

Siemens
EcoTech



SIRIUS soft starter 200-480 V 47 A, 24 V AC/DC spring-type 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 • of communication module PROFINET standard usable • of communication module PROFINET high-feature 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"> 3RW5980-0HF00 3RW5980-0CS00 3RW5950-0CH00 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 [%]	20 ... 100 %
stopping voltage [%]	50 %; non-adjustable
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	5 (based on IEC 61557-12)
certificate of suitability	
<ul style="list-style-type: none"> • CE marking • UL approval 	<p>Yes</p> <p>Yes</p>

<ul style="list-style-type: none"> • CSA approval 	Yes
product component	
<ul style="list-style-type: none"> • HMI-High Feature 	Yes
<ul style="list-style-type: none"> • is supported HMI-High Feature 	Yes
product feature integrated bypass contact system	Yes
number of controlled phases	3
current unbalance limiting value [%]	10 ... 60 %
ground-fault monitoring limiting value [%]	10 ... 95 %
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
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 protective separation	
<ul style="list-style-type: none"> • between main and auxiliary circuit 	480 V; does not apply for thermistor connection
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
recovery time after overload trip adjustable	60 ... 1 800 s
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 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 Lead titanium trioxide - 12060-00-3
Weight	6.606 kg
product function	
<ul style="list-style-type: none"> • ramp-up (soft starting) 	Yes
<ul style="list-style-type: none"> • ramp-down (soft stop) 	Yes
<ul style="list-style-type: none"> • breakaway pulse 	Yes
<ul style="list-style-type: none"> • adjustable current limitation 	Yes
<ul style="list-style-type: none"> • creep speed in both directions of rotation 	Yes
<ul style="list-style-type: none"> • pump ramp down 	Yes
<ul style="list-style-type: none"> • DC braking 	Yes
<ul style="list-style-type: none"> • motor heating 	Yes
<ul style="list-style-type: none"> • min/max pointer 	Yes
<ul style="list-style-type: none"> • trace function 	Yes
<ul style="list-style-type: none"> • intrinsic device protection 	Yes
<ul style="list-style-type: none"> • 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.
<ul style="list-style-type: none"> • evaluation of thermistor motor protection 	Yes; Type A PTC or Klixon / Thermoclick
<ul style="list-style-type: none"> • inside-delta circuit 	Yes
<ul style="list-style-type: none"> • auto-RESET 	Yes
<ul style="list-style-type: none"> • manual RESET 	Yes
<ul style="list-style-type: none"> • remote reset 	Yes
<ul style="list-style-type: none"> • communication function 	Yes
<ul style="list-style-type: none"> • operating measured value display 	Yes
<ul style="list-style-type: none"> • event list 	Yes
<ul style="list-style-type: none"> • error logbook 	Yes
<ul style="list-style-type: none"> • via software parameterizable 	Yes
<ul style="list-style-type: none"> • via software configurable 	Yes
<ul style="list-style-type: none"> • screw terminal 	No
<ul style="list-style-type: none"> • spring-loaded terminal 	Yes
<ul style="list-style-type: none"> • PROFInergy 	Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules

• firmware update	Yes
• removable terminal for control circuit	Yes
• voltage ramp	Yes
• torque control	Yes
• combined braking	Yes
• analog output	Yes; 4 ... 20 mA (default) / 0 ... 10 V
• programmable control inputs/outputs	Yes
• condition monitoring	Yes
• automatic parameterisation	Yes
• application wizards	Yes
• alternative run-down	Yes
• emergency operation mode	Yes
• reversing operation	Yes
• soft starting at heavy starting conditions	Yes

Power Electronics

operational current	
• at 40 °C rated value	47 A
• at 40 °C rated value minimum	10 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 %
minimum load [%]	10 %; Relative to set le
power loss [W] for rated value of the current at AC	
• at 40 °C after startup	14 W
• at 50 °C after startup	12 W
• at 60 °C after startup	11 W
power loss [W] at AC at current limitation 350 %	
• at 40 °C during startup	588 W
• at 50 °C during startup	504 W
• at 60 °C during startup	420 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	
• at 50 Hz rated value	24 V
• 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	-20 %
















AC at 60 Hz	
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	440 mA
holding current in bypass operation rated value	870 mA
inrush current by closing the bypass contacts 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
• parameterizable	4
• number of digital outputs	4
• number of digital outputs parameterizable	3
• 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	
• 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	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	
• forwards	10 mm
• backwards	0 mm
• upwards	100 mm
• downwards	75 mm
• at the side	5 mm
weight without packaging	5.5 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)
• using the front clamping point finely stranded with core end processing	1x (2.5 ... 50 mm ²)
• using the front clamping point stranded	1x (10 ... 70 mm ²)

<ul style="list-style-type: none"> • using the back clamping point solid 	1x (2.5 ... 16 mm ²)
<ul style="list-style-type: none"> • r box terminal using the back clamping point 	1x (10 ... 2/0)
<ul style="list-style-type: none"> • using both clamping points solid 	2x (2.5 ... 16 mm ²)
<ul style="list-style-type: none"> • using both clamping points finely stranded with core end processing 	2x (2.5 ... 35 mm ²)
<ul style="list-style-type: none"> • using both clamping points stranded 	2x (6 ... 16 mm ²), 2x (10 ... 50 mm ²)
<ul style="list-style-type: none"> • using the back clamping point finely stranded with core end processing 	1x (2.5 ... 50 mm ²)
<ul style="list-style-type: none"> • 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"> • for AWG cables for control circuit solid 	2x (24 ... 16)
<ul style="list-style-type: none"> • for 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 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 	3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6
<ul style="list-style-type: none"> • during storage according to IEC 60721 	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
<ul style="list-style-type: none"> • during transport according to IEC 60721 	2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)
Environmental footprint	
global warming potential [CO2 eq] total	399 kg
global warming potential [CO2 eq] during manufacturing	92.6 kg
global warming potential [CO2 eq] during sales	2.37 kg
global warming potential [CO2 eq] during operation	324 kg
global warming potential [CO2 eq] after end of life	-19.4 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	
<ul style="list-style-type: none"> • PROFINET standard 	Yes
<ul style="list-style-type: none"> • PROFINET high-feature 	Yes
<ul style="list-style-type: none"> • EtherNet/IP 	Yes
<ul style="list-style-type: none"> • Modbus RTU 	Yes
<ul style="list-style-type: none"> • Modbus TCP 	Yes
<ul style="list-style-type: none"> • 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 	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

<ul style="list-style-type: none"> — 75/600 V at inside-delta circuit according to UL — at 575/600 V at inside-delta circuit according to UL 	<p>Siemens type: 3VA51, max. 60 A; Iq max = 65 kA</p> <p>Siemens type: 3VA51, max. 90 A; Iq = 5 kA</p>
<p>● of the fuse</p> <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>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>
<p>operating power [hp] for 3-phase motors</p> <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>
<p>contact rating of auxiliary contacts according to UL</p>	<p>R300-B300</p>
<p>Electrical Safety</p>	
<p>protection class IP on the front according to IEC 60529</p>	<p>IP00; IP20 with cover</p>
<p>touch protection on the front according to IEC 60529</p>	<p>finger-safe, for vertical contact from the front with cover</p>
<p>ATEX</p>	
<p>Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX</p>	<p>SIL 1</p>
<p>PFHD with high demand rate according to IEC 61508 relating to ATEX</p>	<p>5E-7 1/h</p>
<p>PFDAvg with low demand rate according to IEC 61508 relating to ATEX</p>	<p>0.008</p>
<p>hardware fault tolerance according to IEC 61508 relating to ATEX</p>	<p>0</p>
<p>T1 value for proof test interval or service life according to IEC 61508 relating to ATEX</p>	<p>3 a</p>
<p>certificate of suitability</p> <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>
<p>type of protection according to ATEX directive 2014/34/EU</p>	<p>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]</p>
<p>Approvals Certificates</p>	
<p>General Product Approval</p>	
<p>EMV</p>	
     	
<p>EMV</p>	<p>For use in hazardous locations</p>
<p>KC</p>	<p> IECEX</p> <p> ATEX</p>
<p>Test Certificates</p>	<p>Type Test Certificates/Test Report</p>
<p>Maritime application</p>	<p> ABS</p> <p> BUREAU VERITAS</p>
<p>Maritime application</p>	<p>other</p>
<p>Environment</p>	<p> LRS</p> <p> PRS</p> <p>Confirmation</p> <p> 产品合格 QC PASS</p> <p> EPD</p> <p> Siemens EcoTech</p>
<p>Environment</p>	

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=3RW5524-3HA04>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5524-3HA04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5524-3HA04>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5524-3HA04&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

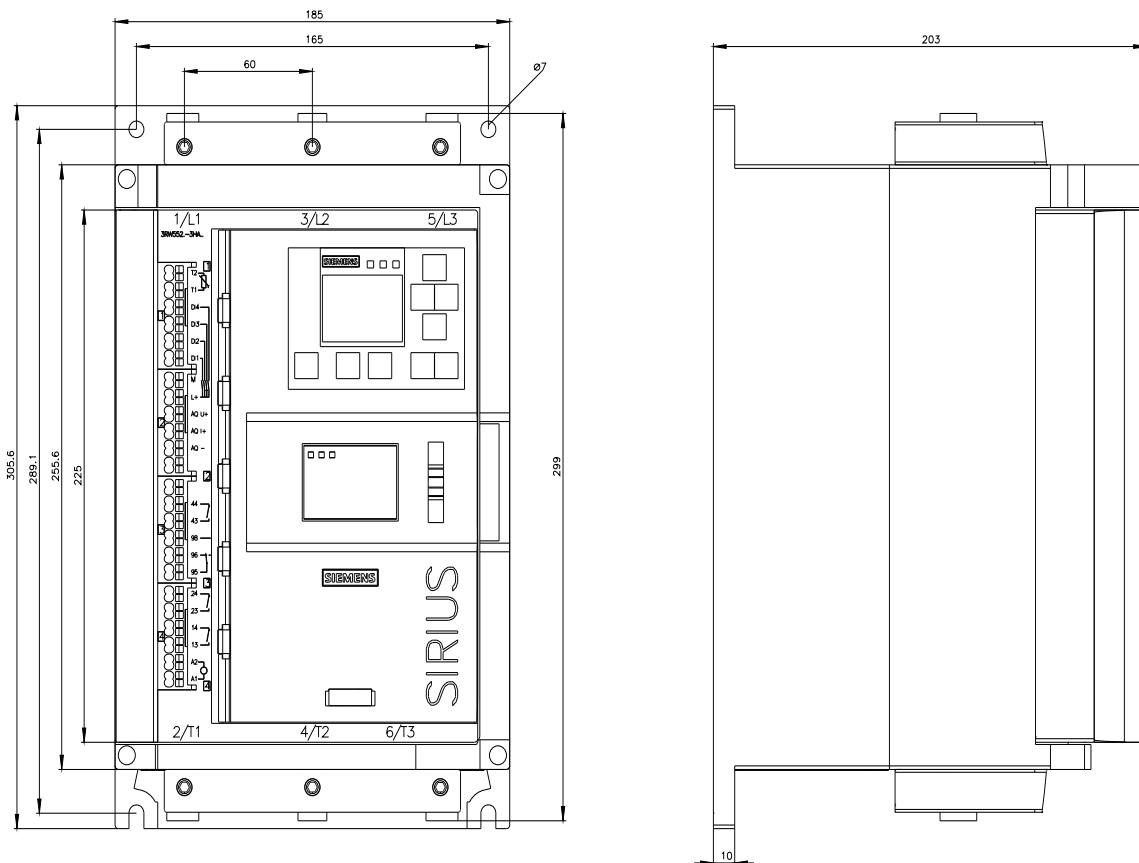
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5524-3HA04/char>

Characteristic: Installation altitude

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5524-3HA04&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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