# **SIEMENS**

Data sheet 3RW5544-2HA16



SIRIUS soft starter 200-690 V 250 A, 110-250 V AC spring-type terminals

product brand name product category product designation product type designation manufacturer's article number

- of high feature HMI module usable
- of communication module PROFINET standard
- 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
- $\bullet$  of back-up R fuse link for semiconductor protection usable up to 690 V

SIRIUS

Hybrid switching devices

Soft starter

3RW55

3RW5980-0HF00

3RW5980-0CS00

3RW5950-0CH00

3RW5980-0CP00

3RW5980-0CT00

3RW5980-0CR00

3RW5980-0CE00

3VA2440-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10

3VA2440-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10

3VA2450-7MN32-0AA0; Type of coordination 1, Ig = 65 kA, CLASS 10

3VA2450-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10

2x3NA3354-6; Type of coordination 1, Iq = 65 kA

2x3NA3354-6; Type of coordination 1, Iq = 65 kA

3NE1331-0; Type of coordination 2, Iq = 65 kA

3NE3335; Type of coordination 2, Iq = 65 kA

## General technical data

starting voltage [%]

stopping voltage [%]

start-up ramp time of soft starter

ramp-down time of soft starter

start torque [%]

stopping torque [%]

torque limitation [%]

current limiting value [%] adjustable breakaway voltage [%] adjustable

breakaway time adjustable

number of parameter sets

accuracy class

certificate of suitability

- CE marking
- UL approval

20 ... 100 %

50 %; non-adjustable

0 ... 360 s

0 ... 360 s

10 ... 100 %

10 ... 100 %

20 ... 200 %

125 ... 800 %

40 ... 100 %

0 ... 2 s

5 (based on IEC 61557-12)

Yes

Yes

CSA approval	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	10 35 //
for main current circuit	100 ms
• for control circuit	100 ms
idle time adjustable	0 255 s
insulation voltage rated value	690 V
degree of pollution	3, acc. to IEC 60947-4-2
impulse voltage rated value	8 kV
blocking voltage of the thyristor maximum	1 800 V
service factor	1.15
surge voltage resistance rated value	8 kV
maximum permissible voltage for safe isolation	O.A.
between main and auxiliary circuit	690 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	02.10.20.10
• ramp-up (soft starting)	Yes
• ramp-down (soft stop)	Yes
breakaway pulse	Yes
adjustable current limitation	Yes
<ul> <li>creep speed in both directions of rotation</li> </ul>	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)
<ul> <li>evaluation of thermistor motor protection</li> </ul>	Yes; Type A PTC or Klixon / Thermoclick
• inside-delta circuit	Yes; Only up to 600 V operating voltage
• auto-RESET	Yes
manual RESET	Yes
• remote reset	Yes
<ul> <li>communication function</li> </ul>	Yes
<ul> <li>operating measured value display</li> </ul>	Yes
• event list	Yes
• error logbook	Yes
<ul> <li>via software parameterizable</li> </ul>	Yes
<ul> <li>via software configurable</li> </ul>	Yes
screw terminal	No
<ul> <li>spring-loaded terminal</li> </ul>	Yes
PROFlenergy	Yes; in connection with the PROFINET Standard and PROFINET High- Feature communication modules
• firmware update	Yes
<ul> <li>removable terminal for control circuit</li> </ul>	Yes
voltage ramp	Yes
• torque control	Yes
combined braking	Yes
analog output	Yes; 4 20 mA (default) / 0 10 V
<ul> <li>programmable control inputs/outputs</li> </ul>	Yes
<ul> <li>condition monitoring</li> </ul>	Yes

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automatic parameterisation     application wizards	Yes
<ul><li>application wizards</li><li>alternative run-down</li></ul>	Yes Yes
emergency operation mode	Yes
reversing operation	Yes
soft starting at heavy starting conditions	Yes
Power Electronics	
operational current	
• at 40 °C rated value	250 A
at 40 °C rated value minimum	50 A
at 50 °C rated value	220 A
at 60 °C rated value	200 A
operational current at inside-delta circuit	
at 40 °C rated value	433 A
<ul> <li>at 50 °C rated value</li> </ul>	381 A
<ul> <li>at 60 °C rated value</li> </ul>	346 A
operating voltage	
rated value	200 690 V
<ul> <li>at inside-delta circuit rated value</li> </ul>	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	10 %
inside-delta circuit	
operating power for 3-phase motors  • at 230 V at 40 °C rated value	75 kW
• at 230 V at inside-delta circuit at 40 °C rated value	132 kW
at 400 V at 40 °C rated value	132 kW
at 400 V at inside-delta circuit at 40 °C rated value	250 kW
<ul> <li>at 500 V at 40 °C rated value</li> </ul>	160 kW
<ul> <li>at 500 V at inside-delta circuit at 40 °C rated value</li> </ul>	315 kW
<ul> <li>at 690 V at 40 °C rated value</li> </ul>	250 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	75 W
• at 50 °C after startup	66 W
<ul> <li>at 60 °C after startup</li> <li>power loss [W] at AC at current limitation 350 %</li> </ul>	60 W
at 40 °C during startup	3 806 W
at 50 °C during startup      at 50 °C during startup	3 176 W
at 60 °C during startup	2 787 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
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 cumply current in steadby made acted units	100 mA
control supply current in standby mode rated value	
holding current in bypass operation rated value inrush current by closing the bypass contacts	150 mA 0.87 A
maximum	0.87 A
inrush current peak at application of control supply voltage maximum	43 A
duration of inrush current peak at application of control supply voltage	1.6 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
<ul> <li>parameterizable</li> </ul>	4
<ul><li>number of digital outputs</li></ul>	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	393 mm
width	210 mm
depth	203 mm
required spacing with side-by-side mounting	
<ul><li>forwards</li></ul>	10 mm
<ul><li>backwards</li></ul>	0 mm
<ul><li>upwards</li></ul>	100 mm
<ul><li>downwards</li></ul>	75 mm
at the side	5 mm
weight without packaging	10.2 kg
Connections/ Terminals	
type of electrical connection	
for main current circuit	busbar connection
<ul> <li>for control circuit</li> </ul>	spring-loaded terminals
width of connection bar maximum	45 mm
wire length for thermistor connection	
<ul> <li>with conductor cross-section = 0.5 mm² maximum</li> </ul>	50 m
• with conductor cross-section = 1.5 mm² maximum	150 m
<ul> <li>with conductor cross-section = 2.5 mm² maximum</li> </ul>	250 m
type of connectable conductor cross-sections	
for DIN cable lug for main contacts stranded	2x (50 240 mm²)
<ul> <li>for DIN cable lug for main contacts finely stranded</li> </ul>	2x (70 240 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	2x (0.25 1.5 mm²)
processing	24/24 40)
at AWG cables for control circuit solid     at AWG cables for control circuit finely stranded with	2x (24 16)
<ul> <li>at AWG cables for control circuit finely stranded with core end processing</li> </ul>	2x (24 16)
wire length	

 $\bullet$  for main contacts with screw-type terminals

• between soft starter and motor maximum

• at the digital inputs at DC maximum

• for auxiliary and control contacts with screw-type terminals

tightening torque [lbf·in]

• for main contacts with screw-type terminals

800 m 1 000 m

14 ... 24 N·m

0.8 ... 1.2 N·m

124 ... 210 lbf·in

<ul> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>	7 10.3 lbf·in
Ambient conditions	
installation altitude at height above sea level maximum	2 000 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
<ul> <li>during storage and transport</li> </ul>	-40 +80 °C
environmental category	
<ul> <li>during operation according to IEC 60721</li> </ul>	3K6 (no ice formation, only occasional condensation), 3C3 (no salt
during storage according to IEC 60721	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
a during transport according to IEC 60721	,
<ul> <li>during transport according to IEC 60721</li> <li>EMC emitted interference</li> </ul>	2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m) acc. to IEC 60947-4-2: Class A
- 1111 11 1 1 1 1	acc. to IEC 00947-4-2. Class A
Communication/ Protocol	
communication module is supported	
<ul> <li>PROFINET standard</li> </ul>	Yes
<ul> <li>PROFINET high-feature</li> </ul>	Yes
<ul><li>EtherNet/IP</li></ul>	Yes
<ul><li>Modbus RTU</li></ul>	Yes
Modbus TCP	Yes
• PROFIBUS	Yes
UL/CSA ratings	
manufacturer's article number	
of circuit breaker	
<ul> <li>usable for Standard Faults at 460/480 V according to UL</li> </ul>	Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; Iq = 18 kA
<ul> <li>usable for High Faults at 460/480 V according to UL</li> </ul>	Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; Iq max = 65 kA
usable for Standard Faults at 460/480 V at inside-delta circuit according to UL	Siemens type: 3VA54, max. 600 A; lq = 18 kA
usable for High Faults at 460/480 V at inside- delta circuit according to UL	Siemens type: 3VA54, max. 600 A; lq max = 65 kA
<ul> <li>usable for Standard Faults at 575/600 V</li> <li>according to UL</li> <li>usable for High Faults at 575/600 V at inside-</li> </ul>	Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; Iq = 18 kA Siemens type: 3VA54, max. 600 A; Iq max = 65 kA
delta circuit according to UL  — usable for Standard Faults at 575/600 V at	Siemens type: 3VA54, max. 600 A; Iq = 18 kA
inside-delta circuit according to UL  • of the fuse	
<ul> <li>usable for Standard Faults up to 575/600 V according to UL</li> </ul>	Type: Class J / L, max. 800 A; Iq = 18 kA
<ul> <li>usable for High Faults up to 575/600 V according to UL</li> </ul>	Type: Class J / L, max. 800 A; Iq = 100 kA
<ul> <li>usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL</li> </ul>	Type: Class J / L, max. 800 A; Iq = 18 kA
usable for High Faults at inside-delta circuit up to 575/600 V according to UL	Type: Class J / L, max. 800 A; Iq = 100 kA
operating power [hp] for 3-phase motors	CO ha
• at 200/208 V at 50 °C rated value	60 hp
• at 220/230 V at 50 °C rated value	75 hp
• at 460/480 V at 50 °C rated value	150 hp
• at 575/600 V at 50 °C rated value	200 hp
<ul> <li>at 200/208 V at inside-delta circuit at 50 °C rated value</li> </ul>	125 hp
at 220/230 V at inside-delta circuit at 50 °C rated value	150 hp
<ul> <li>at 460/480 V at inside-delta circuit at 50 °C rated value</li> </ul>	300 hp
<ul> <li>at 575/600 V at inside-delta circuit at 50 °C rated value</li> </ul>	350 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

acc. to IEC 60947-4-2

certificate of suitability

- ATEX
- IECEx
- according to ATEX directive 2014/34/EU

type of protection according to ATEX directive

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

Yes Yes

BVS 18 ATEX F 003 X

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]

0.008

5E-7 1/h

SIL1

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### Certificates/ approvals

#### **General Product Approval**

**EMC** 



Confirmation









For use in hazardous locations

**Declaration of** Conformity

**Test Certificates** 

Marine / Shipping









Type Test Certificates/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=3RW5544-2HA16

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5544-2HA16

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

https://support.industry.siemens.com/cs/ww/en/ps/3RW5544-2HA16

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

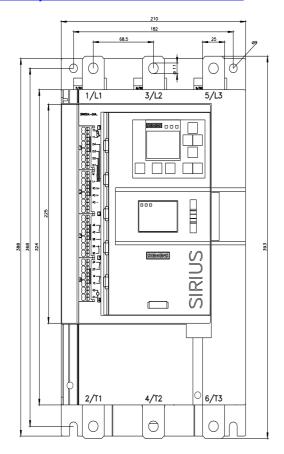
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RW5544-2HA16&lang=en

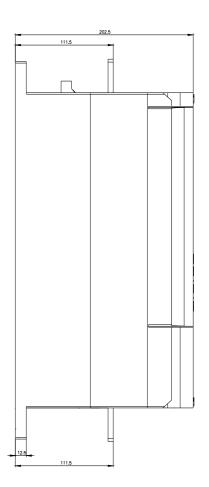
Characteristic: Tripping characteristics, I2t, Let-through current

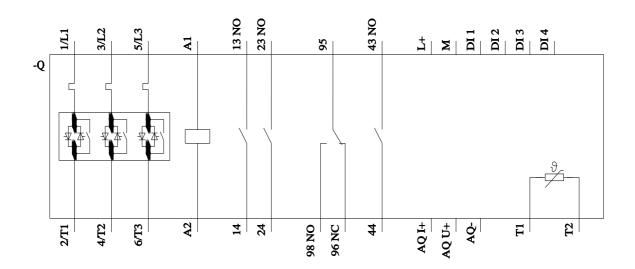
https://support.industry.siemens.com/cs/ww/en/ps/3RW5544-2HA16/char

Characteristic: Installation altitude

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5544-2HA16&objecttype=14&gridview=view1







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