SIEMENS

Data sheet 3RW5055-2TB14

SIRIUS soft starter 200-480 V 143 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	3VA2220-7MN32-0AA0; Type of assignment 1, Iq = 20 kA
● of circuit breaker usable at 500 V	3VA2220-7MN32-0AA0; Type of assignment 1, Iq = 20 kA
● of the gG fuse usable up to 690 V	3NA3244-6; Type of coordination 1, Iq = 65 kA
● of full range R fuse link for semiconductor protection usable up to 690 V	3NE1 227-0; Type of coordination 2, Iq = 65 kA
● of back-up R fuse link for semiconductor protection usable up to 690 V	3NE3 334 -0B; Type of coordination 2, Iq = 65 kA
● of line contactor usable up to 480 V	3RT1055
● of line contactor usable up to 690 V	3RT1055
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 %
accuracy class according to IEC 61557-12	5 %
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
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	1 400 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
utilization category according to IEC 60947-4-2	AC-53a
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	09/23/2019
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)
● 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
● via software configurable	Yes
● **PROFIenergy**	Yes; in connection with the PROFINET Standard communication module
● voltage ramp	Yes
● torque control	No
● analog output	No
Power Electronics	
operational current	
● at 40 °C rated value	143 A
● at 50 °C rated value	128 A
● at 60 °C rated value	118 A
operating voltage	
● rated value	200 ... 480 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	37 kW
● at 400 V at 40 °C rated value	75 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	68 A
● at rotary coding switch on switch position 2	73 A
● at rotary coding switch on switch position 3	78 A
● at rotary coding switch on switch position 4	83 A

● at rotary coding switch on switch position 5	88 A
● at rotary coding switch on switch position 6	93 A
● at rotary coding switch on switch position 7	98 A
● at rotary coding switch on switch position 8	103 A
● at rotary coding switch on switch position 9	108 A
● at rotary coding switch on switch position 10	113 A
● at rotary coding switch on switch position 11	118 A
● at rotary coding switch on switch position 12	123 A
● at rotary coding switch on switch position 13	128 A
● at rotary coding switch on switch position 14	133 A
● at rotary coding switch on switch position 15	138 A
● at rotary coding switch on switch position 16	143 A
● minimum	68 A
minimum load [%]	15 %; Relative to smallest settable Ie
power loss [W] for rated value of the current at AC	
● at 40 °C after startup	23 W
● at 50 °C after startup	19 W
● at 60 °C after startup	16 W
power loss [W] at AC at current limitation 350 %	
● at 40 °C during startup	1 336 W
● at 50 °C during startup	1 134 W
● at 60 °C during startup	1 007 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	30 mA
holding current in bypass operation rated value	80 mA
locked-rotor current at close of bypass contact maximum	2.5 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 (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 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	198 mm
width	120 mm
depth	249 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	3.2 kg
Connections/ Terminals	
type of electrical connection	
● for main current circuit	busbar connection
● for control circuit	spring-loaded terminals
width of connection bar maximum	25 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	16 ... 120 mm²
● for main contacts for box terminal using the front clamping point finely stranded with core end processing	16 ... 120 mm²
● for main contacts for box terminal using the front clamping point finely stranded without core end processing	10 ... 120 mm²
● for main contacts for box terminal using the front clamping point stranded	16 ... 70 mm²
● at AWG cables for main contacts for box terminal using the front clamping point	6 ... 250 kcmil
● for main contacts for box terminal using the back clamping point solid	16 ... 120 mm²
● at AWG cables for main contacts for box terminal using the back clamping point	6 ... 250 kcmil
● for main contacts for box terminal using both clamping points solid	max. 1x 95 mm², 1x 120 mm²
● for main contacts for box terminal using both clamping points finely stranded with core end processing	max. 1x 95 mm², 1x 120 mm²
● for main contacts for box terminal using both clamping points finely stranded without core end processing	max. 1x 95 mm², 1x 120 mm²
● for main contacts for box terminal using both clamping points stranded	max. 2x 120 mm²
● for main contacts for box terminal using the back clamping point finely stranded with core end processing	16 ... 120 mm²
● for main contacts for box terminal using the back clamping point finely stranded without core end processing	10 ... 120 mm²
● for main contacts for box terminal using the back clamping point stranded	16 ... 120 mm²
type of connectable conductor cross-sections	
● at AWG cables for main current circuit solid	4 ... 250 kcmil
● for DIN cable lug for main contacts stranded	16 ... 95 mm²
● for DIN cable lug for main contacts finely stranded	25 ... 120 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	2x (0.25 ... 1.5 mm²)

processing	
● at AWG cables for control circuit solid	2x (24 ... 16)
● at 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	10 ... 14 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	89 ... 124 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 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)
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 circuit breaker**	
— usable for Standard Faults at 460/480 V according to UL	Siemens type: 3VA5225, max. 250 A; Iq = 10 kA
● **of the fuse**	
— usable for Standard Faults up to 575/600 V according to UL	Type: Class RK5 / K5, max. 350 A; Iq = 10 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J, max. 350 A; Iq = 100 kA
operating power [hp] for 3-phase motors	
● at 200/208 V at 50 °C rated value	40 hp
● at 220/230 V at 50 °C rated value	40 hp
● at 460/480 V at 50 °C rated value	100 hp
Safety related data	
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	
certificate of suitability	
● ATEX	Yes
● IECEx	Yes
hardware fault tolerance according to IEC 61508 relating to ATEX	0
PFDavg with low demand rate according to IEC 61508 relating to ATEX	0.09
PFHD with high demand rate according to EN 62061	9E-6 1/h

relating to ATEX	
Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX	SIL1
T1 value for proof test interval or service life according to IEC 61508 relating to ATEX	3 y

Certificates/ approvals

General Product Approval					For use in hazardous locations
CSA	Confirmation	CCC	UL	EAC	IECEx

For use in hazardous locations	Declaration of Conformity	Test Certificates	Marine / Shipping		
ATEX	EG-Konf.	Type Test Certificates/Test Report	ABS	LRS	PRS

other

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=3RW5055-2TB14
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5055-2TB14
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RW5055-2TB14
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5055-2TB14&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RW5055-2TB14/char
Characteristic: Installation altitude
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5055-2TB14&objecttype=14&gridview=view1
Simulation Tool for Soft Starters (STS)
https://support.industry.siemens.com/cs/ww/en/view/101494917

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