SIEMENS

Data sheet 3RW5547-6HA16



SIRIUS soft starter 200-690 V 470 A, 110-250 V AC Screw 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 	3VA2450-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 500 V 	3VA2450-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 400 V at inside-delta circuit 	3VA2510-6HN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 500 V at inside-delta circuit 	3VA2510-6HN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10
 of the gG fuse usable up to 690 V 	2x3NA3365-6; Type of coordination 1, Iq = 65 kA
 of the gG fuse usable at inside-delta circuit up to 500 V 	2x3NA3365-6; Type of coordination 1, Iq = 65 kA
 of full range R fuse link for semiconductor protection usable up to 690 V 	3NE1436-2; Type of coordination 2, Iq = 65 kA
 of back-up R fuse link for semiconductor protection usable up to 690 V 	3NE3340-8: Type of coordination 2, Iq = 65 kA

General technical data	
starting voltage [%]	20 100 %
stopping voltage [%]	50 50 %
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 acc. to IEC 61557-12	5 %
certificate of suitability	

OF marking	V
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	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	
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 acc. to IEC 60947-4-2	AC 53a
reference code acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	15.02.2018
product function	13.02.2010
• ramp-up (soft starting)	Yes
• ramp-down (soft stop)	Yes
breakaway pulse	Yes
* *	Yes
adjustable current limitation	
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)
 evaluation of thermistor motor protection 	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
 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
PROFlenergy	Yes; in connection with the PROFINET Standard and PROFINET High-
- I Not lonergy	Feature communication modules
• firmware update	Yes
removable terminal for control circuit	Yes
voltage ramp	Yes

e combined braking e analog output programmable control inputs/outputs e condition monitoring e automatic parameterisation e application wazards e alternative run-down e alternative run-down e reversing operation e soft starting at heavy starting conditions Power Electronics powerational current e at 40 °C rated value e at 40 °C rated value e at 60 °C rated value		
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operating voltage	• at 50 °C rated value	721 A
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power loss [W] for rated value of the current at AC • at 40 °C after startup • at 50 °C after startup • at 60 °C after startup 114 W power loss [W] at AC at current limitation 350 % • at 40 °C during startup • at 50 °C during startup • at 50 °C during startup • at 60 °C during startup		
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 at 50 °C after startup at 60 °C after startup power loss [W] at AC at current limitation 350 % at 40 °C during startup at 50 °C during startup at 60 °C during startup at 60 °C during startup f 620 W type of the motor protection Control circuit/ Control 		444 W
 at 60 °C after startup power loss [W] at AC at current limitation 350 % at 40 °C during startup at 50 °C during startup at 60 °C during startup 5 620 W type of the motor protection Control circuit/ Control 	·	
power loss [W] at AC at current limitation 350 % • at 40 °C during startup • at 50 °C during startup • at 60 °C during startup 5 620 W type of the motor protection Control circuit/ Control	·	
 at 40 °C during startup at 50 °C during startup at 60 °C during startup 5 620 W type of the motor protection Control circuit/ Control 		11 4 VV
 at 50 °C during startup at 60 °C during startup 5 620 W type of the motor protection Control circuit/ Control 		7 651 W
• at 60 °C during startup type of the motor protection Control circuit/ Control 5 620 W Electronic, tripping in the event of thermal overload of the motor		
type of the motor protection Electronic, tripping in the event of thermal overload of the motor Control circuit/ Control	- '	
Control circuit/ Control		
		Electronic, tripping in the event of thermal overload of the motor
type of voltage of the control supply voltage AC		•••
	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	voltage at AC at 50 Hz	
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	-10 %
voltage frequency	
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
locked-rotor current at close of bypass contact 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
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	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	
type of electrical connection	
for main current circuit	busbar connection
for main current circuit for control circuit	screw-type terminals
for main current circuit for control circuit width of connection bar maximum	
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection	screw-type terminals 45 mm
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum	screw-type terminals 45 mm 50 m
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum	screw-type terminals 45 mm 50 m 150 m
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum	screw-type terminals 45 mm 50 m
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum type of connectable conductor cross-sections	screw-type terminals 45 mm 50 m 150 m 250 m
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum type of connectable conductor cross-sections for DIN cable lug for main contacts stranded	screw-type terminals 45 mm 50 m 150 m 250 m
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum with conductor cross-section = 2.5 mm² maximum type of connectable conductor cross-sections for DIN cable lug for main contacts stranded for DIN cable lug for main contacts finely stranded	screw-type terminals 45 mm 50 m 150 m 250 m
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum type of connectable conductor cross-sections for DIN cable lug for main contacts stranded for DIN cable lug for main contacts finely stranded type of connectable conductor cross-sections	screw-type terminals 45 mm 50 m 150 m 250 m 2x (50 240 mm²) 2x (70 240 mm²)
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum type of connectable conductor cross-sections for DIN cable lug for main contacts stranded for DIN cable lug for main contacts finely stranded type of connectable conductor cross-sections for control circuit solid	screw-type terminals 45 mm 50 m 150 m 250 m 2x (50 240 mm²) 2x (70 240 mm²) 1x (0.5 4.0 mm²), 2x (0.5 2.5 mm²)
for main current circuit for control circuit width of connection bar maximum wire length for thermistor connection with conductor cross-section = 0.5 mm² maximum with conductor cross-section = 1.5 mm² maximum with conductor cross-section = 2.5 mm² maximum type of connectable conductor cross-sections for DIN cable lug for main contacts stranded for DIN cable lug for main contacts finely stranded type of connectable conductor cross-sections	screw-type terminals 45 mm 50 m 150 m 250 m 2x (50 240 mm²) 2x (70 240 mm²)

des besett	
wire length	000
between soft starter and motor maximum	800 m
at the digital inputs at DC maximum	1 000 m
tightening torque	44 04 11
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	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
during storage and transport	-40 +80 °C
environmental category	
 during operation acc. 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 acc. to IEC 60721	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
during transport acc. 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	
 usable for Standard Faults up to 575/600 V according to UL 	Type: Class J / L, max. 1600 A; Iq = 30 kA
 usable for High Faults up to 575/600 V according to UL 	Type: Class J / L, max. 1200 A; Iq = 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; Iq = 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; Iq = 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 575/600 V at 50 °C rated value	450 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
 at 575/600 V at inside-delta circuit at 50 °C rated value 	800 hp
contact rating of auxiliary contacts according to UL	R300-B300
Safety related data	
protection class IP on the front acc. to IEC 60529	IP00; IP20 with cover
touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front with cover
	acc. to IEC 60947-4-2
electromagnetic compatibility	acc. to 1EC 00947-4-2
electromagnetic compatibility ATEX	acc. to fee 60347-4-2

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 acc. to IEC 61508 relating to ATEX	0
PFDavg with low demand rate acc. to IEC 61508 relating to ATEX	0.008
PFHD with high demand rate acc. to EN 62061 relating to ATEX	0.0000005 1/h
Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX	SIL1
T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX	3 y

Certificates/ approvals

General Product Approval

EMC

For use in hazardous locations













For use in hazardous locations Declaration of Conformity

Test Certificates

Marine / Shipping



IECEx



Type Test Certificates/Test Report







Marine / Shipping

other



Confirmation

Further information

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=3RW5547-6HA16

Cax online generator

 $\underline{\text{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RW5547-6HA16}}$

 ${\bf Service \& Support~(Manuals,~Certificates,~Characteristics,~FAQs,...)}$

https://support.industry.siemens.com/cs/ww/en/ps/3RW5547-6HA16

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

 $\underline{\text{http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5547-6HA16\&lang=en}}$

Characteristic: Tripping characteristics, I2t, Let-through current

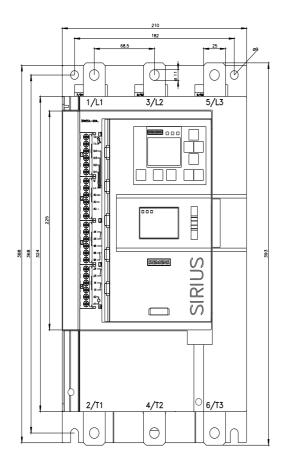
https://support.industry.siemens.com/cs/ww/en/ps/3RW5547-6HA16/char

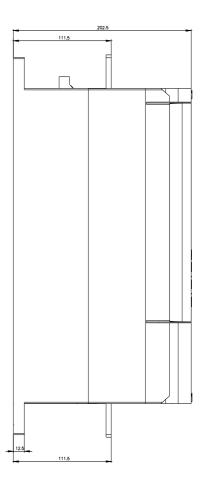
Characteristic: Installation altitude

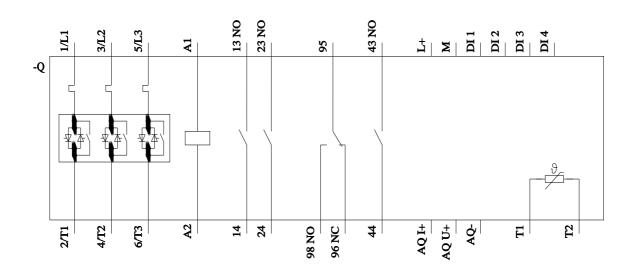
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5547-6HA16&objecttype=14&gridview=view1

Simulation Tool for Soft Starters (STS)

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







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