SIEMENS

Data sheet

3RW5553-6HA16



SIRIUS soft starter 200-690 V 720 A, 110-250 V AC Screw terminals

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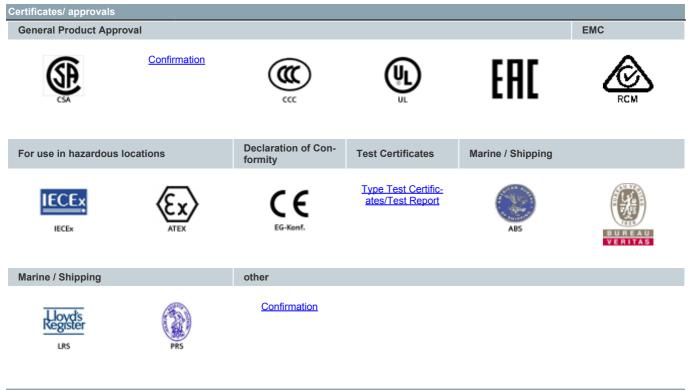
product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW55
manufacturer's article number	
 of high feature HMI module usable 	<u>3RW5980-0HF00</u>
 of communication module PROFINET standard usable 	<u>3RW5980-0CS00</u>
 of communication module PROFINET high-feature usable 	<u>3RW5950-0CH00</u>
 of communication module PROFIBUS usable 	<u>3RW5980-0CP00</u>
 of communication module Modbus TCP usable 	<u>3RW5980-0CT00</u>
 of communication module Modbus RTU usable 	<u>3RW5980-0CR00</u>
 of communication module Ethernet/IP 	<u>3RW5980-0CE00</u>
 of circuit breaker usable at 400 V 	3VA2510-6HN32-0AA0: Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 500 V 	3VA2510-6HN32-0AA0: Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 400 V at inside-delta circuit 	3VA2716-7AB05-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 500 V at inside-delta circuit 	3VA2716-7AB05-0AA0: 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 full range R fuse link for semiconductor protection usable up to 690 V 	3NB3351-1KK26: Type of coordination 2, Iq = 65 kA
 of back-up R fuse link for semiconductor protection usable up to 690 V 	<u>3NC3343-1U: Type of coordination 2. Iq = 65 kA</u>
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	690 V
degree of pollution	3, acc. to IEC 60947-4-2
impulse voltage rated value	8 kV 1 800 V
blocking voltage of the thyristor maximum service factor	1.15
surge voltage resistance rated value maximum permissible voltage for protective separation	8 kV
	600 V/: does not apply for thermister connection
between main and auxiliary circuit shock resistance	690 V; does not apply for thermistor connection
vibration resistance	15 g / 11 ms, from 6 g / 11 ms with potential contact lifting 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 80947-4-2	Q AC 558
Substance Prohibitance (Date)	02/11/2019
product function	02/11/2019
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)
 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-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
Power Electronics	
operational current	
• at 40 °C rated value	720 A
 at 40 °C rated value minimum 	144 A
• at 50 °C rated value	641 A
• at 60 °C rated value	580 A
operational current at inside-delta circuit	
• at 40 °C rated value	1 247 A
• at 50 °C rated value	1 110 A
• at 60 °C rated value	1 005 A
operating voltage	
rated value	200 690 V
 at inside-delta circuit rated value 	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 inside-delta circuit	10 %
operating power for 3-phase motors	
• at 230 V at 40 °C rated value	200 kW
• at 230 V at inside-delta circuit at 40 °C rated value	400 kW
• at 400 V at 40 °C rated value	400 kW
 at 400 V at inside-delta circuit at 40 °C rated value 	710 kW
• at 500 V at 40 °C rated value	500 kW
• at 500 V at inside-delta circuit at 40 °C rated value	800 kW
• at 690 V at 40 °C rated value	710 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	216 W
● at 50 °C after startup	170 W
● at 60 °C after startup	139 W
power loss [W] at AC at current limitation 350 %	
● at 40 °C during startup	11 534 W
● at 50 °C during startup	9 773 W
● at 60 °C during startup	8 497 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	-10 %
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	210 mA
inrush current by closing the bypass contacts maximum	1 A
inrush current peak at application of control supply voltage maximum	44 A
duration of inrush current peak at application of control supply voltage	1.7 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	764 mm
width	478 mm
depth	241 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	45 kg
Connections/ Terminals	
type of electrical connection	
for main current circuit	busbar connection
for control circuit	screw-type terminals
width of connection bar maximum	55 mm
wire length for thermistor connection	
 with conductor cross-section = 0.5 mm² maximum 	50 m
• with conductor cross-section = 1.5 mm ² maximum	150 m
• with conductor cross-section = 2.5 mm ² 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 mm ²)
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 mm ²), 2x (0.5 1.5 mm ²)
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	20 35 N·m
 for auxiliary and control contacts with screw-type 	0.8 1.2 N·m
terminals	0.0 1.2 N III
tightening torque [lbf·in]	
· · · · · ·	

• for main contacts with screw-type terminals	177 310 lbf·in
 for auxiliary and control contacts with screw-type 	7 10.3 lbf-in
terminals	
mbient 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 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 g 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
ommunication/ Protocol	
communication module is supported	
PROFINET standard	Yes
PROFINET high-feature	Yes
EtherNet/IP	Yes
Modbus RTU	Yes
Modbus TCP	Yes
PROFIBUS	Yes
IL/CSA ratings	
manufacturer's article number	
 of the fuse — usable for Standard Faults up to 575/600 V 	Type: Class J / L, max. 2000 A; Iq = 42 kA
according to UL — usable for High Faults up to 575/600 V according to	Type: Class J / L, max. 2000 A; Iq = 100 kA
UL — usable for Standard Faults at inside-delta circuit up	Type: Class J / L, max. 2000 A; lq = 42 kA
to 575/600 V according to UL — usable for High Faults at inside-delta circuit up to	Type: Class J / L, max. 2000 A; Iq = 100 kA
575/600 V according to UL	
operating power [hp] for 3-phase motors	200 ha
• at 200/208 V at 50 °C rated value	200 hp
• at 220/230 V at 50 °C rated value	250 hp
• at 460/480 V at 50 °C rated value	500 hp
• at 575/600 V at 50 °C rated value	700 hp
• at 200/208 V at inside-delta circuit at 50 °C rated value	400 hp
• at 220/230 V at inside-delta circuit at 50 °C rated value	450 hp
• at 460/480 V at inside-delta circuit at 50 °C rated value	950 hp
at 575/600 V at inside-delta circuit at 50 °C rated value	1 250 hp
contact rating of auxiliary contacts according to UL	R300-B300
afety related data	
protection class IP on the front according to IEC 60529	IP00
electromagnetic compatibility	acc. to IEC 60947-4-2
TEX	
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 (M [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



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=3RW5553-6HA16

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5553-6HA16

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

https://support.industry.siemens.com/cs/ww/en/ps/3RW5553-6HA16

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5553-6HA16&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

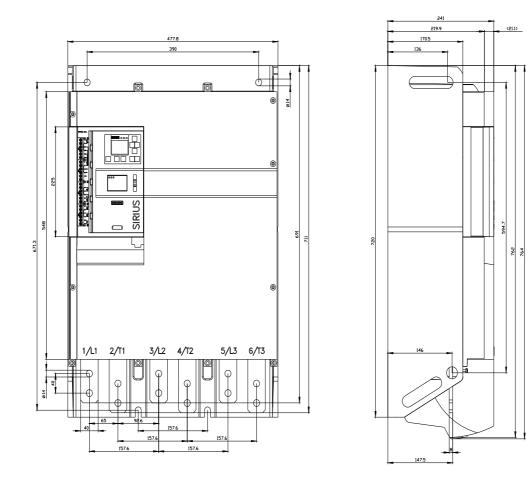
https://support.industry.siemens.com/cs/ww/en/ps/3RW5553-6HA16/char

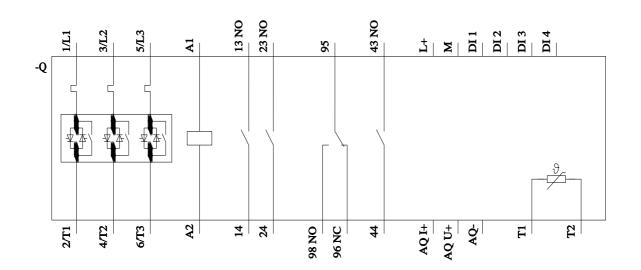
Characteristic: Installation altitude

 $\underline{http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5553-6HA16\&objecttype=14&gridview=view1$

Simulation Tool for Soft Starters (STS)

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





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