

SIRIUS soft starter 200-690 V 77 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 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="#">3VA2110-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 500 V <a href="#">3VA2110-7MN32-0AA0; Type of coordination 1, Iq = 20 kA, CLASS 10</a></li> <li>• of circuit breaker usable at 400 V at inside-delta circuit <a href="#">3VA2216-7MN32-0AA0; 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

[3VA2216-7MN32-0AA0; Type of coordination 1, I<sub>q</sub> = 65 kA, CLASS 10](#)

[3NA3132-6; Type of coordination 1, I<sub>q</sub> = 65 kA](#)

[3NA3132-6; Type of coordination 1, I<sub>q</sub> = 65 kA](#)

[3NE1224-0; Type of coordination 2, I<sub>q</sub> = 65 kA](#)

[3NE3227; 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>Insulation voltage</b>	
• rated value	690 V
<b>Degree of pollution</b>	3, acc. to IEC 60947-4-2
<b>Impulse voltage rated value</b>	8 kV
<b>Blocking voltage of the thyristor maximum</b>	1 800 V
<b>Service factor</b>	1.15
<b>Surge voltage resistance rated value</b>	8 kV
<b>maximum permissible voltage for safe isolation</b>	

• between main and auxiliary circuit	690 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)
• Evaluation of thermistor motor protection	Yes; Type A PTC or Klixon / Thermoclick
• inside-delta circuit	Yes; Only up to 600 V operating voltage
• 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	77 A
• at 40 °C rated value minimum	16 A
• at 50 °C rated value	68 A
• at 60 °C rated value	62 A
<b>Operating current at inside-delta circuit</b>	
• at 40 °C rated value	133 A
• at 50 °C rated value	118 A
• at 60 °C rated value	107 A
<b>Operating voltage</b>	
• rated value	200 ... 690 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	22 kW
• at 230 V at inside-delta circuit at 40 °C rated value	37 kW
• at 400 V at 40 °C rated value	37 kW
• at 400 V at inside-delta circuit at 40 °C rated value	75 kW
• at 500 V at 40 °C rated value	45 kW
• at 500 V at inside-delta circuit at 40 °C rated value	90 kW
• at 690 V at 40 °C rated value	75 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 to power-up	23 W
• at 50 °C to power-up	20 W
• at 60 °C to power-up	19 W
<b>Power loss [W] at AC at AC</b>	
• at 40 °C during startup	1 083 W
• at 50 °C during startup	921 W
• at 60 °C during startup	814 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>	180 mA
<b>Starting current at close of by-pass contact maximum</b>	0.8 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

<ul style="list-style-type: none"> <li>• parameterizable</li> </ul>	3
<ul style="list-style-type: none"> <li>• not parameterizable</li> </ul>	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>	
<ul style="list-style-type: none"> <li>• at AC-15 at 250 V rated value</li> </ul>	3 A
<ul style="list-style-type: none"> <li>• at DC-13 at 24 V rated value</li> </ul>	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>	306 mm
<b>Width</b>	185 mm
<b>Depth</b>	203 mm
<b>Required spacing with side-by-side mounting</b>	
<ul style="list-style-type: none"> <li>• forwards</li> </ul>	10 mm
<ul style="list-style-type: none"> <li>• Backwards</li> </ul>	0 mm
<ul style="list-style-type: none"> <li>• upwards</li> </ul>	100 mm
<ul style="list-style-type: none"> <li>• downwards</li> </ul>	75 mm
<ul style="list-style-type: none"> <li>• at the side</li> </ul>	5 mm
<b>Installation altitude at height above sea level maximum</b>	2 000 m; Derating as of 1000 m, see catalog
<b>Weight without packaging</b>	7.15 kg

### Connections/ Terminals

<b>Type of electrical connection</b>	
<ul style="list-style-type: none"> <li>• for main current circuit</li> </ul>	box terminal
<ul style="list-style-type: none"> <li>• for control circuit</li> </ul>	spring-loaded terminals
<b>Width of connection bar maximum</b>	25 mm
<b>Type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using the front clamping point solid</li> </ul>	1x (2.5 ... 16 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using the front clamping point finely stranded with core end processing</li> </ul>	1x (2.5 ... 50 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using the front clamping point stranded</li> </ul>	1x (10 ... 70 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• at AWG conductors for main contacts for box terminal using the front clamping point</li> </ul>	1x (10 ... 2/0)
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using the back clamping point solid</li> </ul>	1x (2.5 ... 16 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• at AWG conductors for main contacts for box terminal using the back clamping point</li> </ul>	1x (10 ... 2/0)

<ul style="list-style-type: none"> <li>• for main contacts for box terminal using both clamping points solid</li> </ul>	2x (2.5 ... 16 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using both clamping points finely stranded with core end processing</li> </ul>	2x (2.5 ... 35 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using both clamping points stranded</li> </ul>	2x (6 ... 16 mm <sup>2</sup> ), 2x (10 ... 50 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using the back clamping point finely stranded with core end processing</li> </ul>	1x (2.5 ... 50 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for main contacts for box terminal using the back clamping point stranded</li> </ul>	1x (10 ... 70 mm <sup>2</sup> )
<b>Type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• for control circuit solid</li> </ul>	2x (0.25 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• for control circuit finely stranded with core end processing</li> </ul>	2x (0.25 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>• at AWG conductors for control circuit solid</li> </ul>	2x (24 ... 16)
<ul style="list-style-type: none"> <li>• at AWG conductors for control circuit finely stranded with core end processing</li> </ul>	2x (24 ... 16)
<b>Wire length</b>	
<ul style="list-style-type: none"> <li>• between soft starter and motor maximum</li> </ul>	800 m
<ul style="list-style-type: none"> <li>• at the digital inputs at DC maximum</li> </ul>	1 000 m
<b>Tightening torque</b>	
<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	4.5 ... 6 N·m
<ul style="list-style-type: none"> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>	0.8 ... 1.2 N·m
<b>Tightening torque [lbf·in]</b>	
<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> </ul>	40 ... 53 lbf·in
<ul style="list-style-type: none"> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>	7 ... 10.3 lbf·in

## Ambient conditions

<b>Ambient temperature</b>	
<ul style="list-style-type: none"> <li>• during operation</li> </ul>	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above
<ul style="list-style-type: none"> <li>• during storage and transport</li> </ul>	-40 ... +80 °C
<b>Environmental category</b>	
<ul style="list-style-type: none"> <li>• during operation 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
<ul style="list-style-type: none"> <li>• during storage acc. to IEC 60721</li> </ul>	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
<ul style="list-style-type: none"> <li>• during transport acc. to IEC 60721</li> </ul>	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>	
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- PROFINET standard
- PROFINET high-feature
- EtherNet/IP
- Modbus RTU
- Modbus TCP
- PROFIBUS

Yes  
Yes  
Yes  
Yes  
Yes  
Yes

## UL/CSA ratings

### Manufacturer's article number

#### • of circuit breaker

— usable for Standard Faults at 460/480 V according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> = 10 kA

— usable for High Faults at 460/480 V according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> max = 65 kA

— usable for Standard Faults at 460/480 V at inside-delta circuit according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> = 10 kA

— usable for High Faults at 460/480 V at inside-delta circuit according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> max = 65 kA

— usable for Standard Faults at 575/600 V according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> = 10 kA

— usable for High Faults at 575/600 V at inside-delta circuit according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> max = 65 kA

— usable for Standard Faults at 575/600 V at inside-delta circuit according to UL

Siemens type: 3VA51, max. 125 A; I<sub>q</sub> = 10 kA

#### • of the fuse

— usable for Standard Faults up to 575/600 V according to UL

Type: Class RK5 / K5, max. 250 A; I<sub>q</sub> = 10 kA

— usable for High Faults up to 575/600 V according to UL

Type: Class J / L, max. 250 A; I<sub>q</sub> = 100 kA

— usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL

Type: Class RK5 / K5, max. 250 A; I<sub>q</sub> = 10 kA

— usable for High Faults at inside-delta circuit up to 575/600 V according to UL

Type: Class J / L, max. 250 A; I<sub>q</sub> = 100 kA

### Operating power [hp] for three-phase motors

• at 200/208 V at 50 °C rated value

20 hp

• at 220/230 V at 50 °C rated value

25 hp

• at 460/480 V at 50 °C rated value

50 hp

• at 575/600 V at 50 °C rated value

60 hp

• at 200/208 V at inside-delta circuit at 50 °C rated value

30 hp

• at 220/230 V at inside-delta circuit at 50 °C rated value

40 hp

• at 460/480 V at inside-delta circuit at 50 °C rated value

75 hp

- at 575/600 V at inside-delta circuit at 50 °C rated value

100 hp

Contact rating of auxiliary contacts according to UL

R300-B300

### Safety related data

Electromagnetic compatibility

acc. to IEC 60947-4-2

### ATEX

Certificate of suitability

- ATEX
- IECEx
- according to ATEX directive 2014/34/EU

Yes  
Yes  
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]

Hardware fault tolerance acc. to IEC 61508 relating to ATEX

0

PFDAvg with low demand rate acc. to IEC 61508 relating to ATEX

0.008

PFHD with high demand rate acc. to EN 62061 relating to ATEX

0.0000005 1/h

Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX

SIL1

T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX

3 y

### Certificates/ approvals

General Product Approval

EMC

For use in hazardous locations

Declaration of Conformity



CCC



RCM



ATEX



EG-Konf.

[Miscellaneous](#)

Test Certificates

Marine / Shipping

other

[Type Test Certificates/Test Report](#)



ABS

[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=3RW5526-3HA16>

**Cax online generator**

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5526-3HA16>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5526-3HA16>

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

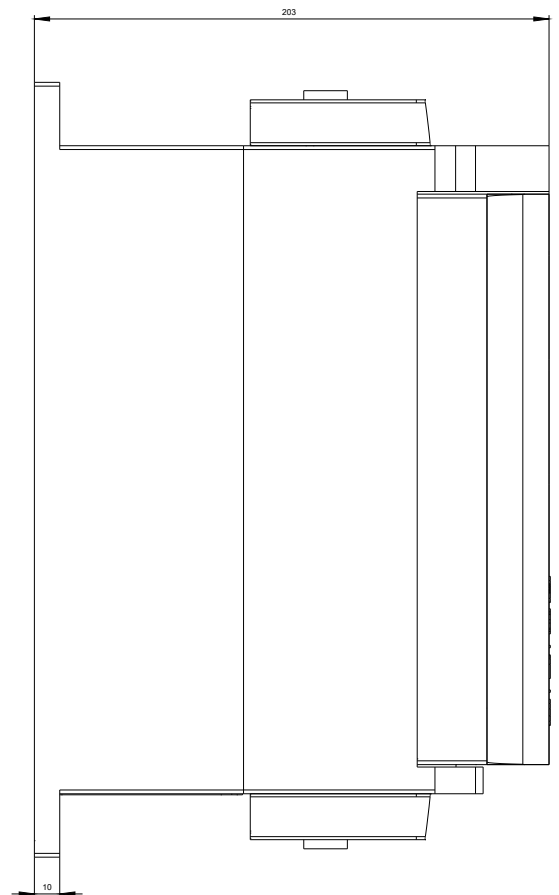
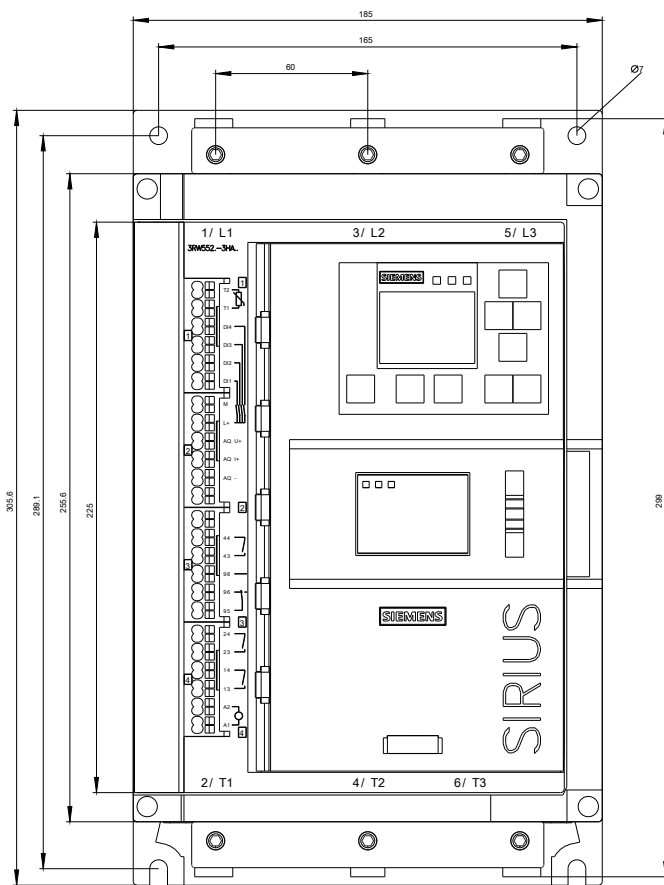
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5526-3HA16&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5526-3HA16&lang=en)

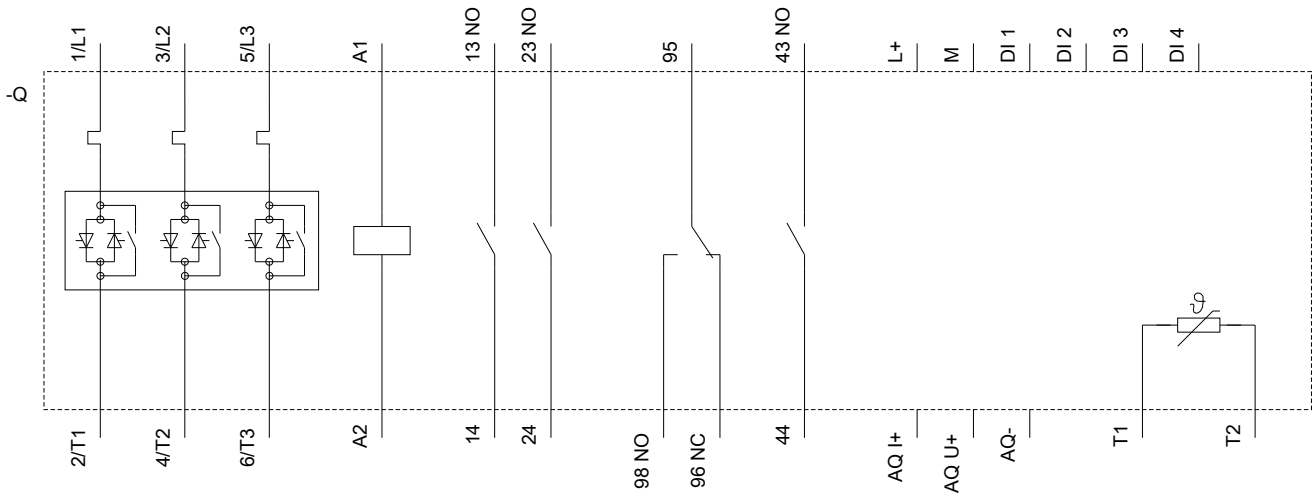
**Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current**

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5526-3HA16/char>

**Characteristic: Installation altitude**

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5526-3HA16&objecttype=14&gridview=view1>





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