

Siemens
EcoTech



SIRIUS soft starter 200-480 V 47 A, 24 V AC/DC Screw terminals Analog output



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 • of high feature HMI module usable • of communication module PROFINET standard usable • of communication module PROFIBUS usable • of communication module Modbus TCP usable • of communication module Modbus RTU usable • of communication module Ethernet/IP • of circuit breaker usable at 400 V • of circuit breaker usable at 500 V • of circuit breaker usable at 400 V at inside-delta circuit • 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 	<ul style="list-style-type: none"> 3RW5980-0HS00 3RW5980-0HF00 3RW5980-0CS00 3RW5980-0CP00 3RW5980-0CT00 3RW5980-0CR00 3RW5980-0CE00 3RV2032-4JA10; Type of coordination 1, Iq = 65 kA, CLASS 10 3RV2032-4JA10; Type of coordination 1, Iq = 10 kA, CLASS 10 3RV2032-4RA10; Type of coordination 1, Iq = 65 kA, CLASS 10 3RV2032-4RA10; Type of coordination 1, Iq = 10 kA, CLASS 10 3NA3824-6; Type of coordination 1, Iq = 65 kA 3NA3824-6; Type of coordination 1, Iq = 65 kA 3NE1021-2; Type of coordination 2, Iq = 65 kA 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	
<ul style="list-style-type: none"> • CE marking • UL approval • CSA approval 	<ul style="list-style-type: none"> Yes Yes Yes
product component	
<ul style="list-style-type: none"> • HMI-High Feature • is supported HMI-Standard • is supported HMI-High Feature 	<ul style="list-style-type: none"> No Yes Yes
product feature integrated bypass contact system	Yes
number of controlled phases	3

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 protective separation	
• 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 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4
Weight	6.161 kg
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; Electronic motor overload protection
• evaluation of thermistor motor protection	No
• 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
• PROFInergy	Yes; in connection with the PROFINET Standard communication module
• firmware update	Yes
• removable terminal for control circuit	Yes
• torque control	No
• analog output	Yes; 4 ... 20 mA (default) / 0 ... 10 V (parameterizable with High Feature HMI)
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 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
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

<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> at 40 °C after startup 	26 W
<ul style="list-style-type: none"> at 50 °C after startup 	24 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 	606 W
<ul style="list-style-type: none"> at 50 °C during startup 	522 W
<ul style="list-style-type: none"> at 60 °C during startup 	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 	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 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 (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	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	+/- 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 	10 mm
<ul style="list-style-type: none"> backwards 	0 mm

<ul style="list-style-type: none"> • upwards • downwards • at the side 	<p>100 mm</p> <p>75 mm</p> <p>5 mm</p>
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 	<p>box terminal</p> <p>screw-type terminals</p>
width of connection bar maximum	25 mm
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 	<p>1x (2.5 ... 16 mm²)</p> <p>1x (2.5 ... 50 mm²)</p> <p>1x (10 ... 70 mm²)</p> <p>1x (2.5 ... 16 mm²)</p> <p>1x (10 ... 2/0)</p> <p>2x (2.5 ... 16 mm²)</p> <p>2x (2.5 ... 35 mm²)</p> <p>2x (6 ... 16 mm²), 2x (10 ... 50 mm²)</p> <p>1x (2.5 ... 50 mm²)</p> <p>1x (10 ... 70 mm²)</p>
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 	<p>1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)</p> <p>1x (20 ... 12), 2x (20 ... 14)</p>
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 	<p>800 m</p> <p>100 m</p> <p>1 000 m</p>
tightening torque	
<ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals 	<p>4.5 ... 6 N·m</p> <p>0.8 ... 1.2 N·m</p>
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 	<p>40 ... 53 lbf·in</p> <p>7 ... 10.3 lbf·in</p>
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 	<p>-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above</p> <p>-40 ... +80 °C</p>
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 	<p>3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6</p> <p>1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4</p> <p>2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)</p>
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	Yes
• EtherNet/IP	Yes
• Modbus RTU	Yes
• Modbus TCP	Yes
• PROFIBUS	Yes

UL/CSA ratings

manufacturer's article number	
<ul style="list-style-type: none"> • of circuit breaker usable for Standard Faults <ul style="list-style-type: none"> — 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 • 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: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA</p> <p>Siemens type: 3VA51, max. 60 A; Iq max = 65 kA</p> <p>Siemens type: 3VA51, max. 90 A; Iq = 5 kA</p> <p>Siemens type: 3VA51, max. 60 A; Iq max = 65 kA</p> <p>Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA</p> <p>Siemens type: 3VA51, max. 90 A; Iq = 5 kA</p> <p>Type: Class RK5 / K5, max. 175 A; Iq = 5 kA</p> <p>Type: Class J / L, max. 175 A; Iq = 100 kA</p> <p>Type: Class RK5 / K5, max. 175 A; Iq = 5 kA</p> <p>Type: Class J / L, max. 175 A; Iq = 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>10 hp</p> <p>10 hp</p> <p>30 hp</p> <p>20 hp</p> <p>25 hp</p> <p>50 hp</p>
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	EMV
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EMV	Test Certificates	Maritime application
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[KC](#)

[Type Test Certificates/Test Report](#)



other	Environment
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[Confirmation](#)



[Environmental Confirmations](#)

Further information

Information on the packaging

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

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3RW5224-1AC04>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-1AC04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1AC04>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-1AC04&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

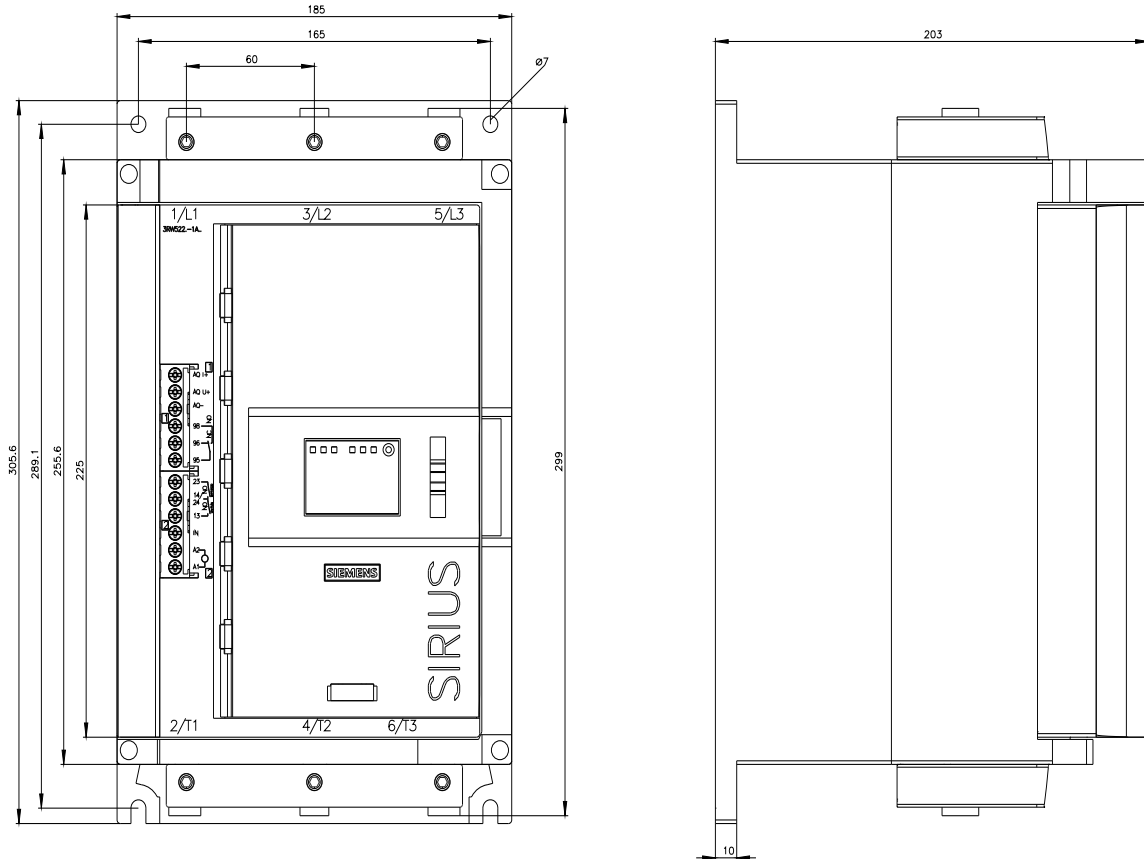
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1AC04/char>

Characteristic: Installation altitude

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-1AC04&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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