SIEMENS

Data sheet 3RW5077-6TB05

SIRIUS



SIRIUS soft starter 200-600 V 570 A, 24 V AC/DC Screw terminals Thermistor input

Figure similar

product brand name

production and the control of the co	
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW50
manufacturer's article number	
 of standard HMI module usable 	<u>3RW5980-0HS01</u>
 of high feature HMI module usable 	<u>3RW5980-0HF00</u>
 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, Iq = 65 kA
 of circuit breaker usable at 500 V 	3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA
 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 	3NE1 437-2; Type of coordination 2, Iq = 65 kA
 of back-up R fuse link for semiconductor protection usable up to 690 V 	3NE3 340-8; Type of coordination 2, Iq = 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 50 %
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 %
accuracy class acc. to IEC 61557-12	5 %
certificate of suitability	
CE marking	Yes
UL approval	Yes
CSA approval	Yes
product component is supported	
HMI-Standard	Yes
HMI-High Feature	Yes
product feature integrated bypass contact system	Yes
number of controlled phases	2

trip class	CLASS 10A / 10E (preset) / 20E; acc. to IEC 60947-4-2
buffering time in the event of power failure	
for main current circuit	100 ms
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 safe isolation	
 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
reference code acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	23.09.2019 00:00:00
product function	
• ramp-up (soft starting)	Yes
• ramp-down (soft stop)	Yes
• Soft Torque	Yes
adjustable current limitation	Yes
pump ramp down	Yes
intrinsic device protection	Yes
motor overload protection	Yes; Full motor protection (thermistor motor protection and electronic
• motor overload protection	motor overload protection)
 evaluation of thermistor motor protection 	Yes; Type A PTC or Klixon / Thermoclick
• auto-RESET	Yes
manual RESET	Yes
• remote reset	Yes; By turning off the control supply voltage
communication function	Yes
operating measured value display	Yes; Only in conjunction with special accessories
error logbook	Yes; Only in conjunction with special accessories
via software parameterizable	No
·	Yes
via software configurablePROFlenergy	Yes; in connection with the PROFINET Standard communication
• PROFiletiery	module
voltage ramp	Yes
torque control	No
analog output	No
Power Electronics	
operational current	
• at 40 °C rated value	570 A
at 50 °C rated value	504 A
at 60 °C rated value	460 A
operating voltage	
• rated value	200 600 V
relative negative tolerance of the operating voltage	-15 %
	10 %
relative positive tolerance of the operating voltage	10 /0
operating power for 3-phase motors • at 230 V at 40 °C rated value	160 kW
	160 kW 315 kW
at 400 V at 40 °C rated value at 500 V at 40 °C rated value at 500 V at 40 °C rated value	
at 500 V at 40 °C rated value Operating frequency 4 rated value	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 at rotary coding switch on switch position 2	240 A 262 A

 at rotary coding switch on switch position 3 	284 A
 at rotary coding switch on switch position 4 	306 A
at rotary coding switch on switch position 5	328 A
at rotary coding switch on switch position 6	350 A
at rotary coding switch on switch position 7	372 A
at rotary coding switch on switch position 8	394 A
at rotary coding switch on switch position 9	416 A
at rotary coding switch on switch position 10	438 A
at rotary coding switch on switch position 11	460 A
at rotary coding switch on switch position 12 at rotary coding switch on switch position 12	482 A
	504 A
at rotary coding switch on switch position 13 at rotary coding switch on switch position 14	526 A
at rotary coding switch on switch position 14 at rotary coding switch on switch position 15	548 A
at rotary coding switch on switch position 15 at rotary coding switch on switch position 16	570 A
at rotary coding switch on switch position 16	
• minimum	240 A
minimum load [%]	15 %; Relative to smallest settable le
power loss [W] for rated value of the current at AC	72 \\
• at 40 °C after startup	73 W
• at 50 °C after startup	57 W
• at 60 °C after startup	47 W
power loss [W] at AC at current limitation 350 %	7.040.W
• at 40 °C during startup	7 019 W
• at 50 °C during startup	5 801 W
at 60 °C during startup tup of the motor protection	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/DC
control supply voltage at AC	04.14
• at 50 Hz rated value	24 V
at 60 Hz rated value	24 V
relative negative tolerance of the control supply voltage at AC at 50 Hz	-20 %
relative positive tolerance of the control supply	20 %
voltage at AC at 50 Hz	
relative negative tolerance of the control supply voltage at AC at 60 Hz	-20 %
relative positive tolerance of the control supply voltage at AC at 60 Hz	20 %
control supply voltage frequency	50 60 Hz
relative negative tolerance of the control supply	-10 %
voltage frequency	10 %
relative positive tolerance of the control supply voltage frequency control supply voltage	10 /0
at DC rated value	24 V
relative negative tolerance of the control supply	-20 %
voltage at DC	
relative positive tolerance of the control supply voltage at DC	20 %
control supply current in standby mode rated value	160 mA
holding current in bypass operation rated value	490 mA
locked-rotor current at close of bypass contact maximum	7.6 A
inrush current peak at application of control supply voltage maximum	3.3 A
duration of inrush current peak at application of control supply voltage	12.1 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	1
number of inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
number of digital outputs	3
 not parameterizable 	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	3 A
 at DC-13 at 24 V rated value 	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	screw-type terminals
width of connection bar maximum	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
 for main contacts for box terminal using the front clamping point finely stranded with core end processing 	70 240 mm ²
 for main contacts for box terminal using the front clamping point finely stranded without core end processing 	70 240 mm²
 for main contacts for box terminal using the front clamping point stranded 	95 300 mm²
 at AWG cables for main contacts for box terminal using the front clamping point 	3/0 600 kcmil
 for main contacts for box terminal using the back clamping point solid 	120 240 mm²
 at AWG cables for main contacts for box terminal using the back clamping point 	250 500 kcmil
 for main contacts for box terminal using both clamping points solid 	min. 2x 70 mm², max. 2x 240 mm²
 for main contacts for box terminal using both clamping points finely stranded with core end processing 	min. 2x 50 mm², max. 2x 185 mm²
 for main contacts for box terminal using both clamping points finely stranded without core end processing 	min. 2x 50 mm², max. 2x 185 mm²
for main contacts for box terminal using both clamping points stranded	min. 2x 70 mm², max. 2x 240 mm²
 for main contacts for box terminal using the back clamping point finely stranded with core end 	120 185 mm²

processing • for main contacts for box terminal using the back clamping point finely stranded without core end processing	
clamping point finely stranded without core end	
p. 5 5 5 5 5 6 1 1 9	120 185 mm²
for main contacts for box terminal using the back clamping point stranded	120 240 mm²
type of connectable conductor cross-sections	
 at 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	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)
at 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 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 terminals 	7 10.3 lbf·in
Ambient conditions	
installation altitude at height above sea level maximum	5 000 m; Derating as of 1000 m, see manual
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 acc. 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 acc. to IEC 60721	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
during transport acc. to IEC 60721	2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)
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	
	Type: Class L, max. 1600 A; Iq = 30 kA
usable for Standard Faults up to 575/600 V according to UL	
·	Type: Class L, max. 1200 A; Iq = 100 kA
according to UL — usable for High Faults up to 575/600 V	Type: Class L, max. 1200 A; Iq = 100 kA
according to UL — usable for High Faults up to 575/600 V according to UL	Type: Class L, max. 1200 A; Iq = 100 kA 150 hp
according to UL — usable for High Faults up to 575/600 V according to UL operating power [hp] for 3-phase motors	
according to UL — usable for High Faults up to 575/600 V according to UL operating power [hp] for 3-phase motors • at 200/208 V at 50 °C rated value	150 hp
according to UL — usable for High Faults up to 575/600 V according to UL operating power [hp] for 3-phase motors • at 200/208 V at 50 °C rated value • at 220/230 V at 50 °C rated value	150 hp 200 hp
according to UL — usable for High Faults up to 575/600 V according to UL operating power [hp] for 3-phase motors • 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	150 hp 200 hp 400 hp

touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front with cover
ATEX	
certificate of suitability	
• ATEX	Yes
• IECEx	Yes
hardware fault tolerance acc. to IEC 61508 relating to ATEX	0
PFDavg with low demand rate acc. to IEC 61508 relating to ATEX	0.09
PFHD with high demand rate acc. to EN 62061 relating to ATEX	0.000009 1/h
Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX	SIL1
T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX	3 y
Cartification annuals	

Certificates/ approvals

General Product Approval

For use in hazardous locations













Declaration of Conformity

Test Certificates

other



Type Test Certificates/Test Report

Confirmation

Further information

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=3RW5077-6TB05

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5077-6TB05

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

https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-6TB05

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5077-6TB05&lang=en

Characteristic: Tripping characteristics, I2t, Let-through current

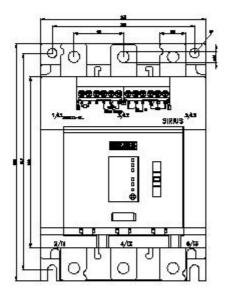
https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-6TB05/char

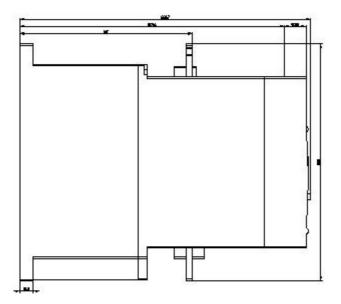
Characteristic: Installation altitude

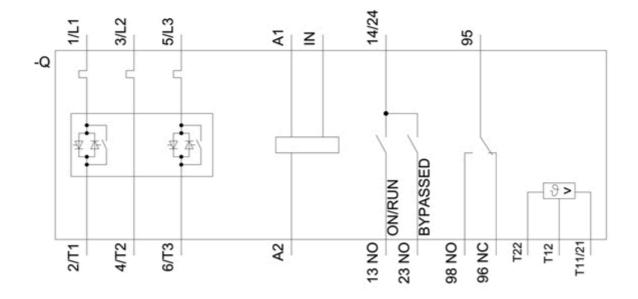
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5077-6TB05&objecttype=14&gridview=view1

Simulation Tool for Soft Starters (STS)

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







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