



SIRIUS soft starter 200-690 V 840 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	<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 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 3NC3343-1U; 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	<ul style="list-style-type: none"> • CE marking Yes • UL approval Yes

<ul style="list-style-type: none"> • CSA approval 	Yes
product component	
<ul style="list-style-type: none"> • HMI-High Feature 	Yes
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • for main current circuit 	100 ms
<ul style="list-style-type: none"> • 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 protective separation	
<ul style="list-style-type: none"> • 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 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	65 kg
product function	
<ul style="list-style-type: none"> • ramp-up (soft starting) 	Yes
<ul style="list-style-type: none"> • soft stopping 	Yes
<ul style="list-style-type: none"> • breakaway pulse 	Yes
<ul style="list-style-type: none"> • adjustable current limitation 	Yes
<ul style="list-style-type: none"> • creep speed in both directions of rotation 	Yes
<ul style="list-style-type: none"> • pump stop 	Yes
<ul style="list-style-type: none"> • DC braking 	Yes
<ul style="list-style-type: none"> • motor heating 	Yes
<ul style="list-style-type: none"> • min/max pointer 	Yes
<ul style="list-style-type: none"> • trace function 	Yes
<ul style="list-style-type: none"> • intrinsic device protection 	Yes
<ul style="list-style-type: none"> • motor overload protection 	Yes; Full motor protection (thermistor motor protection and electronic motor overload protection)
<ul style="list-style-type: none"> • evaluation of thermistor motor protection 	Yes; Type A PTC or Klixon / Thermoclick
<ul style="list-style-type: none"> • inside-delta circuit 	Yes; Only up to 600 V operating voltage
<ul style="list-style-type: none"> • auto-RESET 	Yes
<ul style="list-style-type: none"> • manual RESET 	Yes
<ul style="list-style-type: none"> • remote reset 	Yes
<ul style="list-style-type: none"> • communication function 	Yes
<ul style="list-style-type: none"> • operating measured value display 	Yes
<ul style="list-style-type: none"> • event list 	Yes
<ul style="list-style-type: none"> • error logbook 	Yes
<ul style="list-style-type: none"> • via software parameterizable 	Yes
<ul style="list-style-type: none"> • via software configurable 	Yes
<ul style="list-style-type: none"> • screw terminal 	Yes
<ul style="list-style-type: none"> • spring-loaded terminal 	No

<ul style="list-style-type: none"> ● PROFInergy 	Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules
<ul style="list-style-type: none"> ● firmware update 	Yes
<ul style="list-style-type: none"> ● removable terminal for control circuit 	Yes
<ul style="list-style-type: none"> ● voltage ramp 	Yes
<ul style="list-style-type: none"> ● torque control 	Yes
<ul style="list-style-type: none"> ● combined braking 	Yes
<ul style="list-style-type: none"> ● analog output 	Yes; 4 ... 20 mA (default) / 0 ... 10 V
<ul style="list-style-type: none"> ● programmable control inputs/outputs 	Yes
<ul style="list-style-type: none"> ● condition monitoring 	Yes
<ul style="list-style-type: none"> ● automatic parameterisation 	Yes
<ul style="list-style-type: none"> ● application wizards 	Yes
<ul style="list-style-type: none"> ● alternative stopping mode 	Yes
<ul style="list-style-type: none"> ● emergency operation mode 	Yes
<ul style="list-style-type: none"> ● reversing operation 	Yes
<ul style="list-style-type: none"> ● soft starting at heavy starting conditions 	Yes
Power Electronics	
operational current	
<ul style="list-style-type: none"> ● at 40 °C rated value 	840 A
<ul style="list-style-type: none"> ● at 40 °C rated value minimum 	168 A
<ul style="list-style-type: none"> ● at 50 °C rated value 	748 A
<ul style="list-style-type: none"> ● at 60 °C rated value 	670 A
operational current at inside-delta circuit	
<ul style="list-style-type: none"> ● at 40 °C rated value 	1 454 A
<ul style="list-style-type: none"> ● at 50 °C rated value 	1 295 A
<ul style="list-style-type: none"> ● at 60 °C rated value 	1 160 A
operating voltage	
<ul style="list-style-type: none"> ● rated value 	200 ... 690 V
<ul style="list-style-type: none"> ● 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	
<ul style="list-style-type: none"> ● at 230 V at 40 °C rated value 	250 kW
<ul style="list-style-type: none"> ● at 230 V at inside-delta circuit at 40 °C rated value 	450 kW
<ul style="list-style-type: none"> ● at 400 V at 40 °C rated value 	450 kW
<ul style="list-style-type: none"> ● at 400 V at inside-delta circuit at 40 °C rated value 	800 kW
<ul style="list-style-type: none"> ● at 500 V at 40 °C rated value 	560 kW
<ul style="list-style-type: none"> ● at 500 V at inside-delta circuit at 40 °C rated value 	900 kW
<ul style="list-style-type: none"> ● at 690 V at 40 °C rated value 	800 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	
<ul style="list-style-type: none"> ● at 40 °C after startup 	252 W
<ul style="list-style-type: none"> ● at 50 °C after startup 	205 W
<ul style="list-style-type: none"> ● at 60 °C after startup 	164 W
power loss [W] at AC at current limitation 350 %	
<ul style="list-style-type: none"> ● at 40 °C during startup 	14 441 W
<ul style="list-style-type: none"> ● at 50 °C during startup 	12 187 W
<ul style="list-style-type: none"> ● at 60 °C during startup 	10 405 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	

<ul style="list-style-type: none"> • at 50 Hz • at 60 Hz 	110 ... 250 V 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	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 (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
<ul style="list-style-type: none"> • parameterizable 	4
<ul style="list-style-type: none"> • number of digital outputs • number of digital outputs parameterizable • number of digital outputs not parameterizable 	4 3 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	
<ul style="list-style-type: none"> • at AC-15 at 250 V rated value • at DC-13 at 24 V rated value 	3 A 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	
<ul style="list-style-type: none"> • forwards • backwards • upwards • downwards • at the side 	10 mm 0 mm 100 mm 75 mm 5 mm
weight without packaging	45 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	55 mm
wire length for thermistor connection	
<ul style="list-style-type: none"> • with conductor cross-section = 0.5 mm² maximum • with conductor cross-section = 1.5 mm² maximum • with conductor cross-section = 2.5 mm² maximum 	50 m 150 m 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 for control circuit finely stranded with core end processing for AWG cables for control circuit solid 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²) 1x (20 ... 12), 2x (20 ... 14)
wire length <ul style="list-style-type: none"> between soft starter and motor maximum at the digital inputs at DC maximum 	800 m 1 000 m
tightening torque <ul style="list-style-type: none"> for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals 	20 ... 35 N·m 0.8 ... 1.2 N·m
tightening torque [lbf·in] <ul style="list-style-type: none"> for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals 	177 ... 310 lbf·in 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 during storage and transport 	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above -40 ... +80 °C
environmental category <ul style="list-style-type: none"> during operation according to IEC 60721 during storage according to IEC 60721 during transport according to IEC 60721 	3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4 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 PROFINET high-feature EtherNet/IP Modbus RTU Modbus TCP PROFIBUS 	Yes Yes Yes Yes Yes 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 usable for High Faults up to 575/600 V according to UL usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL usable for High Faults at inside-delta circuit up to 575/600 V according to UL 	Type: Class J / L, max. 2500 A; Iq = 42 kA Type: Class J / L, max. 2500 A; Iq = 100 kA Type: Class J / L, max. 2500 A; Iq = 42 kA Type: Class J / L, max. 2500 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 at 220/230 V at 50 °C rated value at 460/480 V at 50 °C rated value at 575/600 V at 50 °C rated value 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 at 575/600 V at inside-delta circuit at 50 °C rated value 	250 hp 300 hp 600 hp 800 hp 450 hp 550 hp 1 150 hp 1 450 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 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 	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**

Test Certificates **Maritime application**

[Type Test Certificates/Test Report](#)

other

[Confirmation](#) [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=3RW5554-6HA16>
- Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5554-6HA16>
- Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5554-6HA16&lang=en

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mfb=3RW5554-6HA16>

Characteristic curves

https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP='HAUPT'></mmp_prod_no>

Characteristic: Tripping characteristics, I_t, Let-through current

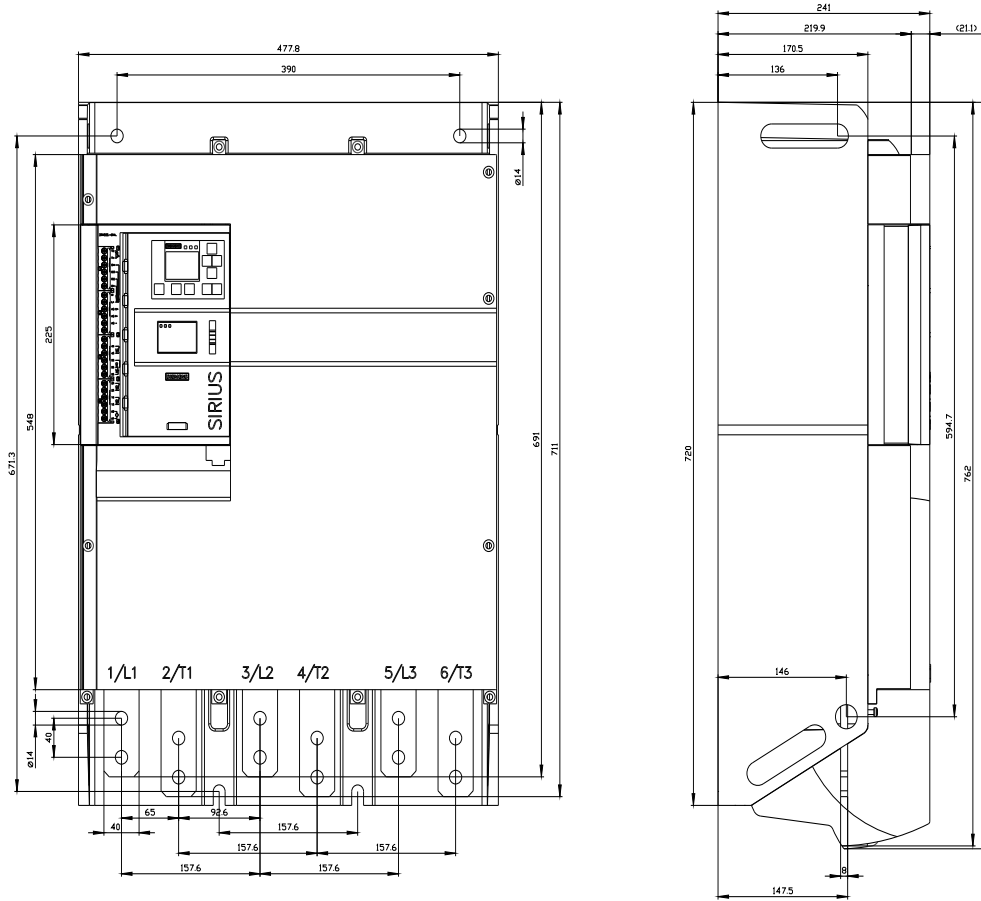
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5554-6HA16/char>

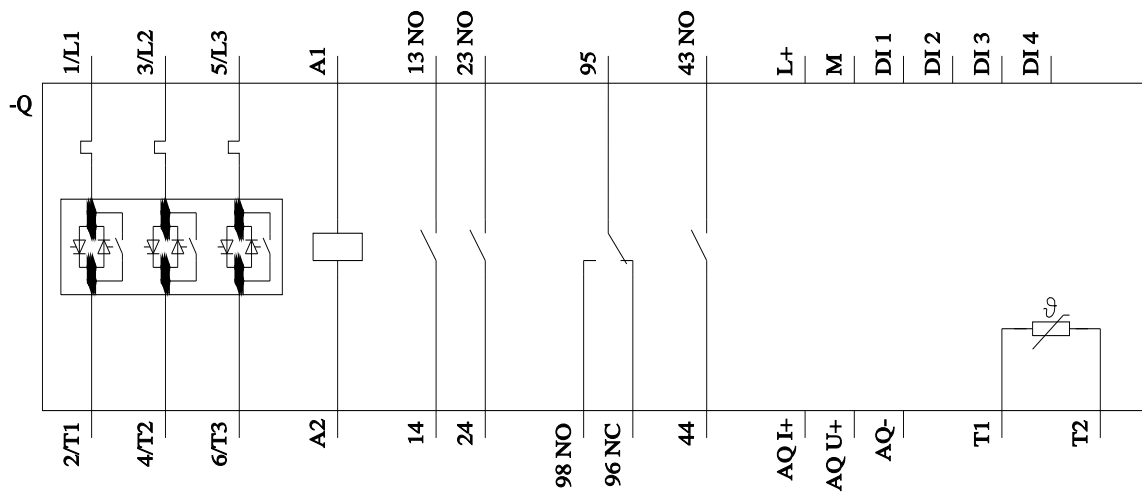
Characteristic: Installation altitude

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>





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