



SIRIUS soft starter 200-480 V 47 A, 110-250 V AC 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	
• 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	3RV2032-4JA10; Type of coordination 1, $I_q = 65 \text{ kA}$, CLASS 10
• of circuit breaker usable at 500 V	3RV2032-4JA10; Type of coordination 1, $I_q = 10 \text{ kA}$, CLASS 10
• of circuit breaker usable at 400 V at inside-delta circuit	3RV2032-4RA10; Type of coordination 1, $I_q = 65 \text{ kA}$, CLASS 10
• of circuit breaker usable at 500 V at inside-delta circuit	3RV2032-4RA10; Type of coordination 1, $I_q = 10 \text{ kA}$, CLASS 10
• of the gG fuse usable up to 690 V	3NA3824-6; Type of coordination 1, $I_q = 65 \text{ kA}$
• of the gG fuse usable at inside-delta circuit up to 500 V	3NA3824-6; Type of coordination 1, $I_q = 65 \text{ kA}$
• of full range R fuse link for semiconductor protection usable up to 690 V	3NE1021-2; Type of coordination 2, $I_q = 65 \text{ kA}$
• of back-up R fuse link for semiconductor protection usable up to 690 V	3NE8024-1; Type of coordination 2, $I_q = 65 \text{ kA}$
General technical data	
starting voltage [%]	30 ... 100 %
stopping voltage [%]	50 ... 50 %
start-up ramp time of soft starter	0 ... 20 s
current limiting value [%] adjustable	130 ... 700 %
certificate of suitability	
• CE marking	Yes
• UL approval	Yes
• CSA approval	Yes
product component is supported	
• HMI-Standard	Yes
• 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	1 400 V
service factor	1
surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
• between main and auxiliary circuit	600 V
utilization category acc. to IEC 60947-4-2	AC 53a
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
reference code acc. to IEC 81346-2	Q
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
• PROFlenergy	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	47 A
• at 50 °C rated value	41.6 A
• at 60 °C rated value	36.2 A
operational current at inside-delta circuit	
• at 40 °C rated value	81.4 A
• at 50 °C rated value	72 A
• at 60 °C rated value	62.7 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	10 %

inside-delta circuit	
operating power for 3-phase motors	
• at 230 V at 40 °C rated value	11 kW
• at 230 V at inside-delta circuit at 40 °C rated value	22 kW
• at 400 V at 40 °C rated value	22 kW
• at 400 V at inside-delta circuit at 40 °C rated value	45 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	20 A
• at rotary coding switch on switch position 2	21.8 A
• at rotary coding switch on switch position 3	23.6 A
• at rotary coding switch on switch position 4	25.4 A
• at rotary coding switch on switch position 5	27.2 A
• at rotary coding switch on switch position 6	29 A
• at rotary coding switch on switch position 7	30.8 A
• at rotary coding switch on switch position 8	32.6 A
• at rotary coding switch on switch position 9	34.4 A
• at rotary coding switch on switch position 10	36.2 A
• at rotary coding switch on switch position 11	38 A
• at rotary coding switch on switch position 12	39.8 A
• at rotary coding switch on switch position 13	41.6 A
• at rotary coding switch on switch position 14	43.4 A
• at rotary coding switch on switch position 15	45.2 A
• at rotary coding switch on switch position 16	47 A
• minimum	20 A
adjustable motor current	
• for inside-delta circuit at rotary coding switch on switch position 1	34.6 A
• for inside-delta circuit at rotary coding switch on switch position 2	37.8 A
• for inside-delta circuit at rotary coding switch on switch position 3	40.9 A
• for inside-delta circuit at rotary coding switch on switch position 4	44 A
• for inside-delta circuit at rotary coding switch on switch position 5	47.1 A
• for inside-delta circuit at rotary coding switch on switch position 6	50.2 A
• for inside-delta circuit at rotary coding switch on switch position 7	53.3 A
• for inside-delta circuit at rotary coding switch on switch position 8	56.5 A
• for inside-delta circuit at rotary coding switch on switch position 9	59.6 A
• for inside-delta circuit at rotary coding switch on switch position 10	62.7 A
• for inside-delta circuit at rotary coding switch on switch position 11	65.8 A
• for inside-delta circuit at rotary coding switch on switch position 12	68.9 A
• for inside-delta circuit at rotary coding switch on switch position 13	72.1 A
• for inside-delta circuit at rotary coding switch on switch position 14	75.2 A
• for inside-delta circuit at rotary coding switch on switch position 15	78.3 A
• for inside-delta circuit at rotary coding switch on switch position 16	81.4 A
• at inside-delta circuit minimum	34.6 A

minimum load [%]	15 %; Relative to smallest settable I_e
power loss [W] for rated value of the current at AC	
• at 40 °C after startup	26 W
• at 50 °C after startup	24 W
• at 60 °C after startup	23 W
power loss [W] at AC at current limitation 350 %	
• at 40 °C during startup	606 W
• at 50 °C during startup	522 W
• at 60 °C during startup	438 W
Control circuit/ Control	
type of voltage of the control supply voltage	AC
• control supply voltage at AC at 50 Hz	110 ... 250 V
• control supply voltage at AC at 60 Hz	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	30 mA
holding current in bypass operation rated value	75 mA
locked-rotor current at close of bypass contact maximum	2.5 A
inrush current peak at application of control supply voltage maximum	12.2 A
duration of inrush current peak at application of control supply voltage	2.2 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 inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
number of digital outputs	3
• 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	
• 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	+/- 10° rotation possible and can be tilted forward or backward on vertical mounting surface
fastening method	screw fixing
height	306 mm
width	185 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

weight without packaging	5.2 kg
Connections/ Terminals	
type of electrical connection	
• for main current circuit	box terminal
• for control circuit	spring-loaded terminals
width of connection bar maximum	25 mm
wire length for thermistor connection	
• with conductor cross-section = 0.5 mm ² maximum	50 m
• with conductor cross-section = 1.5 mm ² maximum	150 m
• with conductor cross-section = 2.5 mm ² maximum	250 m
type of connectable conductor cross-sections	
• for main contacts for box terminal using the front clamping point solid	1x (2.5 ... 16 mm ²)
• for main contacts for box terminal using the front clamping point finely stranded with core end processing	1x (2.5 ... 50 mm ²)
• for main contacts for box terminal using the front clamping point stranded	1x (10 ... 70 mm ²)
• at AWG cables for main contacts for box terminal using the front clamping point	1x (10 ... 2/0)
• for main contacts for box terminal using the back clamping point solid	1x (2.5 ... 16 mm ²)
• at AWG cables for main contacts for box terminal using the back clamping point	1x (10 ... 2/0)
• for main contacts for box terminal using both clamping points solid	2x (2.5 ... 16 mm ²)
• for main contacts for box terminal using both clamping points finely stranded with core end processing	2x (2.5 ... 35 mm ²)
• for main contacts for box terminal using both clamping points stranded	2x (6 ... 16 mm ²), 2x (10 ... 50 mm ²)
• for main contacts for box terminal using the back clamping point finely stranded with core end processing	1x (2.5 ... 50 mm ²)
• for main contacts for box terminal using the back clamping point stranded	1x (10 ... 70 mm ²)
type of connectable conductor cross-sections	
• for control circuit solid	2x (0.25 ... 1.5 mm ²)
• for control circuit finely stranded with core end processing	2x (0.25 ... 1.5 mm ²)
• at AWG cables for control circuit solid	2x (24 ... 16)
• at AWG cables for control circuit finely stranded with core end processing	2x (24 ... 16)
wire length	
• between soft starter and motor maximum	800 m
• at the digital inputs at AC maximum	100 m
tightening torque	
• for main contacts with screw-type terminals	4.5 ... 6 N·m
• for auxiliary and control contacts with screw-type terminals	0.8 ... 1.2 N·m
tightening torque [lbf·in]	
• for main contacts with screw-type terminals	40 ... 53 lbf·in
• 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 during operation	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above
• ambient temperature during storage and transport	-40 ... +80 °C
environmental category	
• during operation acc. to IEC 60721	3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6
• during storage acc. to IEC 60721	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must

• during transport acc. to IEC 60721	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	
• PROFINET standard	Yes
• EtherNet/IP	Yes
• Modbus RTU	Yes
• Modbus TCP	Yes
• PROFIBUS	Yes
UL/CSA ratings	
manufacturer's article number	
• of circuit breaker	
— usable for Standard Faults at 460/480 V according to UL	Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA
— usable for High Faults at 460/480 V according to UL	Siemens type: 3VA51, max. 60 A; Iq max = 65 kA
— usable for Standard Faults at 460/480 V at inside-delta circuit according to UL	Siemens type: 3VA51, max. 90 A; Iq = 5 kA
— usable for High Faults at 460/480 V at inside-delta circuit according to UL	Siemens type: 3VA51, max. 60 A; Iq max = 65 kA
— usable for Standard Faults at 575/600 V according to UL	Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA
— usable for Standard Faults at 575/600 V at inside-delta circuit according to UL	Siemens type: 3VA51, max. 90 A; Iq = 5 kA
• of the fuse	
— usable for Standard Faults up to 575/600 V according to UL	Type: Class RK5 / K5, max. 175 A; Iq = 5 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J / L, max. 175 A; Iq = 100 kA
— usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL	Type: Class RK5 / K5, max. 175 A; Iq = 5 kA
— usable for High Faults at inside-delta circuit up to 575/600 V according to UL	Type: Class J / L, max. 175 A; Iq = 100 kA
operating power [hp] for 3-phase motors	
• at 200/208 V at 50 °C rated value	10 hp
• at 220/230 V at 50 °C rated value	10 hp
• at 460/480 V at 50 °C rated value	30 hp
• at 200/208 V at inside-delta circuit at 50 °C rated value	20 hp
• at 220/230 V at inside-delta circuit at 50 °C rated value	25 hp
• at 460/480 V at inside-delta circuit at 50 °C rated value	50 hp
contact rating of auxiliary contacts according to UL	
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	in accordance with IEC 60947-4-2
Certificates/ approvals	
General Product Approval	EMC



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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=3RW5224-3TC14>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-3TC14>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-3TC14>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-3TC14&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

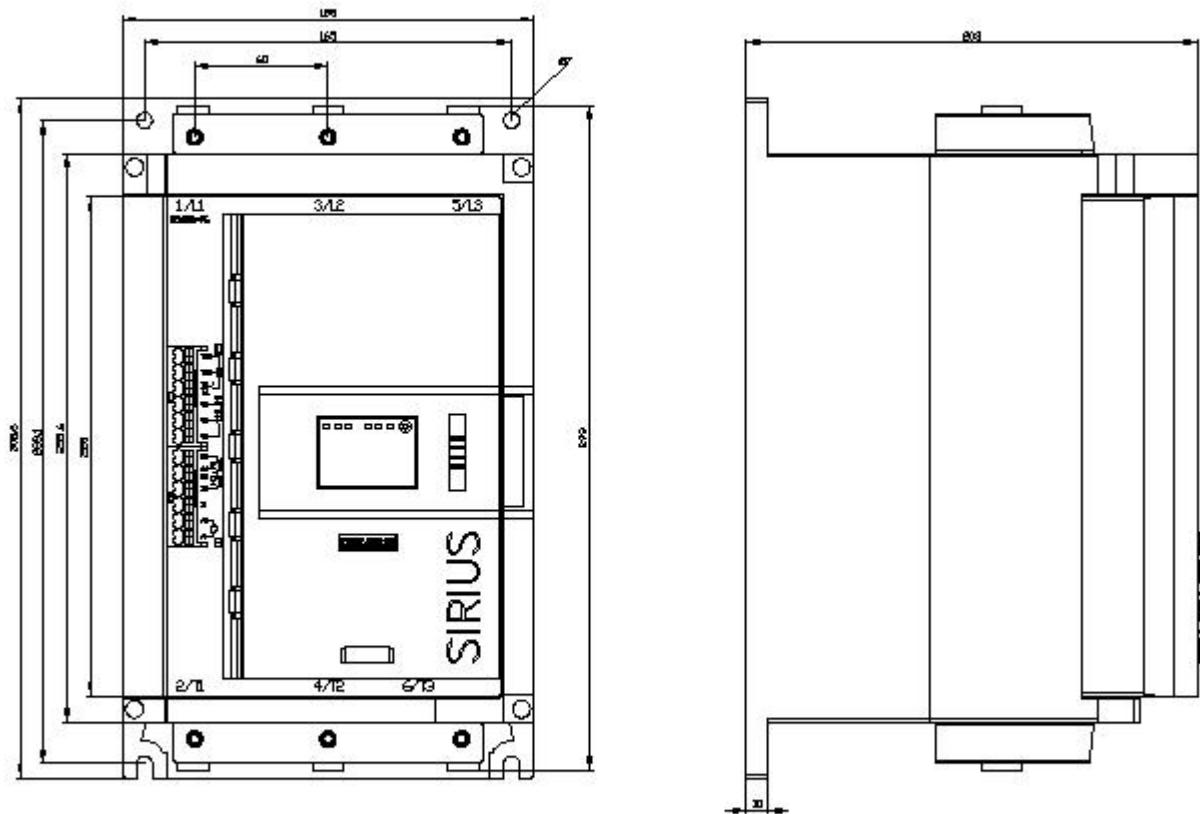
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-3TC14/char>

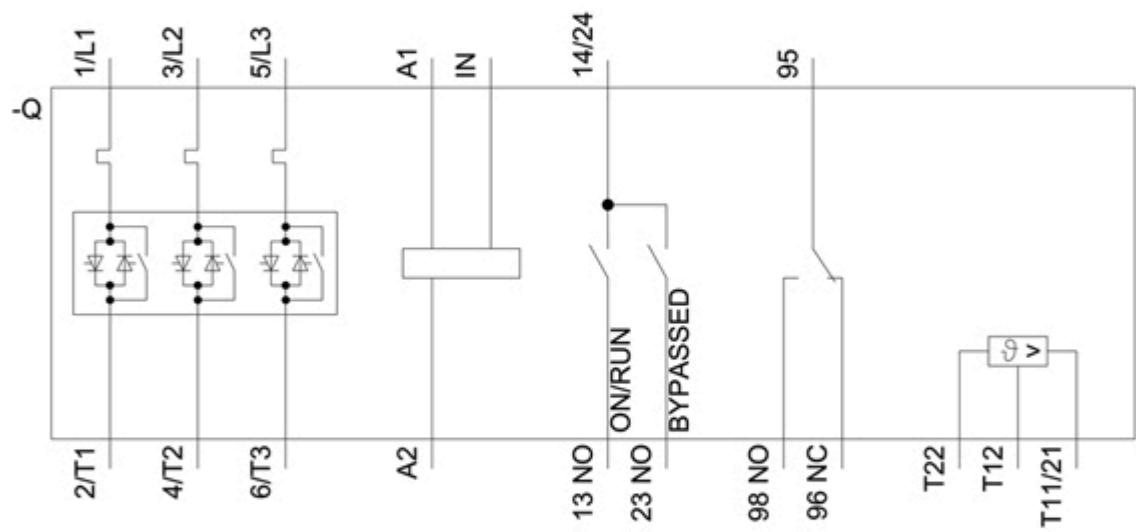
Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-3TC14&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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