



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

product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Failsafe soft starters
product type designation	3RW55
manufacturer's article number	<ul style="list-style-type: none">• 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• of the redundant contactor for applications > SIL 1 according to EN 62061 3TF69• of the redundant contactor for applications > SIL 1 at inside-delta circuit according to EN 62061 3TF69
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
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 Prohibitance (day/month/year)	11/22/2019
SVHC substance name	Lead CAS-No. 7439-92-1 Lead monoxide (lead oxide) CAS-No. 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol CAS-No. 119-47-1 Dibutylbis(pentane-2,4-dionato-O,O')tin CAS-No. 22673-19-4
Net Weight	11.561 kg
product function	
• ramp-up (soft starting)	Yes
• soft stopping	Yes
• breakaway pulse	Yes
• adjustable current limitation	Yes
• creep speed in both directions of rotation	Yes
• pump stop	Yes
• DC braking	Yes
• motor heating	Yes
• min/max pointer	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
• PROFInergy	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 stopping mode	Yes
• emergency operation mode	Yes
• reversing operation	Yes
• soft starting at heavy starting conditions	Yes

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 le
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} = 300 A); Is not part of scope of supply
Inputs/ Outputs	
number of digital inputs	4
• with fail-safe	1
• parameterizable	4
• number of digital outputs	3
• Number of digital outputs with fail-safe	1
• number of digital outputs parameterizable	2
• number of digital outputs not parameterizable	1
digital output version	2 normally-open contacts (NO) / 1 normally-closed contact (NC) / 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
Response times	
OFF-delay time with safety-related request when switched off via control inputs maximum	100 ms
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	

<ul style="list-style-type: none"> • for main current circuit • for control circuit 	busbar connection screw-type terminals
width of connection bar maximum	45 mm
wire length for thermistor connection	
<ul style="list-style-type: none"> • with conductor cross-section = 0.5 mm² maximum 	50 m
<ul style="list-style-type: none"> • with conductor cross-section = 1.5 mm² maximum 	150 m
<ul style="list-style-type: none"> • with conductor cross-section = 2.5 mm² maximum 	250 m
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for DIN cable lug for main contacts stranded 	2x (50 ... 240 mm ²)
<ul style="list-style-type: none"> • for DIN cable lug for main contacts finely stranded 	2x (70 ... 240 mm ²)
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> • for control circuit solid 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²)
<ul style="list-style-type: none"> • for control circuit finely stranded with core end processing 	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²)
<ul style="list-style-type: none"> • for AWG cables for control circuit solid 	1x (20 ... 12), 2x (20 ... 14)
wire length	
<ul style="list-style-type: none"> • between soft starter and motor maximum 	800 m
<ul style="list-style-type: none"> • at the digital inputs at DC maximum 	1 000 m
tightening torque	
<ul style="list-style-type: none"> • for main contacts with screw-type terminals 	14 ... 24 N·m
<ul style="list-style-type: none"> • for auxiliary and control contacts with screw-type terminals 	0.8 ... 1.2 N·m
tightening torque [lbf·in]	
<ul style="list-style-type: none"> • for main contacts with screw-type terminals 	124 ... 210 lbf·in
<ul style="list-style-type: none"> • 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
ambient temperature	
<ul style="list-style-type: none"> • during operation 	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above
<ul style="list-style-type: none"> • during storage and transport 	-40 ... +80 °C
environmental category	
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • during storage according to IEC 60721 	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
<ul style="list-style-type: none"> • during transport according to IEC 60721 	2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)
Electromagnetic compatibility	
EMC emitted interference	acc. to IEC 60947-4-2: Class A
Communication/ Protocol	
communication module is supported	
<ul style="list-style-type: none"> • PROFINET standard 	Yes
<ul style="list-style-type: none"> • PROFINET high-feature 	Yes
<ul style="list-style-type: none"> • EtherNet/IP 	Yes
<ul style="list-style-type: none"> • Modbus RTU 	Yes
<ul style="list-style-type: none"> • Modbus TCP 	Yes
<ul style="list-style-type: none"> • PROFIBUS 	Yes
UL/CSA ratings	
manufacturer's article number	
<ul style="list-style-type: none"> • of the fuse <ul style="list-style-type: none"> — usable for Standard Faults up to 575/600 V according to UL 	Type: Class J / L, max. 1600 A; Iq = 30 kA
<ul style="list-style-type: none"> — usable for High Faults up to 575/600 V according to UL 	Type: Class J / L, max. 1200 A; Iq = 100 kA
<ul style="list-style-type: none"> — 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
<ul style="list-style-type: none"> — 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	
<ul style="list-style-type: none"> • at 200/208 V at 50 °C rated value 	150 hp
<ul style="list-style-type: none"> • at 220/230 V at 50 °C rated value 	150 hp
<ul style="list-style-type: none"> • at 460/480 V at 50 °C rated value 	350 hp

<ul style="list-style-type: none"> • at 200/208 V at inside-delta circuit at 50 °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 	250 hp 250 hp 600 hp
contact rating of auxiliary contacts according to UL	R300-B300
Safety related data	
product function suitable for safety function	Yes
suitability for use	
<ul style="list-style-type: none"> • safety-related switching on • safety-related switching OFF 	No Yes
safe state	Open load circuit
function test interval maximum	1 a
diagnostics test interval by internal test function maximum	1 000 s
stop category according to IEC 60204-1	0
B10d value	648 000
average diagnostic coverage level (DCavg)	90 %
MTTFd	39 a
IEC 62061	
Safety Integrity Level (SIL) according to IEC 62061	SIL 1
PFHD with high demand rate according to IEC 62061	1E-6 1/h
ISO 13849	
performance level (PL) according to ISO 13849-1	PL c
category according to ISO 13849-1	2
IEC 61508	
Safety Integrity Level (SIL)	
<ul style="list-style-type: none"> • according to IEC 61508 	SIL 1
safety device type according to IEC 61508-2	Type B
PFHD with high demand rate according to IEC 61508	1E-6 1/h
PFDavg with low demand rate according to IEC 61508	0.09
Safe failure fraction (SFF)	60 %
hardware fault tolerance according to IEC 61508	0
T1 value of service life according to IEC 61508	20 a
Electrical Safety	
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
ATEX	
Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX	SIL 1
PFHD with high demand rate according to IEC 61508 relating to ATEX	5E-7 1/h
PFDavg with low demand rate according to IEC 61508 relating to ATEX	0.008
hardware fault tolerance according to IEC 61508 relating to ATEX	0
T1 value for proof test interval or service life according to IEC 61508 relating to ATEX	3 a
certificate of suitability	
<ul style="list-style-type: none"> • ATEX • IECEx • according to ATEX directive 2014/34/EU 	Yes Yes 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]
Approvals Certificates	
Environmental Product Declaration	
<ul style="list-style-type: none"> • global warming potential [CO2 eq] / during manufacturing • global warming potential [CO2 eq] / during sales • global warming potential [CO2 eq] / during operation • global warming potential [CO2 eq] / after end of life • global warming potential [CO2 eq] / total 	95.3 kg 2.8 kg 756 kg -21 kg 833 kg
Environment	General Product Approval

[Environmental Conformations](#)

Siemens
EcoTech



General Product Approval

EMV

For use in hazardous locations



EG-Konf.



RCM



ATEX



IECEx

Functional Safety

Test Certificates

Maritime application

[Type Examination Certificate](#)

[Type Test Certificates/Test Report](#)



ABS



BUREAU
VERITAS



DNV



LRS

Maritime application

other



PRS

[Confirmation](#)



Further information

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3RW5547-6HF14>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5547-6HF14>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5547-6HF14&lang=en

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5547-6HF14>

Kennlinien

<https://curves.simarisiemens.com/curves/3RW5547-6HF14>

Characteristic: Tripping characteristics, I^2t , Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5547-6HF14/char>

Characteristic: Installation altitude

https://www.automation.siemens.com/bilddb/index.aspx?gridview=view2&objkey=G_NSB0_XX_01704&showdetail=true&view=Search

Simulation Tool for Soft Starters (STS)

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



