



SIRIUS soft starter 200-480 V 1100 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 3VA2716-7AB05-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of circuit breaker usable at 500 V 3VA2716-7AB05-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of the gG fuse usable up to 690 V 3x3NA3365-6; Type of coordination 1, Iq = 65 kA • of full range R fuse link for semiconductor protection usable up to 690 V 3NB3354-1KK26; Type of coordination 2, Iq = 65 kA • of back-up R fuse link for semiconductor protection usable up to 690 V 3x3NE3340-8; Type of coordination 2, Iq = 65 kA
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 • for control circuit	100 ms 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)	02/11/2019
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 Lead titanium trioxide CAS-No. 12060-00-3
Net Weight	70 kg
product function • ramp-up (soft starting) • soft stopping • breakaway pulse • adjustable current limitation • creep speed in both directions of rotation • pump stop • DC braking • motor heating • min/max pointer • trace function • intrinsic device protection • motor overload protection • evaluation of thermistor motor protection • inside-delta circuit • auto-RESET • manual RESET • remote reset • communication function • operating measured value display • event list • error logbook • via software parameterizable • via software configurable • screw terminal • spring-loaded terminal • PROFinergy	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes 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. Yes; Type A PTC or Klixon / Thermoclick Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No 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	1 100 A
• at 40 °C rated value minimum	220 A
• at 50 °C rated value	979 A
• at 60 °C rated value	890 A
operational current at inside-delta circuit	
• at 40 °C rated value	1 905 A
• at 50 °C rated value	1 695 A
• at 60 °C rated value	1 541 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	315 kW
• at 230 V at inside-delta circuit at 40 °C rated value	560 kW
• at 400 V at 40 °C rated value	560 kW
• at 400 V at inside-delta circuit at 40 °C rated value	1 000 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	330 W
• at 50 °C after startup	270 W
• at 60 °C after startup	223 W
power loss [W] at AC at current limitation 350 %	
• at 40 °C during startup	18 502 W
• at 50 °C during startup	15 568 W
• at 60 °C during startup	13 552 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	10 %

AC at 50 Hz	
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	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	61 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 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	20 ... 35 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	177 ... 310 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
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)
Electromagnetic compatibility	
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. 3000 A; Iq = 85 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J / L, max. 3000 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. 3000 A; Iq = 85 kA
— usable for High Faults at inside-delta circuit up to 575/600 V according to UL	Type: Class J / L, max. 3000 A; Iq = 100 kA
operating power [hp] for 3-phase motors	
• at 200/208 V at 50 °C rated value	350 hp
• at 220/230 V at 50 °C rated value	400 hp
• at 460/480 V at 50 °C rated value	850 hp
• at 200/208 V at inside-delta circuit at 50 °C rated value	600 hp
• at 220/230 V at inside-delta circuit at 50 °C rated value	700 hp
• at 460/480 V at inside-delta circuit at 50 °C rated value	1 500 hp
contact rating of auxiliary contacts according to UL	R300-B300
Electrical Safety	
protection class IP on the front according to IEC 60529	IP00
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	0

ATEX	
T1 value for proof test interval or service life according to IEC 61508 relating to ATEX	3 a
certificate of suitability • 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	
• 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	306 kg 13.9 kg 1610 kg -116 kg 1820 kg
Environment	General Product Approval

[Environmental Confirmations](#)



General Product Approval	EMV	For use in hazardous locations
 EG-Konf.	 UKCA	 KC
	 RCM	 ATEX
		 IECEX

Test Certificates	Maritime application
Type Test Certificates/Test Report	 ABS
	 BUREAU VERITAS
	 DNV
	 LRS
	 PRS

other
Confirmation
Confirmation
 产品合格 QC PASS

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=3RW5556-6HA14>
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5556-6HA14>
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5556-6HA14&lang=en
Cax online generator
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5556-6HA14>
Characteristic curves
[https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP="HAUPT"></mmp_prod_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)
Characteristic: Tripping characteristics, I²t, Let-through current
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5556-6HA14/char>
Characteristic: Installation altitude
https://www.automation.siemens.com/bilddb/index.aspx?gridview=view2&objkey=G_NSB0_XX_01704&showdetail=true&view=Search



