value	10.5 A
<b>operating current at inside-delta circuit</b>	
• at 40 °C rated value	22.5 A
• at 50 °C rated value	19.9 A
• at 60 °C rated value	18.2 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 three-phase motors</b>	
• at 230 V at 40 °C rated value	3 kW
• at 230 V at inside-delta circuit at 40 °C rated value	5.5 kW
• at 400 V at 40 °C rated value	5.5 kW
• at 400 V at inside-delta circuit at 40 °C rated value	11 kW
• at 500 V at 40 °C rated value	7.5 kW
• at 500 V at inside-delta circuit at 40 °C rated value	15 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 I <sub>e</sub>
<b>power loss [W] for rated value of the current at AC</b>	
• at 40 °C after startup	4 W
• at 50 °C after startup	3 W
• at 60 °C after startup	3 W
<b>power loss [W] at AC at AC</b>	
• at 40 °C during startup	198 W
• at 50 °C during startup	166 W
• at 60 °C during startup	148 W
<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>	
• at 50 Hz	110 ... 250 V
• at 60 Hz	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 the by-pass mode operating rated value</b>	165 mA
<b>starting current at close of by-pass contact maximum</b>	0.2 A
<b>inrush current peak at connect of control supply voltage maximum</b>	43 A
<b>duration of inrush current peak at connect of control supply voltage</b>	1.6 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 inputs for thermistor connection</b>	1; Type A PTC or Klixon / Thermoclick
• <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>mounting type</b>	screw fixing
<b>height</b>	275 mm
<b>width</b>	170 mm
<b>depth</b>	152 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>weight without packaging</b>	2.3 kg

Connections/ Terminals	
<b>type of electrical connection</b>	
• for main current circuit	screw-type terminals
• for control circuit	spring-loaded terminals
<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 main contacts	
— solid	2x (1.0 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 10 mm <sup>2</sup> )
— finely stranded with core end processing	2x (1.0 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6.0 mm <sup>2</sup> )

<ul style="list-style-type: none"> <li>at AWG conductors for main current circuit solid</li> </ul>	2x (16 ... 12), 2x (14 ... 8)
<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>at AWG conductors for control circuit solid</li> <li>at AWG conductors for control circuit finely stranded with core end processing</li> </ul>	2x (0.25 ... 1.5 mm <sup>2</sup> ) 2x (0.25 ... 1.5 mm <sup>2</sup> ) 2x (24 ... 16) 2x (24 ... 16)
<b>wire length</b> <ul style="list-style-type: none"> <li>between soft starter and motor maximum</li> <li>at the digital inputs at DC maximum</li> </ul>	800 m 1 000 m

### Ambient conditions

<b>installation altitude at height above sea level</b> <ul style="list-style-type: none"> <li>maximum</li> </ul>	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>	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above -25 ... +80 °C
<b>environmental category</b> <ul style="list-style-type: none"> <li>during operation acc. to IEC 60721</li> <li>during storage acc. to IEC 60721</li> <li>during transport acc. to IEC 60721</li> </ul>	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, Class B on request

### Communication/ Protocol

<b>communication module is supported</b> <ul style="list-style-type: none"> <li>PROFINET standard</li> <li>PROFINET high-feature</li> <li>EtherNet/IP</li> <li>Modbus RTU</li> <li>Modbus TCP</li> <li>PROFIBUS</li> </ul>	Yes No No No Yes Yes
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### UL/CSA ratings

<b>manufacturer's article number</b> <ul style="list-style-type: none"> <li>of circuit breaker               <ul style="list-style-type: none"> <li>— usable for Standard Faults at 460/480 V according to UL</li> <li>— usable for High Faults at 460/480 V according to UL</li> </ul> </li> </ul>	Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; Iq = 5 kA Siemens type: 3RV2742, max. 30 A or 3VA51, max. 35 A; Iq max = 65 kA
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<ul style="list-style-type: none"> <li>— usable for Standard Faults at 460/480 V at inside-delta circuit according to UL</li> <li>— usable for High Faults at 460/480 V at inside-delta circuit according to UL</li> <li>— usable for Standard Faults at 575/600 V according to UL</li> <li>— usable for High Faults at 575/600 V at inside-delta circuit according to UL</li> <li>— usable for Standard Faults at 575/600 V at inside-delta circuit according to UL</li> </ul>	<p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I<sub>q</sub> = 5 kA</p> <p>Siemens type: 3RV2742, max. 30 A or 3VA51, max. 35 A; I<sub>q</sub> max = 65 kA</p> <p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I<sub>q</sub> = 5 kA</p> <p>Siemens type: 3RV2742, max. 30 A or 3VA51, max. 35 A; I<sub>q</sub> max = 65 kA</p> <p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I<sub>q</sub> = 5 kA</p>
<ul style="list-style-type: none"> <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>Type: Class RK5 / K5, max. 50 A; I<sub>q</sub> = 5 kA</p> <p>Type: Class J / L, max. 50 A; I<sub>q</sub> = 100 kA</p> <p>Type: Class RK5 / K5, max. 50 A; I<sub>q</sub> = 5 kA</p> <p>Type: Class J / L, max. 50 A; I<sub>q</sub> = 100 kA</p>
<p><b>operating power [hp] for three-phase motors</b></p> <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>2 hp</p> <p>3 hp</p> <p>7.5 hp</p> <p>10 hp</p> <p>5 hp</p> <p>5 hp</p> <p>10 hp</p> <p>15 hp</p>
<p><b>contact rating of auxiliary contacts according to UL</b></p>	<p>R300-B300</p>
<b>Safety related data</b>	
<p><b>electromagnetic compatibility</b></p>	<p>acc. to IEC 60947-4-2</p>
<b>ATEX</b>	
<p><b>certificate of suitability</b></p> <ul style="list-style-type: none"> <li>• ATEX</li> <li>• IECEX</li> <li>• according to ATEX directive 2014/34/EU</li> </ul>	<p>Yes</p> <p>Yes</p> <p>BVS 18 ATEX F 003 X</p>
<p><b>type of protection according to ATEX directive 2014/34/EU</b></p>	<p>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]</p>



hardware fault tolerance acc. to IEC 61508 relating to ATEX	0
Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX	SIL1

Certificates/ approvals

General Product Approval	EMC	For use in hazardous locations
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For use in hazardous locations	Declaration of Conformity	Test Certificates	Marine / Shipping
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[Type Test Certificates/Test Report](#)



Marine / Shipping	other
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[Confirmation](#)

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=3RW5513-3HA15>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5513-3HA15>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5513-3HA15>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5513-3HA15&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5513-3HA15&lang=en)

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

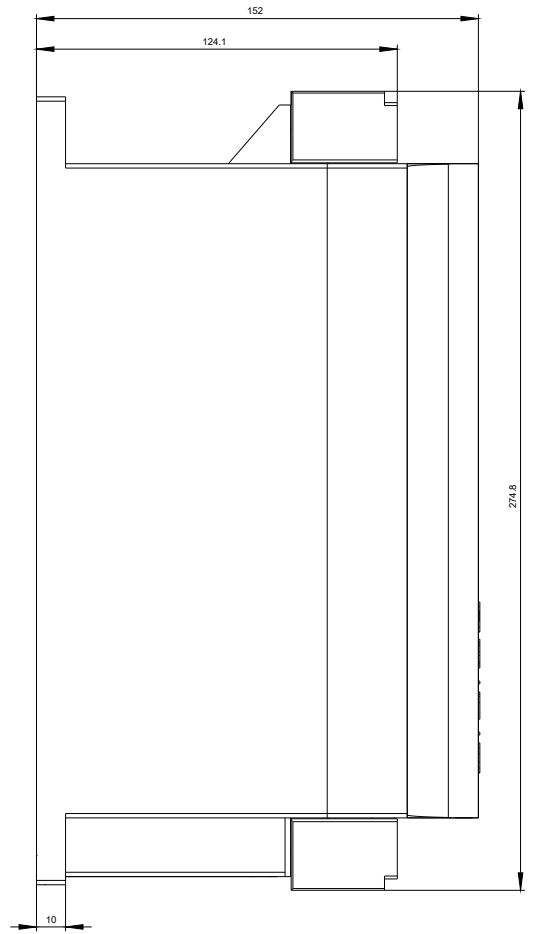
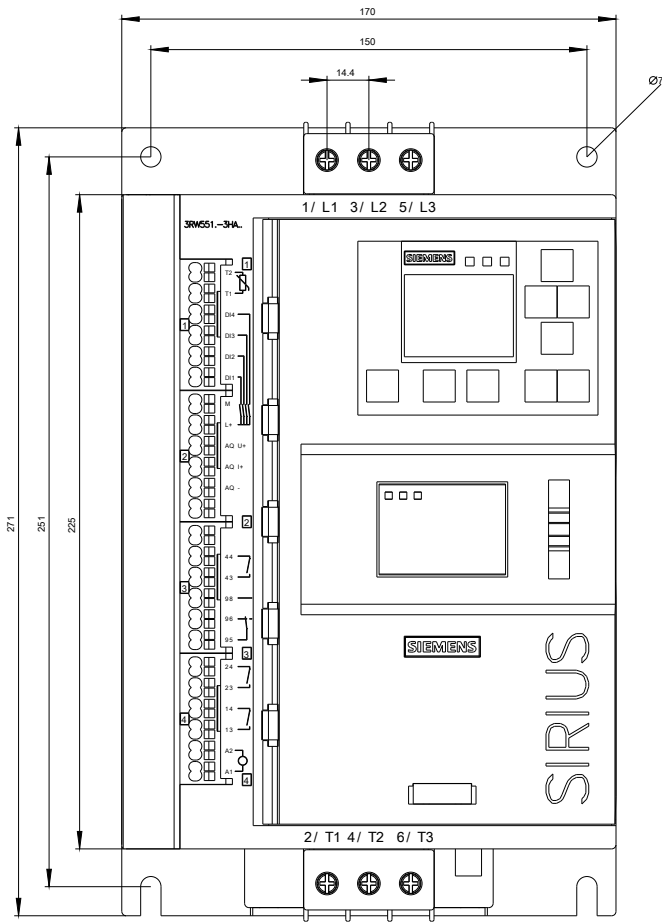
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5513-3HA15/char>

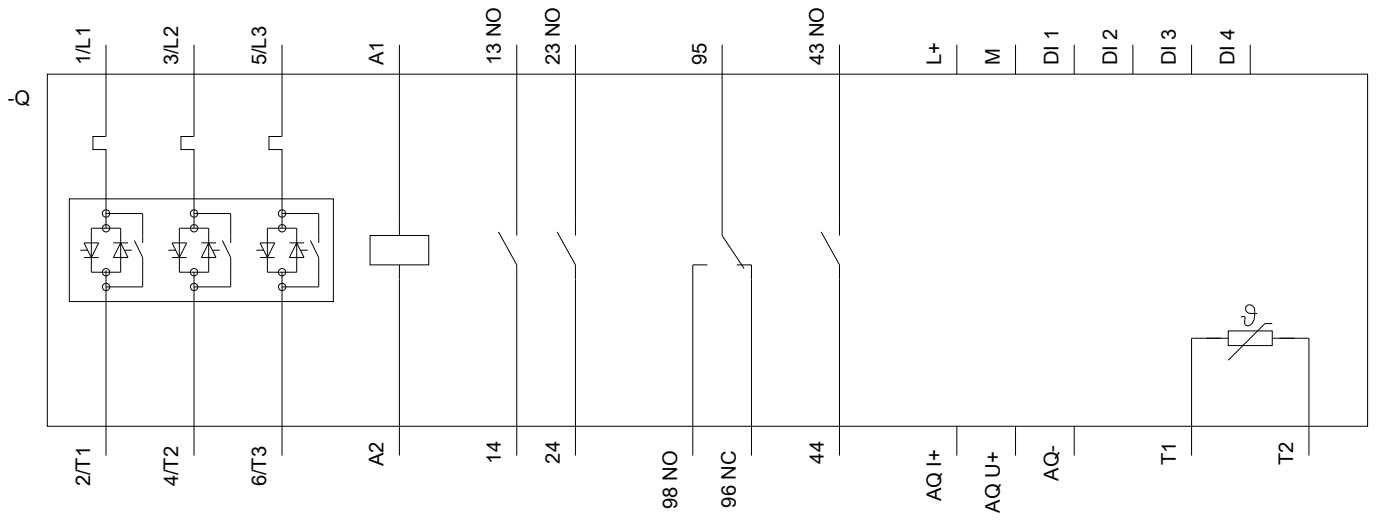
**Characteristic: Installation altitude**

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5513-3HA15&objecttype=14&gridview=view1>

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

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





**last modified:**

09/21/2020