



SIRIUS soft starter 200-600 V 93 A, 24 V AC/DC spring-type terminals
Thermistor input

product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW52
manufacturer's article number	<ul style="list-style-type: none"> • of standard HMI module usable 3RW5980-0HS00 • of high feature HMI module usable 3RW5980-0HF00 • of communication module PROFINET standard usable 3RW5980-0CS00 • 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 3NE4124: Type of coordination 2, Iq = 65 kA
General technical data	
starting voltage [%]	30 ... 100 %
stopping voltage [%]	50 %; non-adjustable
start-up ramp time of soft starter	0 ... 20 s
current limiting value [%] adjustable	130 ... 700 %
certificate of suitability	<ul style="list-style-type: none"> • CE marking Yes • UL approval Yes • CSA approval Yes
product component	<ul style="list-style-type: none"> • HMI-High Feature No • is supported HMI-Standard Yes • is supported HMI-High Feature Yes
product feature integrated bypass contact system	Yes
number of controlled phases	3

trip class	CLASS 10A (default) / 10E / 20E; acc. to IEC 60947-4-2
buffering time in the event of power failure	
• for main current circuit	100 ms
• for control circuit	100 ms
insulation voltage rated value	600 V
degree of pollution	3, acc. to IEC 60947-4-2
impulse voltage rated value	6 kV
blocking voltage of the thyristor maximum	1 800 V
service factor	1
surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
• between main and auxiliary circuit	600 V
shock resistance	15 g / 11 ms, from 12 g / 11 ms with potential contact lifting
vibration resistance	15 mm to 6 Hz; 2g to 500 Hz
utilization category according to IEC 60947-4-2	AC 53a
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	02/15/2018
product function	
• ramp-up (soft starting)	Yes
• ramp-down (soft stop)	Yes
• Soft Torque	Yes
• adjustable current limitation	Yes
• pump ramp down	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
• auto-RESET	Yes
• manual RESET	Yes
• remote reset	Yes; By turning off the control supply voltage
• communication function	Yes
• operating measured value display	Yes; Only in conjunction with special accessories
• error logbook	Yes; Only in conjunction with special accessories
• via software parameterizable	No
• via software configurable	Yes
• PROFenergy	Yes; in connection with the PROFINET Standard communication module
• firmware update	Yes
• removable terminal for control circuit	Yes
• torque control	No
• analog output	No
Power Electronics	
operational current	
• at 40 °C rated value	93 A
• at 50 °C rated value	83 A
• at 60 °C rated value	76 A
operational current at inside-delta circuit	
• at 40 °C rated value	161 A
• at 50 °C rated value	143 A
• at 60 °C rated value	131 A
operating voltage	
• rated value	200 ... 600 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 3-phase motors	

• at 230 V at 40 °C rated value	22 kW
• at 230 V at inside-delta circuit at 40 °C rated value	45 kW
• at 400 V at 40 °C rated value	45 kW
• at 400 V at inside-delta circuit at 40 °C rated value	90 kW
• at 500 V at 40 °C rated value	55 kW
• at 500 V at inside-delta circuit at 40 °C rated value	110 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 %
adjustable motor current	
• at rotary coding switch on switch position 1	40.5 A
• at rotary coding switch on switch position 2	44 A
• at rotary coding switch on switch position 3	47.5 A
• at rotary coding switch on switch position 4	51 A
• at rotary coding switch on switch position 5	54.5 A
• at rotary coding switch on switch position 6	58 A
• at rotary coding switch on switch position 7	61.5 A
• at rotary coding switch on switch position 8	65 A
• at rotary coding switch on switch position 9	68.5 A
• at rotary coding switch on switch position 10	72 A
• at rotary coding switch on switch position 11	75.5 A
• at rotary coding switch on switch position 12	79 A
• at rotary coding switch on switch position 13	82.5 A
• at rotary coding switch on switch position 14	86 A
• at rotary coding switch on switch position 15	89.5 A
• at rotary coding switch on switch position 16	93 A
• minimum	40.5 A
adjustable motor current	
• for inside-delta circuit at rotary coding switch on switch position 1	70.1 A
• for inside-delta circuit at rotary coding switch on switch position 2	76.2 A
• for inside-delta circuit at rotary coding switch on switch position 3	82.3 A
• for inside-delta circuit at rotary coding switch on switch position 4	88.3 A
• for inside-delta circuit at rotary coding switch on switch position 5	94.4 A
• for inside-delta circuit at rotary coding switch on switch position 6	100 A
• for inside-delta circuit at rotary coding switch on switch position 7	107 A
• for inside-delta circuit at rotary coding switch on switch position 8	113 A
• for inside-delta circuit at rotary coding switch on switch position 9	119 A
• for inside-delta circuit at rotary coding switch on switch position 10	125 A
• for inside-delta circuit at rotary coding switch on switch position 11	131 A
• for inside-delta circuit at rotary coding switch on switch position 12	137 A
• for inside-delta circuit at rotary coding switch on switch position 13	143 A
• for inside-delta circuit at rotary coding switch on switch position 14	149 A
• for inside-delta circuit at rotary coding switch on switch position 15	155 A
• for inside-delta circuit at rotary coding switch on switch position 16	161 A
• at inside-delta circuit minimum	70.1 A
minimum load [%]	15 %; Relative to smallest settable le
power loss [W] for rated value of the current at AC	

<ul style="list-style-type: none"> • at 40 °C after startup • at 50 °C after startup • at 60 °C after startup 	40 W 37 W 35 W
power loss [W] at AC at current limitation 350 %	
<ul style="list-style-type: none"> • at 40 °C during startup • at 50 °C during startup • at 60 °C during startup 	1 270 W 1 077 W 959 W
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 • at 60 Hz rated value 	24 V 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	160 mA
holding current in bypass operation rated value	380 mA
locked-rotor current at close of bypass contact maximum	7.6 A
inrush current peak at application of control supply voltage maximum	3.3 A
duration of inrush current peak at application of control supply voltage	12.1 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	1
number of digital outputs	3
<ul style="list-style-type: none"> • not parameterizable 	2
digital output version	2 normally-open contacts (NO) / 1 changeover contact (CO)
number of analog outputs	0
switching capacity current of the relay outputs	
<ul style="list-style-type: none"> • at AC-15 at 250 V rated value • at DC-13 at 24 V rated value 	3 A 1 A
Installation/ mounting/ dimensions	
mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
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 • backwards • upwards 	10 mm 0 mm 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	6.9 kg
Connections/ Terminals	
type of electrical connection	
<ul style="list-style-type: none"> • for main current circuit • for control circuit 	box terminal spring-loaded 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 	2x (0.25 ... 1.5 mm ²)
<ul style="list-style-type: none"> • for control circuit finely stranded with core end processing 	2x (0.25 ... 1.5 mm ²)
<ul style="list-style-type: none"> • at AWG cables for control circuit solid 	2x (24 ... 16)
<ul style="list-style-type: none"> • at AWG cables for control circuit finely stranded with core end processing 	2x (24 ... 16)
wire length	
<ul style="list-style-type: none"> • between soft starter and motor maximum 	800 m
<ul style="list-style-type: none"> • at the digital inputs at AC maximum 	100 m
<ul style="list-style-type: none"> • at the digital inputs at DC maximum 	1 000 m
tightening torque	
<ul style="list-style-type: none"> • for main contacts with screw-type terminals 	4.5 ... 6 N·m
<ul style="list-style-type: none"> • 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 	40 ... 53 lbf·in
<ul style="list-style-type: none"> • for auxiliary and control contacts with screw-type terminals 	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 according to IEC 60721 during storage according to IEC 60721 during transport according 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 EtherNet/IP Modbus RTU Modbus TCP PROFIBUS 	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 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 	Siemens type: 3VA51, max. 125 A; I _q = 10 kA Siemens type: 3VA51, max. 125 A; I _q max = 65 kA Siemens type: 3VA51, max. 125 A; I _q = 10 kA Siemens type: 3VA51, max. 125 A; I _q max = 65 kA Siemens type: 3VA51, max. 125 A; I _q = 10 kA Siemens type: 3VA51, max. 125 A; I _q = 10 kA Type: Class RK5 / K5, max. 300 A; I _q = 10 kA Type: Class J / L, max. 250 A; I _q = 100 kA Type: Class RK5 / K5, max. 300 A; I _q = 10 kA Type: Class J / L, max. 250 A; I _q = 100 kA
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 575/600 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 at 575/600 V at inside-delta circuit at 50 °C rated value 	25 hp 30 hp 60 hp 75 hp 40 hp 50 hp 100 hp 125 hp
contact rating of auxiliary contacts according to UL	R300-B300
Safety related data	
protection class IP on the front according to IEC 60529	IP00; IP20 with cover
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front with cover
electromagnetic compatibility	in accordance with IEC 60947-4-2
Certificates/ approvals	
General Product Approval	EMC



[Confirmation](#)



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=3RW5227-3TC05>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5227-3TC05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5227-3TC05>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5227-3TC05&lang=en

Characteristic: Tripping characteristics, I_t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5227-3TC05/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5227-3TC05&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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

last modified:

4/10/2022

