

SIRIUS soft starter 200-690 V 315 A, 110-250 V AC Screw 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"> • of HMI-Modul high-feature usable 3RW5980-0HF00 • of communication module PROFINET standard usable 3RW5980-0CS00 • of communication module PROFINET high-feature usable 3RW5950-0CH00 • of communication module PROFIBUS usable 3RW5980-0CP00 • of communication module Modbus TCP usable 3RW5980-0CT00 • of communication module Modbus RTU usable 3RW5980-0CR00 • of communication module Ethernet/IP 3RW5980-0CE00 • of circuit breaker usable at 400 V 3VA2440-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of circuit breaker usable at 500 V 3VA2440-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of circuit breaker usable at 400 V at inside-delta circuit 3VA2580-6HN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10

- 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

[3VA2580-6HN32-0AA0; Type of coordination 1, I_q = 65 kA, CLASS 10](#)

2x3NA3365-6; Type of coordination 1, I_q = 65 kA

2x3NA3365-6; Type of coordination 1, I_q = 65 kA

[3NE1334-2; Type of coordination 2, I_q = 65 kA](#)

General technical data

Starting voltage [%]	20 ... 100 %
Stopping voltage [%]	50 ... 50 %
Start-up ramp time of soft starter	0 ... 360 s
Stopping time of soft starter	0 ... 360 s
Start torque [%]	10 ... 100 %
Stopping torque [%]	10 ... 100 %
Torque limit [%]	20 ... 200 %
Current limiting value [%] adjustable	125 ... 800 %
Breakaway voltage [%] adjustable	40 ... 100 %
Breakaway time adjustable	0 ... 2 s
Number of parameter sets	3
Accuracy class acc. to IEC 61557-12	5 %
Certificate of suitability	
• CE marking	Yes
• UL approval	Yes
• CSA-approval	Yes
Product component	
• HMI-High Feature	Yes
• is supported HMI-High Feature	Yes
Product feature integrated bypass contact system	Yes
Number of controlled phases	3
Trip class	CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2
Current unbalance limiting value [%]	10 ... 60 %
Ground-fault monitoring limiting value [%]	10 ... 95 %
Recovery time after overload trip adjustable	60 ... 1 800 s
Insulation voltage	
• rated value	690 V
Degree of pollution	3, acc. to IEC 60947-4-2
Impulse voltage rated value	8 kV
Blocking voltage of the thyristor maximum	1 800 V
Service factor	1.15
Surge voltage resistance rated value	8 kV
maximum permissible voltage for safe isolation	
• between main and auxiliary circuit	690 V; does not apply for thermistor connection
Protection class IP	IP00

Usage category acc. to IEC 60947-4-2	AC 53a
Shock resistance	15 g / 11 ms, from 6 g / 11 ms with potential contact lifting
Vibration resistance	15 mm up to 6 Hz; 2 g up to 500 Hz
Reference code acc. to DIN EN 81346-2	Q
Product function	
<ul style="list-style-type: none"> • ramp-up (soft starting) • ramp-down (soft stop) • breakaway pulse • Adjustable current limitation • creep speed in both directions of rotation • pump ramp down • DC braking • motor heating • slave pointer function • trace function • Intrinsic device protection • motor overload protection • Evaluation of thermistor motor protection • inside-delta circuit • Auto-reset • Manual RESET • remote reset • communication function • operating measured value display • event list • error logbook • via software parameterizable • via software configurable • screw terminal • spring-type terminal • PROFinergy • firmware update • removable terminal for control circuit • voltage ramp • torque control • combined braking • analog output • programmable control inputs/outputs • condition monitoring • automatic parameterisation 	<ul style="list-style-type: none"> Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) Yes; Type A PTC or Klixon / Thermoclick Yes; Only up to 600 V operating voltage Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules Yes Yes Yes Yes Yes Yes; 4 ... 20 mA (default) / 0 ... 10 V Yes Yes Yes

• application wizards	Yes
• alternative run-down	Yes
• emergency operation mode	Yes
• reversing operation	Yes
• soft starting at heavy starting conditions	Yes

Power Electronics

Operating current	
• at 40 °C rated value	315 A
• at 40 °C rated value minimum	63 A
• at 50 °C rated value	279 A
• at 60 °C rated value	255 A
Operating current at inside-delta circuit	
• at 40 °C rated value	546 A
• at 50 °C rated value	483 A
• at 60 °C rated value	442 A
Operating voltage	
• rated value	200 ... 690 V
• at inside-delta circuit rated value	200 ... 600 V
Relative negative tolerance of the operating voltage	-15 %
Relative positive tolerance of the operating voltage	10 %
Relative negative tolerance of the operating voltage at inside-delta circuit	-15 %
Relative positive tolerance of the operating voltage at inside-delta circuit	10 %
Operating power for three-phase motors	
• at 230 V at 40 °C rated value	90 kW
• at 230 V at inside-delta circuit at 40 °C rated value	160 kW
• at 400 V at 40 °C rated value	160 kW
• at 400 V at inside-delta circuit at 40 °C rated value	315 kW
• at 500 V at 40 °C rated value	200 kW
• at 500 V at inside-delta circuit at 40 °C rated value	355 kW
• at 690 V at 40 °C rated value	315 kW
Operating frequency 1 rated value	50 Hz
Operating frequency 2 rated value	60 Hz
Relative negative tolerance of the operating frequency	-10 %
Relative positive tolerance of the operating frequency	10 %
Minimum load [%]	10 %; Relative to set I _e
Power loss [W] for rated value of the current at AC	
• at 40 °C to power-up	95 W

<ul style="list-style-type: none"> • at 50 °C to power-up • at 60 °C to power-up 	84 W 77 W
Power loss [W] at AC at AC	
<ul style="list-style-type: none"> • at 40 °C during startup • at 50 °C during startup • at 60 °C during startup 	4 966 W 4 153 W 3 646 W
Type of the motor protection	Electronic, tripping in the event of thermal overload of the motor

Control circuit/ Control	
Type of voltage of the control supply voltage	AC
Control supply voltage at AC	
<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	110 ... 250 V 110 ... 250 V
Relative negative tolerance of the control supply voltage at AC at 50 Hz	-15 %
Relative positive tolerance of the control supply voltage at AC at 50 Hz	10 %
Relative negative tolerance of the control supply voltage at AC at 60 Hz	-15 %
Relative positive tolerance of the control supply voltage at AC at 60 Hz	10 %
Control supply voltage frequency	50 ... 60 Hz
Relative negative tolerance of the control supply voltage frequency	-10 %
Relative positive tolerance of the control supply voltage frequency	10 %
Control supply current in standby mode rated value	100 mA
Holding current in the by-pass mode operating rated value	150 mA
Starting current at close of by-pass contact maximum	0.87 A
Inrush current peak at connect of control supply voltage maximum	43 A
Duration of inrush current peak at connect of control supply voltage	1.6 ms
Design of the overvoltage protection	Varistor
Design of short-circuit protection for control circuit	4 A gG fuse (I _{cu} =1 kA), 6 A quick-acting fuse (I _{cu} =1 kA), C1 miniature circuit breaker (I _{cu} = 600 A), C6 miniature circuit breaker (I _{cu} = 300 A); Is not part of scope of supply

Inputs/ Outputs	
Number of digital inputs	4
<ul style="list-style-type: none"> • parameterizable 	4
Number of inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
Number of digital outputs	4
<ul style="list-style-type: none"> • parameterizable • not parameterizable 	3 1

Digital output version	3 normally-open contacts (NO) / 1 changeover contact (CO)
Number of analog outputs	1
Switching capacity current of the relay outputs	
• at AC-15 at 250 V rated value	3 A
• at DC-13 at 24 V rated value	1 A

Installation/ mounting/ dimensions

Mounting position	Vertical (can be rotated +/- 90° and tilted forward or backward +/- 22.5°)
Mounting type	screw fixing
Height	393 mm
Width	210 mm
Depth	203 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
Installation altitude at height above sea level maximum	2 000 m; Derating as of 1000 m, see catalog
Weight without packaging	10.2 kg

Connections/ Terminals

Type of electrical connection	
• for main current circuit	busbar connection
• for control circuit	screw-type terminals
Width of connection bar maximum	45 mm
Type of connectable conductor cross-sections	
• for DIN cable lug for main contacts stranded	2x (50 ... 240 mm ²)
• for DIN cable lug for main contacts finely stranded	2x (70 ... 240 mm ²)
Type of connectable conductor cross-sections	
• for control circuit solid	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
• for control circuit finely stranded with core end processing	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
• at AWG conductors for control circuit solid	1x (20 ... 12), 2x (20 ... 14)
Wire length	
• between soft starter and motor maximum	800 m
• at the digital inputs at DC maximum	1 000 m
Tightening torque	
• for main contacts with screw-type terminals	14 ... 24 N·m
• for auxiliary and control contacts with screw-type terminals	0.8 ... 1.2 N·m

Tightening torque [lbf-in]	
<ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals 	<p>124 ... 210 lbf-in</p> <p>7 ... 10.3 lbf-in</p>

Ambient conditions

Ambient temperature	
<ul style="list-style-type: none"> • during operation • during storage and transport 	<p>-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above</p> <p>-40 ... +80 °C</p>
Environmental category	
<ul style="list-style-type: none"> • during operation acc. to IEC 60721 • during storage acc. to IEC 60721 • during transport acc. to IEC 60721 	<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>
EMC emitted interference	acc. to IEC 60947-4-2: Class A

Communication/ Protocol

Communication module is supported	
<ul style="list-style-type: none"> • PROFINET standard • PROFINET high-feature • EtherNet/IP • Modbus RTU • Modbus TCP • PROFIBUS 	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>

UL/CSA ratings

Manufacturer's article number	
<ul style="list-style-type: none"> • of circuit breaker <ul style="list-style-type: none"> — usable for Standard Faults at 460/480 V according to UL — usable for High Faults at 460/480 V according to UL — usable for Standard Faults at 460/480 V at inside-delta circuit according to UL — usable for High Faults at 460/480 V at inside-delta circuit according to UL — usable for Standard Faults at 575/600 V according to UL — usable for High Faults at 575/600 V at inside-delta circuit according to UL — usable for Standard Faults at 575/600 V at inside-delta circuit according to UL • of the fuse 	<p>Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; Iq = 18 kA</p> <p>Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; Iq max = 65 kA</p> <p>Siemens type: 3VA54, max. 600 A; Iq = 18 kA</p> <p>Siemens type: 3VA54, max. 600 A; Iq max = 65 kA</p> <p>Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; Iq = 18 kA</p> <p>Siemens type: 3VA54, max. 600 A; Iq max = 65 kA</p> <p>Siemens type: 3VA54, max. 600 A; Iq = 18 kA</p>

— usable for Standard Faults up to 575/600 V according to UL	Type: Class J / L, max. 1000 A; I _q = 18 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J / L, max. 1000 A; I _q = 100 kA
— usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL	Type: Class J / L, max. 1000 A; I _q = 18 kA
— usable for High Faults at inside-delta circuit up to 575/600 V according to UL	Type: Class J / L, max. 1000 A; I _q = 100 kA
Operating power [hp] for three-phase motors	
• at 200/208 V at 50 °C rated value	75 hp
• at 220/230 V at 50 °C rated value	100 hp
• at 460/480 V at 50 °C rated value	200 hp
• at 575/600 V at 50 °C rated value	250 hp
• at 200/208 V at inside-delta circuit at 50 °C rated value	150 hp
• at 220/230 V at inside-delta circuit at 50 °C rated value	200 hp
• at 460/480 V at inside-delta circuit at 50 °C rated value	400 hp
• at 575/600 V at inside-delta circuit at 50 °C rated value	500 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	Yes
• IECEx	Yes
• according to ATEX directive 2014/34/EU	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
PFDA_{avg} 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
--------------------------	-----	--------------------------------	---------------------------



[Miscellaneous](#)

Test Certificates	Marine / Shipping	other
-------------------	-------------------	-------

[Type Test Certificates/Test Report](#)



[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=3RW5545-6HA16>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5545-6HA16>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5545-6HA16>

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

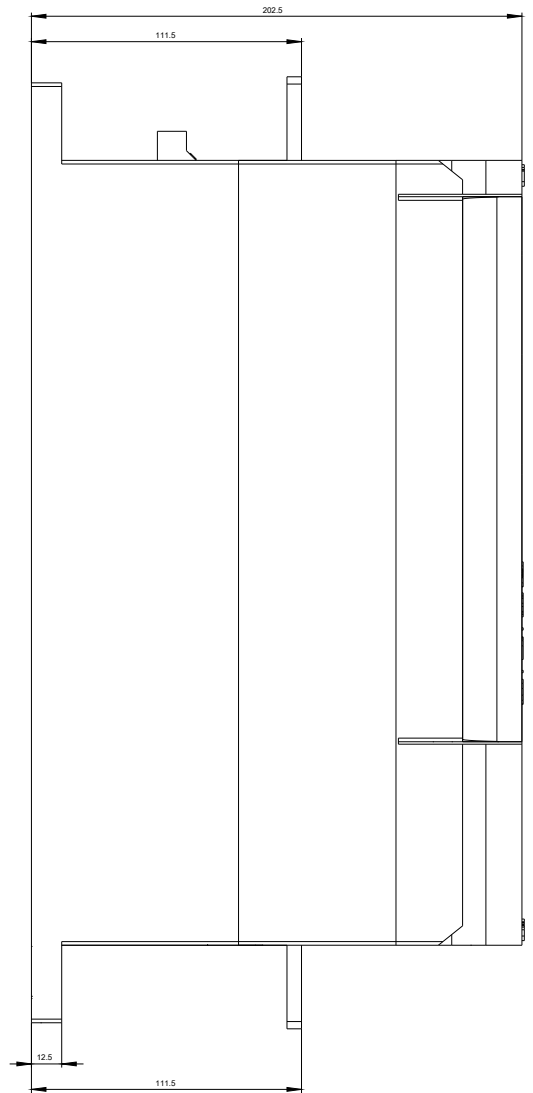
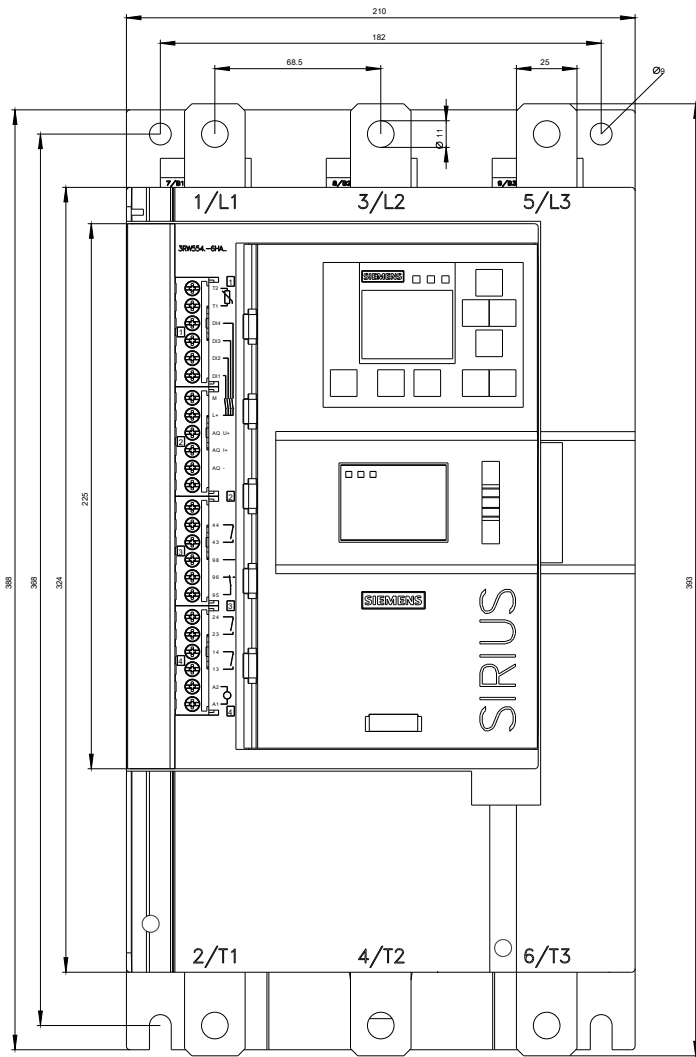
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5545-6HA16&lang=en

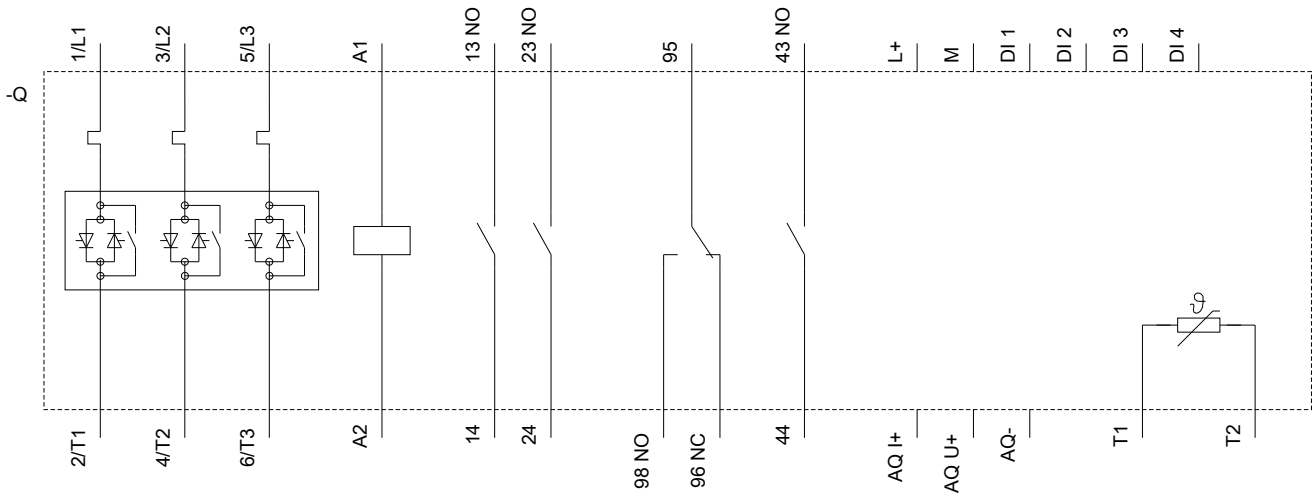
Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5545-6HA16/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5545-6HA16&objecttype=14&gridview=view1>





last modified:

02/19/2020