

Siemens 3RW5547-6HA14 Manual

Brand	Siemens
Product Series	Siemens
Product Type	A PTC or Klixon / Thermoclick

Description

3RW5547-6HA14

3RW55 480V 470A 110-250V screw

SIRIUS soft starter 200-480 V 470 A, 110-250 V AC Screw terminals

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

- CE marking Yes
- UL approval 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

- 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 protective separation

- 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 Prohibittance (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 Klaxon / 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 Yes

- spring-loaded terminal No

- PROFINET 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

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Power Electronics

operational current

- at 40 °C rated value 470 A
- at 40 °C rated value minimum 94 A
- at 50 °C rated value 416 A
- at 60 °C rated value 380 A

operational current at inside-delta circuit

- at 40 °C rated value 814 A
- at 50 °C rated value 721 A
- at 60 °C rated value 658 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 132 kW
- at 230 V at inside-delta circuit at 40 °C rated value 250 kW
- at 400 V at 40 °C rated value 250 kW
- at 400 V at inside-delta circuit at 40 °C rated value 400 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 I_e

power loss [W] for rated value of the current at AC

- at 40 °C after startup 141 W
- at 50 °C after startup 125 W
- at 60 °C after startup 114 W

power loss [W] at AC at current limitation 350 %

- at 40 °C during startup 7 651 W
- at 50 °C during startup 6 400 W
- at 60 °C during startup 5 620 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 supply current in standby mode rated value 100 mA

holding current in bypass operation rated value 150 mA

inrush current by closing the bypass contacts 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 ($I_{cu}=1$ kA), 6 A quick-acting fuse ($I_{cu}=1$ kA), C1 miniature circuit breaker ($I_{cu}=600$ A), C6 miniature circuit breaker ($I_{cu}=800$ 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 $\pm 90^\circ$ and tilted forward or backward $\pm 22.5^\circ$)

fastening method screw fixing

height 393 mm

width 210 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 10.9 kg

Connections/ Terminals

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type of electrical connection

- for main current circuit busbar connection
- for control circuit screw-type terminals

width of connection bar maximum 45 mm

wire length for thermistor connection

- with conductor cross-section = 0.5 mm² maximum 50 m
- with conductor cross-section = 1.5 mm² maximum 150 m
- with conductor cross-section = 2.5 mm² maximum 250 m

type of connectable conductor cross-sections

- for DIN cable lug for main contacts stranded 2x (50 ... 240 mm²)
- for DIN cable lug for main contacts finely stranded 2x (70 ... 240 mm²)

type of connectable conductor cross-sections

- for control circuit solid 1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)
- for control circuit finely stranded with core end processing 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)
- for AWG cables for control circuit solid 1x (20 ... 12), 2x (20 ... 14)

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 14 ... 24 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 124 ... 210 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
- PROFINET high-feature Yes
- EtherNet/IP Yes
- Modbus RTU Yes
- Modbus TCP Yes
- PROFIBUS Yes

UL/CSA ratings

manufacturer's article number

- of the fuse

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

Type: Class J / L, max. 1600 A; I_q = 30 kA

— usable for High Faults up to 575/600 V according to UL

Type: Class J / L, max. 1200 A; I_q = 100 kA

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

Type: Class J / L, max. 1600 A; I_q = 30 kA

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

Type: Class J / L, max. 1200 A; I_q = 100 kA

operating power [hp] for 3-phase motors

- at 200/208 V at 50 °C rated value 150 hp
- at 220/230 V at 50 °C rated value 150 hp
- at 460/480 V at 50 °C rated value 350 hp
- at 200/208 V at inside-delta circuit at 50 °C rated value 250 hp
- at 220/230 V at inside-delta circuit at 50 °C rated value 250 hp
- at 460/480 V at inside-delta circuit at 50 °C rated value 600 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

ATEX

certificate of suitability

- ATEX Yes
- IECEx Yes
- according to ATEX directive 2014/34/EU BVS 18 ATEX F 003 X

type of protection according to ATEX directive 2014/34/EU 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]

hardware fault tolerance according to IEC 61508 relating to

ATEX

0

PFDavg with low demand rate according to IEC 61508

relating to ATEX

0.008

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

5E-7 1/h

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

SIL1

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

3 a

Certificates/ approvals

General Product Approval EMC

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idle time a

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