

Siemens
EcoTech



SIRIUS soft starter 200-600 V 47 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	
• 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, Iq = 65 kA, CLASS 10
• of circuit breaker usable at 500 V	3RV2032-4JA10: Type of coordination 1, Iq = 10 kA, CLASS 10
• of circuit breaker usable at 400 V at inside-delta circuit	3RV2032-4RA10: Type of coordination 1, Iq = 65 kA, CLASS 10
• of circuit breaker usable at 500 V at inside-delta circuit	3RV2032-4RA10: Type of coordination 1, Iq = 10 kA, CLASS 10
• of the gG fuse usable up to 690 V	3NA3824-6: Type of coordination 1, Iq = 65 kA
• of the gG fuse usable at inside-delta circuit up to 500 V	3NA3824-6: Type of coordination 1, Iq = 65 kA
• of full range R fuse link for semiconductor protection usable up to 690 V	3NE1021-2: Type of coordination 2, Iq = 65 kA
• of back-up R fuse link for semiconductor protection usable up to 690 V	3NE8024-1: 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	
• CE marking	Yes
• UL approval	Yes
• CSA approval	Yes
product component	
• 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
buffering time in the event of power failure	

<ul style="list-style-type: none"> • for main current circuit 	100 ms
<ul style="list-style-type: none"> • 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 protective separation <ul style="list-style-type: none"> • 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
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4
Weight	6.059 kg
product function <ul style="list-style-type: none"> • ramp-up (soft starting) • ramp-down (soft stop) • Soft Torque • adjustable current limitation • pump ramp down • 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 • error logbook • via software parameterizable • via software configurable • PROFInergy • firmware update • removable terminal for control circuit • torque control • analog output 	Yes Yes Yes Yes Yes Yes Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) Yes; Type A PTC or Klaxon / Thermoclick Yes Yes Yes Yes; By turning off the control supply voltage Yes Yes; Only in conjunction with special accessories Yes; Only in conjunction with special accessories No Yes Yes; in connection with the PROFINET Standard communication module Yes Yes No No
Power Electronics	
operational current <ul style="list-style-type: none"> • at 40 °C rated value • at 50 °C rated value • at 60 °C rated value 	47 A 41.6 A 36.2 A
operational current at inside-delta circuit <ul style="list-style-type: none"> • at 40 °C rated value • at 50 °C rated value • at 60 °C rated value 	81.4 A 72 A 62.7 A
operating voltage <ul style="list-style-type: none"> • rated value • at inside-delta circuit rated value 	200 ... 600 V 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	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
• at 500 V at 40 °C rated value	30 kW
• at 500 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

<ul style="list-style-type: none"> • at 50 °C after startup • at 60 °C after startup 	24 W 23 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 	606 W 522 W 438 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 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
inrush current by closing the bypass contacts 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 (Icu=1 kA), 6 A quick-acting fuse (Icu=1 kA), C1 miniature circuit breaker (Icu= 600 A), C6 miniature circuit breaker (Icu= 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	+/- 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	
<ul style="list-style-type: none"> • forwards • backwards • upwards • downwards • at the side 	10 mm 0 mm 100 mm 75 mm 5 mm
weight without packaging	5.2 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 for main contacts for box terminal	
<ul style="list-style-type: none"> using the front clamping point solid using the front clamping point finely stranded with core end processing using the front clamping point stranded using the back clamping point solid r box terminal using the back clamping point using both clamping points solid using both clamping points finely stranded with core end processing using both clamping points stranded using the back clamping point finely stranded with core end processing using the back clamping point stranded 	1x (2.5 ... 16 mm ²) 1x (2.5 ... 50 mm ²) 1x (10 ... 70 mm ²) 1x (2.5 ... 16 mm ²) 1x (10 ... 2/0) 2x (2.5 ... 16 mm ²) 2x (2.5 ... 35 mm ²) 2x (6 ... 16 mm ²), 2x (10 ... 50 mm ²) 1x (2.5 ... 50 mm ²) 1x (10 ... 70 mm ²)
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 for AWG cables for control circuit solid for AWG cables for control circuit finely stranded with core end processing 	2x (0.25 ... 1.5 mm ²) 2x (0.25 ... 1.5 mm ²) 2x (24 ... 16) 2x (24 ... 16)
wire length	
<ul style="list-style-type: none"> between soft starter and motor maximum at the digital inputs at AC maximum at the digital inputs at DC maximum 	800 m 100 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 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 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)
Environmental footprint	
global warming potential [CO ₂ eq] total	296 kg
global warming potential [CO ₂ eq] during manufacturing	67.7 kg
global warming potential [CO ₂ eq] during sales	1.84 kg
global warming potential [CO ₂ eq] during operation	242 kg
global warming potential [CO ₂ eq] after end of life	-15.7 kg
Siemens Eco Profile (SEP)	Siemens EcoTech
Electromagnetic compatibility	
EMC emitted interference	acc. to IEC 60947-4-2: Class A
Communication/ Protocol	
communication module is supported	

- PROFINET standard
- EtherNet/IP
- Modbus RTU
- Modbus TCP
- PROFIBUS

Yes
Yes
Yes
Yes
Yes

UL/CSA ratings

manufacturer's article number

• of circuit breaker usable for Standard Faults

- at 460/480 V according to UL
- 60/480 V according to UL
- at 460/480 V at inside-delta circuit according to UL
- 60/480 V at inside-delta circuit according to UL
- at 575/600 V according to UL
- at 575/600 V at inside-delta circuit according to UL

Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA
Siemens type: 3VA51, max. 60 A; Iq max = 65 kA
Siemens type: 3VA51, max. 90 A; Iq = 5 kA
Siemens type: 3VA51, max. 60 A; Iq max = 65 kA
Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA
Siemens type: 3VA51, max. 90 A; Iq = 5 kA

• of the fuse

- 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

Type: Class RK5 / K5, max. 175 A; Iq = 5 kA
Type: Class J / L, max. 175 A; Iq = 100 kA
Type: Class RK5 / K5, max. 175 A; Iq = 5 kA
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
- 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

10 hp
10 hp
30 hp
40 hp
20 hp
25 hp
50 hp
60 hp

contact rating of auxiliary contacts according to UL

R300-B300

Electrical Safety

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

Approvals Certificates

General Product Approval



[Confirmation](#)



EMV

Test Certificates

Marine / Shipping



[KC](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping

other

Environment



[Confirmation](#)

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[Environmental Confirmations](#)

Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

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=3RW5224-3TC05>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-3TC05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-3TC05>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-3TC05&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

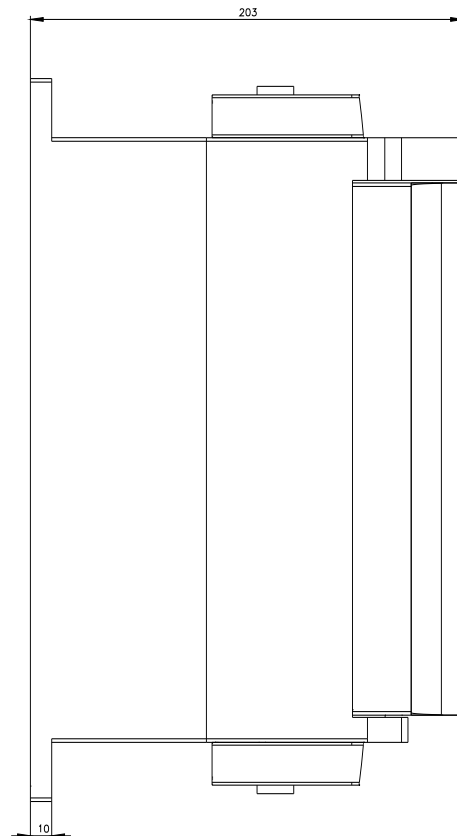
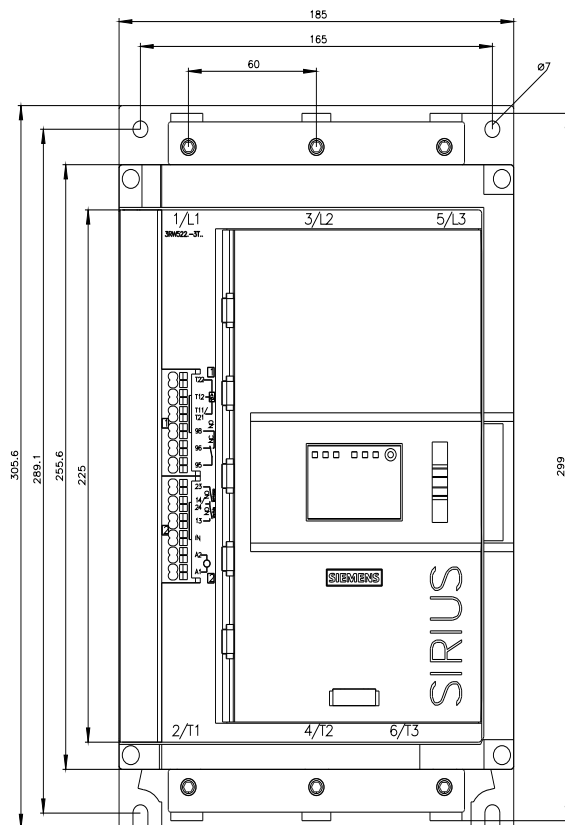
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-3TC05/char>

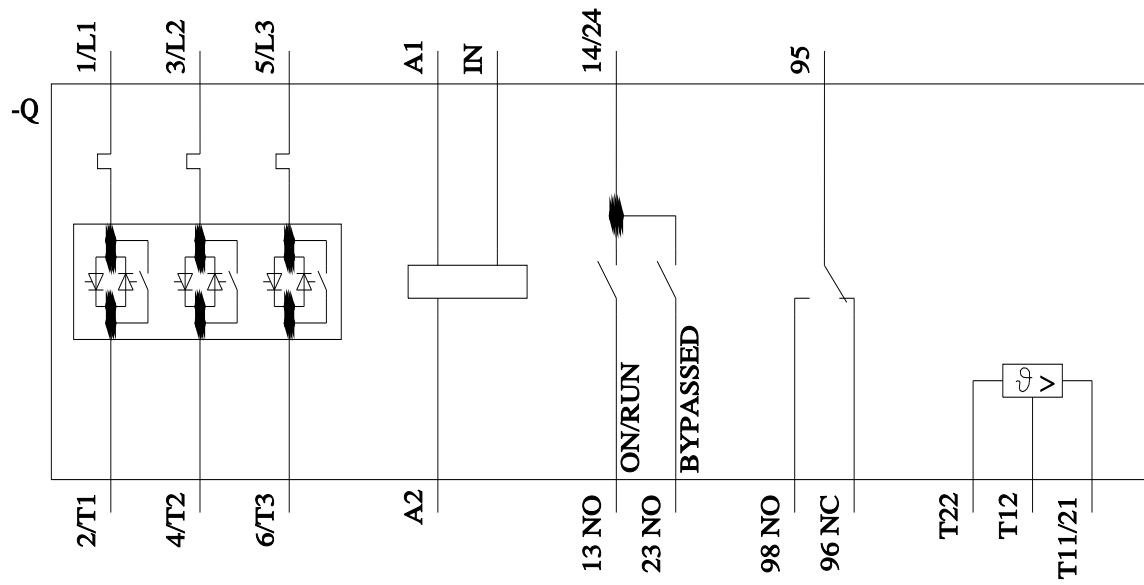
Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-3TC05&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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