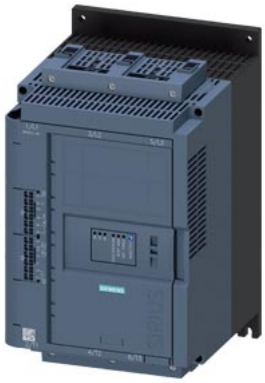
SIEMENS

Data sheet 3RW5224-3AC14



SIRIUS soft starter 200-480 V 47 A, 110-250 V AC spring-type terminals Analog output

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
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 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
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
● **PROFIenergy**	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
● at inside-delta circuit minimum	34.6 A
minimum load [%]	15 %; Relative to smallest settable Ie
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
● 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
inrush current by closing the bypass contacts 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 (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
● 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	
● 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
type of connectable conductor cross-sections	
● for main contacts for box terminal using the front clamping point solid	1x (2.5 ... 16 mm²)
● for main contacts for box terminal using the front clamping point finely stranded with core end processing	1x (2.5 ... 50 mm²)
● for main contacts for box terminal using the front clamping point stranded	1x (10 ... 70 mm²)
● for main contacts for box terminal using the back clamping point solid	1x (2.5 ... 16 mm²)
● for AWG cables for main contacts for box terminal using	1x (10 ... 2/0)

the back clamping point	
● for main contacts for box terminal using both clamping points solid	2x (2.5 ... 16 mm²)
● for main contacts for box terminal using both clamping points finely stranded with core end processing	2x (2.5 ... 35 mm²)
● for main contacts for box terminal using both clamping points stranded	2x (6 ... 16 mm²), 2x (10 ... 50 mm²)
● for main contacts for box terminal using the back clamping point finely stranded with core end processing	1x (2.5 ... 50 mm²)
● for main contacts for box terminal using the back clamping point stranded	1x (10 ... 70 mm²)
type of connectable conductor cross-sections	
● for control circuit solid	2x (0.25 ... 1.5 mm²)
● for control circuit finely stranded with core end processing	2x (0.25 ... 1.5 mm²)
● for AWG cables for control circuit solid	2x (24 ... 16)
● for 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
● during storage and transport	-40 ... +80 °C
environmental category	
● 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
● during storage according to IEC 60721	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
● during transport according to IEC 60721	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	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**

Type Test Certific-ates/Test Report

Marine / Shipping | **other**

Confirmation

Further information

Siemens has decided to exit the Russian market (see here).
https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business
Siemens is working on the renewal of the current EAC certificates.
Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).
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=3RW5224-3AC14
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-3AC14
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-3AC14
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-3AC14&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-3AC14/char
Characteristic: Installation altitude
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-3AC14&objecttype=14&gridview=view1
Simulation Tool for Soft Starters (STS)
https://support.industry.siemens.com/cs/ww/en/view/101494917