

Siemens
EcoTech



SIRIUS soft starter 200-600 V 570 A, 110-250 V AC Spring-loaded terminals
Thermistor input



product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW50
manufacturer's article number	• of standard HMI module usable 3RW5980-0HS01 • of high feature HMI module usable 3RW5980-0HF00 • of communication module PROFINET standard usable 3RW5980-0CS00 • 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 3VA2580-6HN32-0AA0; Type of assignment 1, I_q = 65 kA • of circuit breaker usable at 500 V 3VA2580-6HN32-0AA0; Type of assignment 1, I_q = 65 kA • of the gG fuse usable up to 690 V 2x3NA3365-6; Type of coordination 1, I_q = 65 kA • of full range R fuse link for semiconductor protection usable up to 690 V 3NE1 437-2; Type of coordination 2, I_q = 65 kA • of back-up R fuse link for semiconductor protection usable up to 690 V 3NE3 340-8; Type of coordination 2, I_q = 65 kA • of line contactor usable up to 480 V 3TF68 • of line contactor usable up to 690 V 3TF68
General technical data	
starting voltage [%]	30 ... 100 %
stopping voltage [%]	50 %; non-adjustable
start-up ramp time of soft starter	0 ... 20 s
ramp-down time of soft starter	0 ... 20 s
current limiting value [%] adjustable	130 ... 700 %
certificate of suitability	• CE marking Yes • UL approval Yes • CSA approval Yes
product component	• HMI-High Feature No • is supported HMI-Standard Yes • is supported HMI-High Feature Yes
product feature integrated bypass contact system	Yes
number of controlled phases	2
buffering time in the event of power failure	

• for main current circuit • for control circuit	100 ms
insulation voltage rated value	600 V
degree of pollution	3, acc. to IEC 60947-4-2
impulse voltage rated value	6 kV
blocking voltage of the thyristor maximum	1 600 V
service factor	1
surge voltage resistance rated value	6 kV
maximum permissible voltage for protective separation • between main and auxiliary circuit	600 V
shock resistance	15 g / 11 ms, from 12 g / 11 ms with potential contact lifting
vibration resistance	15 mm to 6 Hz; 2g to 500 Hz
utilization category according to IEC 60947-4-2	AC-53a
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	09/23/2019
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1
Weight	8.501 kg
product function • ramp-up (soft starting) • ramp-down (soft stop) • Soft Torque • adjustable current limitation • pump ramp down • intrinsic device protection • motor overload protection • evaluation of thermistor motor protection • auto-RESET • manual RESET • remote reset • communication function • operating measured value display • error logbook • via software parameterizable • via software configurable • PROFInergy • voltage ramp • torque control • analog output	Yes Yes Yes Yes Yes Yes Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) Yes; Type A PTC or Klaxon / Thermoclick Yes Yes Yes; By turning off the control supply voltage Yes Yes; Only in conjunction with special accessories Yes; Only in conjunction with special accessories No Yes Yes; in connection with the PROFINET Standard communication module Yes No No
Power Electronics	
operational current • at 40 °C rated value • at 50 °C rated value • at 60 °C rated value	570 A 504 A 460 A
operating voltage • rated value	200 ... 600 V
relative negative tolerance of the operating voltage	-15 %
relative positive tolerance of the operating voltage	10 %
operating power for 3-phase motors • at 230 V at 40 °C rated value • at 400 V at 40 °C rated value • at 500 V at 40 °C rated value	160 kW 315 kW 355 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 %
adjustable motor current • at rotary coding switch on switch position 1	240 A

• at rotary coding switch on switch position 2 • at rotary coding switch on switch position 3 • at rotary coding switch on switch position 4 • at rotary coding switch on switch position 5 • at rotary coding switch on switch position 6 • at rotary coding switch on switch position 7 • at rotary coding switch on switch position 8 • at rotary coding switch on switch position 9 • at rotary coding switch on switch position 10 • at rotary coding switch on switch position 11 • at rotary coding switch on switch position 12 • at rotary coding switch on switch position 13 • at rotary coding switch on switch position 14 • at rotary coding switch on switch position 15 • at rotary coding switch on switch position 16 • minimum	262 A 284 A 306 A 328 A 350 A 372 A 394 A 416 A 438 A 460 A 482 A 504 A 526 A 548 A 570 A 240 A
minimum load [%]	15 %; Relative to smallest settable I _e
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	73 W 57 W 47 W
power loss [W] at AC at current limitation 350 % • at 40 °C during startup • at 50 °C during startup • at 60 °C during startup	7 019 W 5 801 W 5 048 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 • 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	30 mA
holding current in bypass operation rated value	105 mA
inrush current by closing the bypass contacts maximum	2.2 A
inrush current peak at application of control supply voltage maximum	12.2 A
duration of inrush current peak at application of control supply voltage	2.2 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	1
number of digital outputs • not parameterizable	3 2
digital output version	2 normally-open contacts (NO) / 1 changeover contact (CO)
number of analog outputs	0
switching capacity current of the relay outputs • 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	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
fastening method	screw fixing
height	230 mm
width	160 mm
depth	282 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	7.3 kg

Connections/ Terminals

type of electrical connection	
• for main current circuit	busbar connection
• for control circuit	spring-loaded terminals
width of connection bar maximum	35 mm; with connection cover 3RT1966-4EA1 maximum length 45 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 main contacts for box terminal	
• using the front clamping point solid	95 ... 300 mm²
• using the front clamping point finely stranded with core end processing	70 ... 240 mm²
• using the front clamping point finely stranded without core end processing	70 ... 240 mm²
• using the front clamping point stranded	95 ... 300 mm²
• using the back clamping point solid	120 ... 240 mm²
• r box terminal using the back clamping point	250 ... 500 kcmil
• using both clamping points solid	min. 2x 70 mm², max. 2x 240 mm²
• using both clamping points finely stranded with core end processing	min. 2x 50 mm², max. 2x 185 mm²
• using both clamping points finely stranded without core end processing	min. 2x 50 mm², max. 2x 185 mm²
• using both clamping points stranded	min. 2x 70 mm², max. 2x 240 mm²
• using the back clamping point finely stranded with core end processing	120 ... 185 mm²
• using the back clamping point finely stranded without core end processing	120 ... 185 mm²
• using the back clamping point stranded	120 ... 240 mm²
type of connectable conductor cross-sections	
• for AWG cables for main current circuit solid	2/0 ... 500 kcmil
• for DIN cable lug for main contacts stranded	50 ... 240 mm²
• for DIN cable lug for main contacts finely stranded	70 ... 240 mm²
type of connectable conductor cross-sections	
• for control circuit solid	2x (0.25 ... 1.5 mm²)
• for control circuit finely stranded with core end processing	2x (0.25 ... 1.5 mm²)
• for AWG cables for control circuit solid	2x (24 ... 16)
• for AWG cables for control circuit finely stranded with core end processing	2x (24 ... 16)
wire length	
• between soft starter and motor maximum	800 m
• at the digital inputs at AC maximum	1 000 m
tightening torque	
• 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	7 ... 10.3 lbf·in

terminals	
Ambient conditions	
installation altitude at height above sea level maximum	5 000 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 get inside the devices), 1M4
• during transport according to IEC 60721	2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)
Environmental footprint	
global warming potential [CO2 eq] total	464 kg
global warming potential [CO2 eq] during manufacturing	87.4 kg
global warming potential [CO2 eq] during sales	2.05 kg
global warming potential [CO2 eq] during operation	407 kg
global warming potential [CO2 eq] after end of life	-32.4 kg
Siemens Eco Profile (SEP)	Siemens EcoTech
Electromagnetic compatibility	
EMC emitted interference	acc. to IEC 60947-4-2: Class A
Communication/ Protocol	
communication module is supported	
• PROFINET standard	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 L, max. 1600 A; Iq = 30 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class 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	200 hp
• at 460/480 V at 50 °C rated value	400 hp
• at 575/600 V at 50 °C rated value	500 hp
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	9E-6 1/h
PFDavg with low demand rate according to IEC 61508 relating to ATEX	0.09
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	
• ATEX	Yes
• IECEx	Yes
• UKEX	Yes
Approvals Certificates	
General Product Approval	EMV



[KC](#)

For use in hazardous locations

Test Certificates

Maritime application



[Miscellaneous](#)

[Type Test Certificates/Test Report](#)



Maritime application

other

Environment



[Confirmation](#)



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[Environmental Confirmations](#)

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=3RW5077-2TB15>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5077-2TB15>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-2TB15>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5077-2TB15&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-2TB15/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5077-2TB15&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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



