



SIRIUS soft starter 200-480 V 93 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 high feature HMI module 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 3VA2216-7MN32-0AA0; Type of coordination 1, Iq = 15 kA, CLASS 10 • of circuit breaker usable at 500 V 3VA2216-7MN32-0AA0; Type of coordination 1, Iq = 10 kA, CLASS 10 • of circuit breaker usable at 400 V at inside-delta circuit 3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 15 kA, CLASS 10 • of circuit breaker usable at 500 V at inside-delta circuit 3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 10 kA, CLASS 10 • of the gG fuse usable up to 690 V 3NA3136-6; Type of coordination 1, Iq = 65 kA • of the gG fuse usable at inside-delta circuit up to 500 V 3NA3136-6; Type of coordination 1, Iq = 65 kA • of full range R fuse link for semiconductor protection usable up to 690 V 3NE1224-0; Type of coordination 2, Iq = 65 kA • of back-up R fuse link for semiconductor protection usable up to 690 V 3NE3227; Type of coordination 2, Iq = 65 kA
General technical data	
starting voltage [%]	20 ... 100 %
stopping voltage [%]	50 ... 50 %
start-up ramp time of soft starter	0 ... 360 s
ramp-down time of soft starter	0 ... 360 s
start torque [%]	10 ... 100 %
stopping torque [%]	10 ... 100 %
torque limitation [%]	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	1 400 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
utilization 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 IEC 81346-2	Q
Substance Prohibitance (Date)	15.02.2018 00:00:00
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

<ul style="list-style-type: none"> • spring-type terminal • PROFInergy 	No
	Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules
<ul style="list-style-type: none"> • firmware update 	Yes
<ul style="list-style-type: none"> • removable terminal for control circuit 	Yes
<ul style="list-style-type: none"> • voltage ramp 	Yes
<ul style="list-style-type: none"> • torque control 	Yes
<ul style="list-style-type: none"> • combined braking 	Yes
<ul style="list-style-type: none"> • analog output 	Yes; 4 ... 20 mA (default) / 0 ... 10 V
<ul style="list-style-type: none"> • programmable control inputs/outputs 	Yes
<ul style="list-style-type: none"> • condition monitoring 	Yes
<ul style="list-style-type: none"> • automatic parameterisation 	Yes
<ul style="list-style-type: none"> • application wizards 	Yes
<ul style="list-style-type: none"> • alternative run-down 	Yes
<ul style="list-style-type: none"> • emergency operation mode 	Yes
<ul style="list-style-type: none"> • reversing operation 	Yes
<ul style="list-style-type: none"> • soft starting at heavy starting conditions 	Yes
Power Electronics	
operational current	
<ul style="list-style-type: none"> • at 40 °C rated value 	93 A
<ul style="list-style-type: none"> • at 40 °C rated value minimum 	19 A
<ul style="list-style-type: none"> • at 50 °C rated value 	82.5 A
<ul style="list-style-type: none"> • at 60 °C rated value 	75.5 A
operational current at inside-delta circuit	
<ul style="list-style-type: none"> • at 40 °C rated value 	161 A
<ul style="list-style-type: none"> • at 50 °C rated value 	143 A
<ul style="list-style-type: none"> • at 60 °C rated value 	131 A
operating voltage	
<ul style="list-style-type: none"> • rated value 	200 ... 480 V
<ul style="list-style-type: none"> • 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 3-phase motors	
<ul style="list-style-type: none"> • at 230 V at 40 °C rated value 	22 kW
<ul style="list-style-type: none"> • at 230 V at inside-delta circuit at 40 °C rated value 	45 kW
<ul style="list-style-type: none"> • at 400 V at 40 °C rated value 	45 kW
<ul style="list-style-type: none"> • at 400 V at inside-delta circuit at 40 °C rated value 	90 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 le
power loss [W] for rated value of the current at AC	
<ul style="list-style-type: none"> • at 40 °C after startup 	28 W
<ul style="list-style-type: none"> • at 50 °C after startup 	25 W
<ul style="list-style-type: none"> • at 60 °C after startup 	23 W
power loss [W] at AC at current limitation 350 %	
<ul style="list-style-type: none"> • at 40 °C during startup 	1 258 W
<ul style="list-style-type: none"> • at 50 °C during startup 	1 065 W
<ul style="list-style-type: none"> • at 60 °C during startup 	948 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	
<ul style="list-style-type: none"> • at 50 Hz rated value 	24 V

<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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	440 mA
holding current in bypass operation rated value	870 mA
locked-rotor current at close of bypass contact maximum	6.3 A
inrush current peak at application of control supply voltage maximum	7.5 A
duration of inrush current peak at application 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
<ul style="list-style-type: none"> parameterizable 	4
number of inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
<ul style="list-style-type: none"> number of digital outputs 	4
<ul style="list-style-type: none"> number of digital outputs parameterizable 	3
<ul style="list-style-type: none"> number of digital outputs 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	
<ul style="list-style-type: none"> at AC-15 at 250 V rated value 	3 A
<ul style="list-style-type: none"> 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°)
fastening method	screw fixing
height	306 mm
width	185 mm
depth	203 mm
required spacing with side-by-side mounting	
<ul style="list-style-type: none"> forwards 	10 mm
<ul style="list-style-type: none"> backwards 	0 mm
<ul style="list-style-type: none"> upwards 	100 mm
<ul style="list-style-type: none"> downwards 	75 mm
<ul style="list-style-type: none"> at the side 	5 mm
weight without packaging	7.15 kg
Connections/ Terminals	
type of electrical connection	
<ul style="list-style-type: none"> for main current circuit 	box terminal
<ul style="list-style-type: none"> for control circuit 	screw-type terminals

width of connection bar maximum	25 mm
wire length for thermistor connection	
<ul style="list-style-type: none"> with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum 	50 m 150 m 250 m
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> for main contacts for box terminal using the front clamping point solid 	1x (2.5 ... 16 mm ²)
<ul style="list-style-type: none"> for main contacts for box terminal using the front clamping point finely stranded with core end processing 	1x (2.5 ... 50 mm ²)
<ul style="list-style-type: none"> for main contacts for box terminal using the front clamping point stranded 	1x (10 ... 70 mm ²)
<ul style="list-style-type: none"> at AWG cables for main contacts for box terminal using the front clamping point 	1x (10 ... 2/0)
<ul style="list-style-type: none"> for main contacts for box terminal using the back clamping point solid 	1x (2.5 ... 16 mm ²)
<ul style="list-style-type: none"> at AWG cables for main contacts for box terminal using the back clamping point 	1x (10 ... 2/0)
<ul style="list-style-type: none"> for main contacts for box terminal using both clamping points solid 	2x (2.5 ... 16 mm ²)
<ul style="list-style-type: none"> for main contacts for box terminal using both clamping points finely stranded with core end processing 	2x (2.5 ... 35 mm ²)
<ul style="list-style-type: none"> for main contacts for box terminal using both clamping points stranded 	2x (6 ... 16 mm ²), 2x (10 ... 50 mm ²)
<ul style="list-style-type: none"> for main contacts for box terminal using the back clamping point finely stranded with core end processing 	1x (2.5 ... 50 mm ²)
<ul style="list-style-type: none"> for main contacts for box terminal using the back clamping point stranded 	1x (10 ... 70 mm ²)
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> for control circuit solid 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
<ul style="list-style-type: none"> for control circuit finely stranded with core end processing 	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
<ul style="list-style-type: none"> at AWG cables for control circuit solid 	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 	4.5 ... 6 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 	40 ... 53 lbf·in 7 ... 10.3 lbf·in
Ambient conditions	
installation altitude at height above sea level maximum	5 000 m; Derating as of 1000 m, see catalog
ambient temperature	
<ul style="list-style-type: none"> during operation 	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above
<ul style="list-style-type: none"> during storage and transport 	-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 	Yes

<ul style="list-style-type: none"> • 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>
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 <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>Siemens type: 3VA51, max. 125 A; I_q = 10 kA</p> <p>Siemens type: 3VA51, max. 125 A; I_q max = 65 kA</p> <p>Siemens type: 3VA51, max. 125 A; I_q = 10 kA</p> <p>Siemens type: 3VA51, max. 125 A; I_q max = 65 kA</p> <p>Siemens type: 3VA51, max. 125 A; I_q = 10 kA</p> <p>Siemens type: 3VA51, max. 125 A; I_q max = 65 kA</p> <p>Siemens type: 3VA51, max. 125 A; I_q = 10 kA</p> <p>Type: Class RK5 / K5, max. 300 A; I_q = 10 kA</p> <p>Type: Class J / L, max. 250 A; I_q = 100 kA</p> <p>Type: Class RK5 / K5, max. 300 A; I_q = 10 kA</p> <p>Type: Class J / L, max. 250 A; I_q = 100 kA</p>
operating power [hp] for 3-phase motors	
<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>25 hp</p> <p>30 hp</p> <p>60 hp</p> <p>40 hp</p> <p>50 hp</p> <p>100 hp</p>
contact rating of auxiliary contacts according to UL	R300-B300
Safety related data	
protection class IP on the front acc. to IEC 60529	IP00; IP20 with cover
touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front with cover
electromagnetic compatibility	acc. to IEC 60947-4-2
ATEX	
certificate of suitability	
<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>
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
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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=3RW5527-1HA04>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5527-1HA04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5527-1HA04>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5527-1HA04&lang=en

Characteristic: Tripping characteristics, I^t, Let-through current

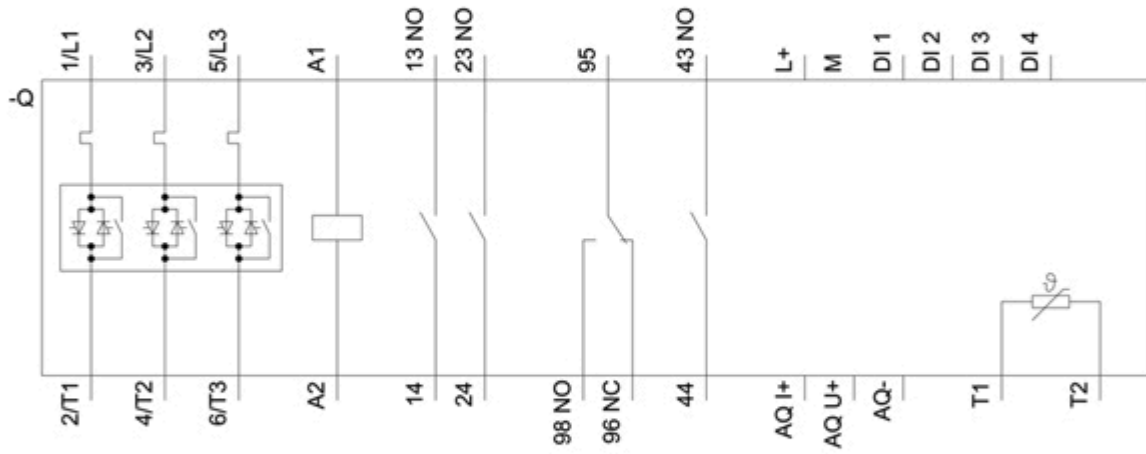
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5527-1HA04/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5527-1HA04&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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



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