

SIRIUS soft starter 200-480 V 13 A, 24 V AC/DC 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 3RV2032-4TA10; Type of coordination 1, I_q = 65 kA, CLASS 10 • of circuit breaker usable at 500 V 3RV2032-4TA10; Type of coordination 1, I_q = 18 kA, CLASS 10 • of circuit breaker usable at 400 V at inside-delta circuit 3RV2032-4DA10; Type of coordination 1, I_q = 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
- of back-up R fuse link for semiconductor protection usable up to 690 V

[3RV2032-4DA10; Type of coordination 1, I_q = 18 kA, CLASS 10](#)

[3NA3820-6; Type of coordination 1, I_q = 65 kA](#)

[3NA3820-6; Type of coordination 1, I_q = 65 kA](#)

[3NE1815-0; Type of coordination 2, I_q = 65 kA](#)

[3NE8017-1; 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
Buffering time in the event of power failure	
• for main current circuit	100 ms
• for control circuit	100 ms
Idle time adjustable	0 ... 255 s
Insulation voltage	
• rated value	480 V
Degree of pollution	3, acc. to IEC 60947-4-2
Impulse voltage rated value	6 kV

Blocking voltage of the thyristor maximum	1 600 V
Service factor	1.15
Surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
• between main and auxiliary circuit	480 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	
• 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	Yes
• spring-type terminal	No
• 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

Operating current	
• 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
Operating current at inside-delta circuit	
• at 40 °C rated value	22.5 A
• at 50 °C rated value	19.9 A
• at 60 °C rated value	18.2 A
Operating voltage	
• rated value	200 ... 480 V
• at inside-delta circuit rated value	200 ... 480 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	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
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	4 W
• at 50 °C to power-up	3 W
• at 60 °C to power-up	3 W
Power loss [W] at AC at AC	
• at 40 °C during startup	198 W
• at 50 °C during startup	166 W
• at 60 °C during startup	148 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/DC
Control supply voltage at AC	
• at 50 Hz rated value	24 V
• at 60 Hz rated value	24 V
Relative negative tolerance of the control supply voltage at AC at 50 Hz	-20 %
Relative positive tolerance of the control supply voltage at AC at 50 Hz	20 %
Relative negative tolerance of the control supply voltage at AC at 60 Hz	-20 %
Relative positive tolerance of the control supply voltage at AC at 60 Hz	20 %
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 voltage	
• at DC rated value	24 V
Relative negative tolerance of the control supply voltage at DC	-20 %
Relative positive tolerance of the control supply voltage at DC	20 %
Control supply current in standby mode rated value	420 mA
Holding current in the by-pass mode operating rated value	820 mA
Starting current at close of by-pass contact maximum	0.91 A
Inrush current peak at connect of control supply voltage maximum	7.5 A

Duration of inrush current peak at connect of control supply voltage	20 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
• parameterizable	4
Number of inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
Number of digital outputs	4
• parameterizable	3
• not parameterizable	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	275 mm
Width	170 mm
Depth	152 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	5 000 m; Derating as of 1000 m, see catalog
Weight without packaging	2.3 kg

Connections/ Terminals

Type of electrical connection	
• for main current circuit	screw-type terminals
• for control circuit	screw-type terminals
Type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (1.0 ... 2.5 mm ²), 2x (2.5 ... 10 mm ²)
— finely stranded with core end processing	2x (1.0 ... 2.5 mm ²), 2x (2.5 ... 6.0 mm ²)

<ul style="list-style-type: none"> • at AWG conductors for main current circuit solid 	2x (16 ... 12), 2x (14 ... 8)
Type of connectable conductor cross-sections <ul style="list-style-type: none"> • for control circuit solid • for control circuit finely stranded with core end processing • at AWG conductors for control circuit solid 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²) 1x (20 ... 12), 2x (20 ... 14)
Wire length <ul style="list-style-type: none"> • between soft starter and motor maximum • at the digital inputs at DC maximum 	800 m 1 000 m
Tightening torque <ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals 	2 ... 2.5 N·m 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 	18 ... 22 lbf·in 7 ... 10.3 lbf·in
Ambient conditions	
Ambient temperature <ul style="list-style-type: none"> • during operation • during storage and transport 	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above -40 ... +80 °C
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 	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
Communication/ Protocol	
Communication module is supported <ul style="list-style-type: none"> • 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 <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 	<p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I_q = 5 kA</p> <p>Siemens type: 3RV2742, max. 30 A or 3VA51, max. 35 A; I_q max = 65 kA</p> <p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I_q = 5 kA</p> <p>Siemens type: 3RV2742, max. 30 A or 3VA51, max. 35 A; I_q max = 65 kA</p> <p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I_q = 5 kA</p> <p>Siemens type: 3RV2742, max. 30 A or 3VA51, max. 35 A; I_q max = 65 kA</p> <p>Siemens type: 3RV2742, max. 40 A or 3VA51, max. 40 A; I_q = 5 kA</p>
<ul style="list-style-type: none"> • of the fuse <ul style="list-style-type: none"> — usable for Standard Faults up to 575/600 V according to UL — usable for High Faults up to 575/600 V according to UL — usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL — usable for High Faults at inside-delta circuit up to 575/600 V according to UL 	<p>Type: Class RK5 / K5, max. 50 A; I_q = 5 kA</p> <p>Type: Class J / L, max. 50 A; I_q = 100 kA</p> <p>Type: Class RK5 / K5, max. 50 A; I_q = 5 kA</p> <p>Type: Class J / L, max. 50 A; I_q = 100 kA</p>
<p>Operating power [hp] for three-phase motors</p> <ul style="list-style-type: none"> • at 200/208 V at 50 °C rated value • at 220/230 V at 50 °C rated value • at 460/480 V at 50 °C rated value • at 200/208 V at inside-delta circuit at 50 °C rated value • at 220/230 V at inside-delta circuit at 50 °C rated value • at 460/480 V at inside-delta circuit at 50 °C rated value 	<p>2 hp</p> <p>3 hp</p> <p>7.5 hp</p> <p>5 hp</p> <p>5 hp</p> <p>10 hp</p>
<p>Contact rating of auxiliary contacts according to UL</p>	<p>R300-B300</p>
Safety related data	
<p>Electromagnetic compatibility</p>	<p>acc. to IEC 60947-4-2</p>
ATEX	
<p>Certificate of suitability</p> <ul style="list-style-type: none"> • ATEX • IECEx • according to ATEX directive 2014/34/EU 	<p>Yes</p> <p>Yes</p> <p>BVS 18 ATEX F 003 X</p>
<p>Type of protection according to ATEX directive 2014/34/EU</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
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
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Declaration of Conformity	Test Certificates	Marine / Shipping
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[Miscellaneous](#)

[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=3RW5513-1HA04>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5513-1HA04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5513-1HA04>

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

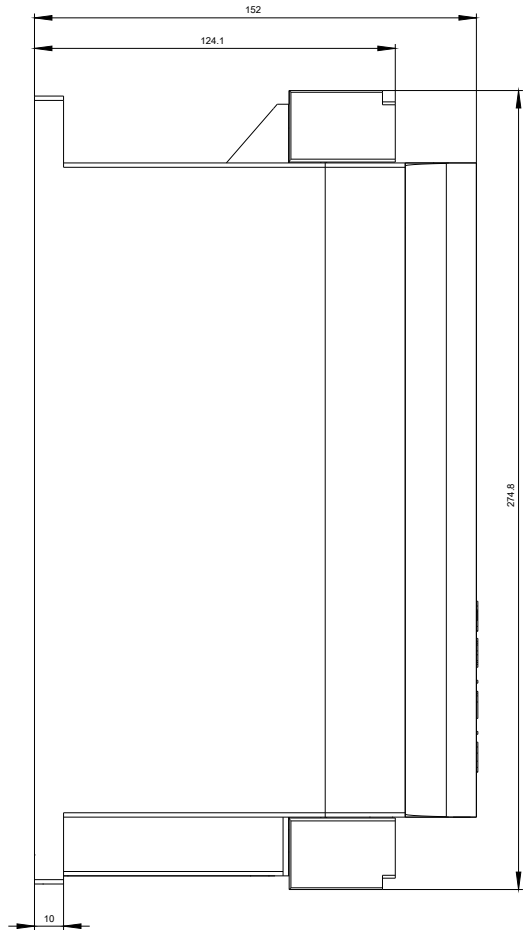
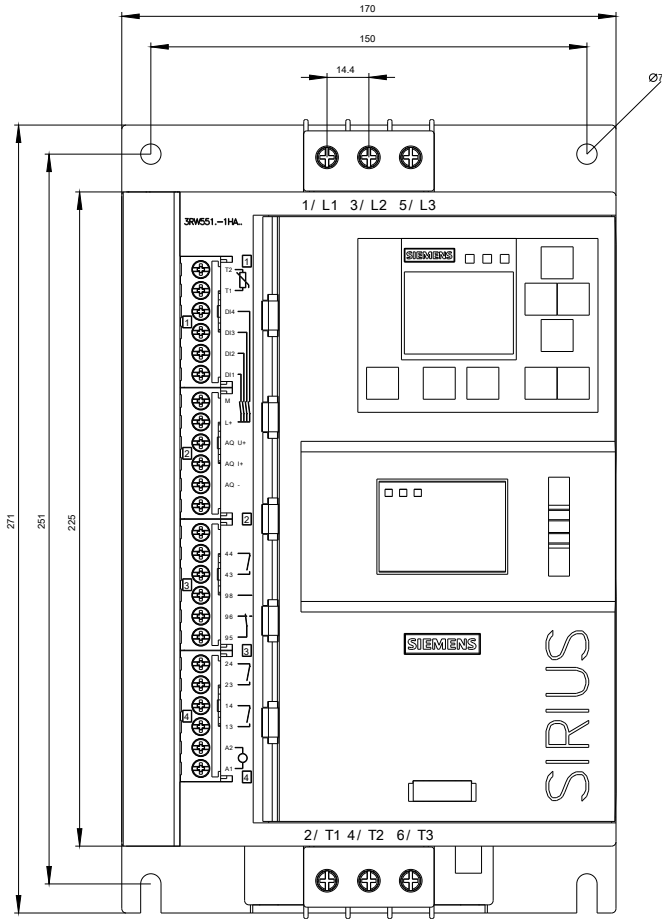
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5513-1HA04&lang=en

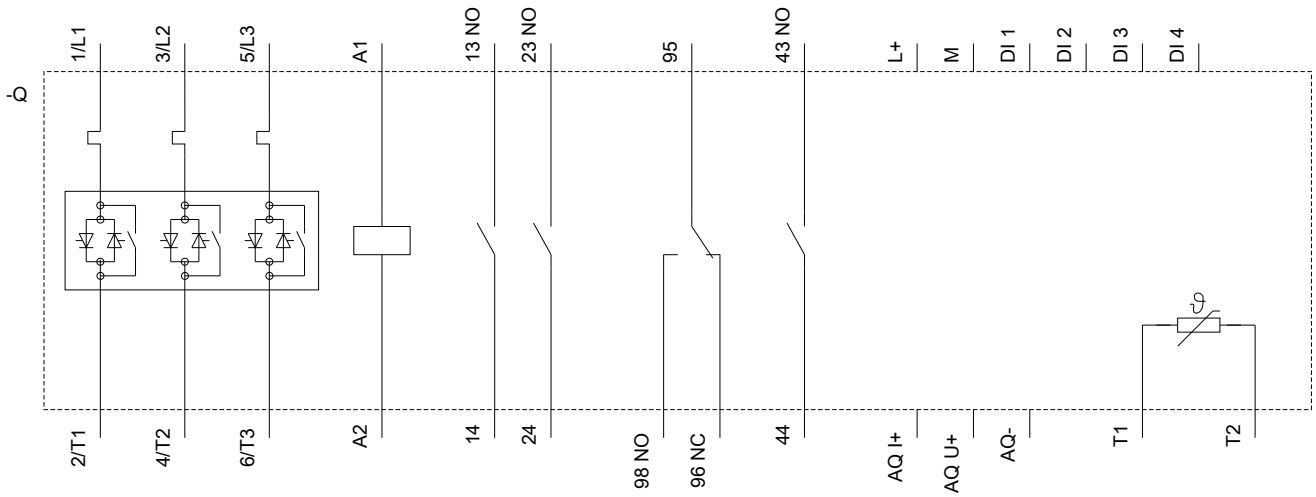
Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5513-1HA04/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5513-1HA04&objecttype=14&gridview=view1>





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