SIEMENS



Data sheet 3RW5524-3HA04



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	
 of high feature HMI module usable 	3RW5980-0HF00
 of communication module PROFINET standard usable 	3RW5980-0CS00
 of communication module PROFINET high-feature usable 	3RW5950-0CH00
 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 [%]	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 according to IEC 61557-12	5 %
certificate of suitability	

 ◆ CE marking 	Yes
 UL approval 	Yes
CSA approval	Yes Yes Yes Yes
product component	
 HMI-High Feature 	Yes
is supported HMI-High Feature	Yes
product feature integrated bypass contact system	Yes
number of controlled phases	3
trip class	CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2
current unbalance limiting value [%]	10 60 %
ground-fault monitoring limiting value [%]	10 95 %
buffering time in the event of power failure	
for main current circuit	100 ms
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 safe isolation	
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
product function	
ramp-up (soft starting)	Yes
ramp-down (soft stop)	Yes
breakaway pulse	Yes
 adjustable current limitation 	Yes
 creep speed in both directions of rotation 	Yes
• pump ramp down	Yes
DC braking	Yes
motor heating	Yes
slave pointer function	Yes
trace function	Yes
intrinsic device protection	Yes
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.
 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
 communication function 	Yes
 operating measured value display 	Yes
event list	Yes
error logbook	Yes
 via software parameterizable 	Yes
 via software configurable 	Yes
• screw terminal	No
 spring-loaded terminal 	Yes
PROFlenergy	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 Yes Yes
 torque control 	
 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	04.4.4
• 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	000 400 1/
• rated value	200 480 V
at inside-delta circuit rated value valetive pagetive televance of the expecting valtege	200 480 V -15 %
relative negative tolerance of the operating voltage relative positive tolerance of the operating voltage	10 %
relative positive tolerance of the operating voltage at	-15 %
inside-delta circuit	10 //
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	14 W
at 40 °C after startup at 50 °C after startup	
 at 50 °C after startup at 60 °C after startup 	12 W 11 W
power loss [W] at AC at current limitation 350 %	I I VV
• 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	7 11 0
type of voltage of the control supply voltage	AC/DC
type of voltage of the control supply voltage control supply voltage at AC	AC/DC
	AC/DC 24 V
control supply voltage at AC	
control supply voltage at AC • at 50 Hz rated value	24 V
control supply voltage at AC • at 50 Hz rated value • at 60 Hz rated value relative negative tolerance of the control supply	24 V 24 V
control supply voltage at AC • at 50 Hz rated value • at 60 Hz rated value relative negative tolerance of the control supply voltage at AC at 50 Hz relative positive tolerance of the control supply	24 V 24 V -20 %

voltage at AC at 60 Hz	- dientudena
relative positive tolerance of the control supply voltage at AC at 60 Hz	²⁰ % dientudong
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
locked-rotor current at close of bypass contact 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 (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	4
parameterizable	4
number of digital outputs	4
number of digital outputs number of digital outputs parameterizable	3
number of digital outputs parameterizable 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	1
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 retated ±/ 00° and tilted fanyard or backward ±/ 22.5°)
fastening method	Vertical (can be rotated +/- 90° and tilted forward or backward +/- 22.5°) screw fixing
height	306 mm
width	185 mm
depth	203 mm
•	203 111111
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	0.0 Ng
type of electrical connection • for main current circuit	box terminal
for control circuit	
width of connection bar maximum	spring-loaded terminals 25 mm
	20 111111
 wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum 	50 m
 with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum 	50 m
	150 m
with conductor cross-section = 2.5 mm² maximum type of connectable conductor gross sections	250 m
type of connectable conductor cross-sections	1v (2 F 16 mm²)
 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) dientudong
 for main contacts for box terminal using the front clamping point stranded 	1x (10 70 mm²)
 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 mm²)
 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 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)
 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 DC maximum	1 000 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	
	5.000 m. Danetin and 4.000 m. and anti-lan
installation altitude at height above sea level maximum	5 000 m; Derating as of 1000 m, see catalog
ambient temperature	OF 100 °C. Places shown a densiting at temporatures of 40 °C or
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
 PROFINET high-feature 	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 $\,$

— usable for High Faults at 460/480 V according to UL

— usable for Standard Faults at 460/480~V at inside-delta circuit according to UL

— usable for High Faults at 460/480 V at insidedelta circuit according to UL

— usable for Standard Faults at 575/600 V according to UL

— usable for High Faults at 575/600 V at insidedelta circuit according to UL

— usable for Standard Faults at 575/600 V at inside-delta circuit according to UL

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

Siemens type: 3R\

2, max 70 A b 3 // 5 , max . 9 0 A ld =

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. 60 A; Iq max = 65 kA

Siemens type: 3VA51, max. 90 A; Iq = 5 kA

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

 \bullet at 200/208 V at inside-delta circuit at 50 $^{\circ}\text{C}$ 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

10 hp

10 hp

30 hp 20 hp

25 hp

50 hp

R300-B300

contact rating of auxiliary contacts according to UL

auxiliary contacts according to the

Safety related data	
protection class IP 60529	on the front according to IEC

touch protection on the front according to IEC 60529

electromagnetic compatibility

IP00; IP20 with cover

finger-safe, for vertical contact from the front with cover

acc. to IEC 60947-4-2

BVS 18 ATEX F 003 X

I (M2) [Ex db Mb]

certificate of suitability

ATEX

ATEX

• IECEx

a coording to ATEV directive 2014/24/ELL

according to ATEX directive 2014/34/EU

type of protection according to ATEX directive

2014/34/EU
hardware fault tolerance according to IEC 61508

relating to ATEX
PFDavg with low demand rate according to IEC 61508
relating to ATEX

PFHD with high demand rate according to EN 62061 relating to ATEX

Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX

T1 value for proof test interval or service life according to IEC 61508 relating to ATEX

0.008 5E-7 1/h

Yes

Yes

SIL1

3 s

Certificates/ approvals

General Product Approval

EMC





Confirmation





II (2)G [Ex eb Gb] [Ex db Gb] [Ex pxb Gb], II (2)D [Ex tb Db] [Ex pxb Db],



ientudong **Test Certifi**

For use in hazardous locations

Declaration of Conformity







Type Test Certificates/Test Report





Marine / Shipping

other







Confirmation

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

http://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, ...)

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

Characteristic: Tripping characteristics, I2t, Let-through current

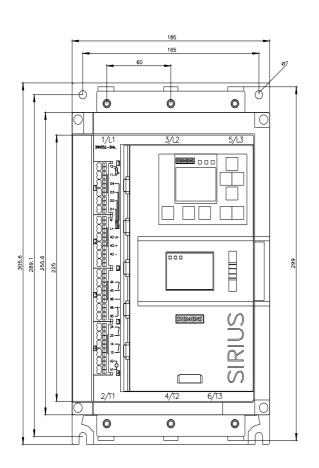
https://support.industry.siemens.com/cs/ww/en/ps/3RW5524-3HA04/char

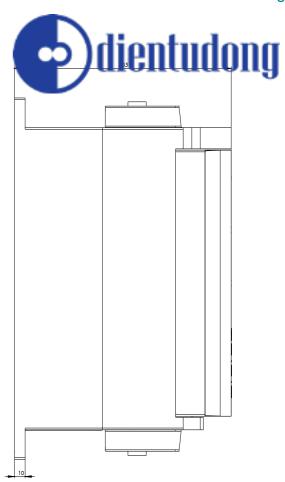
Characteristic: Installation altitude

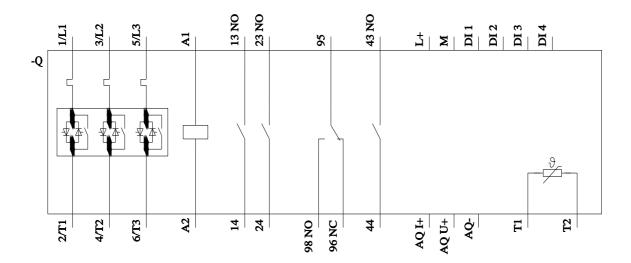
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5524-3HA04&objecttype=14&gridview=view1

Simulation Tool for Soft Starters (STS)

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







Hotline: 0909000786 - lam@dientudong.com



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