SIEMENS

Data sheet

3RW5056-6TB04



SIRIUS soft starter 200-480 V 171 A, 24 V AC/DC Screw 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 	<u>3RW5980-0HS01</u>
 of high feature HMI module usable 	<u>3RW5980-0HF00</u>
 of communication module PROFINET standard usable 	<u>3RW5980-0CS00</u>
 of communication module PROFIBUS usable 	<u>3RW5980-0CP00</u>
 of communication module Modbus TCP usable 	<u>3RW5980-0CT00</u>
 of communication module Modbus RTU usable 	<u>3RW5980-0CR00</u>
 of communication module Ethernet/IP 	<u>3RW5980-0CE00</u>
 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 	<u>3NE1 230-0; Type of coordination 2, Iq = 65 kA</u>
 of back-up R fuse link for semiconductor protection usable up to 690 V 	<u>3NE3 335; Type of coordination 2, Iq = 65 kA</u>
 of line contactor usable up to 480 V 	<u>3RT1056</u>
 of line contactor usable up to 690 V 	<u>3RT1064</u>
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	100 ms				
for control circuit	100 ms				
insulation voltage rated value	100 ms 600 V				
degree of pollution	3, acc. to IEC 60947-4-2				
impulse voltage rated value	3, acc. to IEC 60947-4-2 6 kV				
blocking voltage of the thyristor maximum	1 400 V				
service factor	1 400 V				
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				
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-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 1,6,7,8,9,14,15,16,17,17,18,18- Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) covering any of its individual anti- and syn-isomers or any combination thereof				
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 auto-RESET 	Yes; Type A PTC or Klixon / Thermoclick 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				
PROFlenergy	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	171 A				
● at 50 °C rated value	153 A				
• at 60 °C rated value	141 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	45 kW				
• at 400 V at 40 °C rated value Operating frequency 1 rated value	90 kW 50 Hz				
Operating frequency 2 rated value	60 Hz				
relative negative tolerance of the operating frequency	-10 %				
relative negative tolerance of the operating frequency	10 %				
adjustable motor current					
at rotary coding switch on switch position 1	81 A				
at rotary coding switch on switch position 2	87 A				

 at rotary coding switch on switch position 3 	93 A
 at rotary coding switch on switch position 4 	99 A
 at rotary coding switch on switch position 5 	105 A
 at rotary coding switch on switch position 6 	111 A
 at rotary coding switch on switch position 7 	117 A
 at rotary coding switch on switch position 8 	123 A
 at rotary coding switch on switch position 9 	129 A
 at rotary coding switch on switch position 10 	135 A
 at rotary coding switch on switch position 11 	141 A
 at rotary coding switch on switch position 12 	147 A
 at rotary coding switch on switch position 13 	153 A
 at rotary coding switch on switch position 14 	159 A
 at rotary coding switch on switch position 15 	165 A
 at rotary coding switch on switch position 16 	171 A
• minimum	81 A
minimum load [%]	15 %; Relative to smallest settable le
power loss [W] for rated value of the current at AC	
• at 40 °C after startup	29 W
• at 50 °C after startup	23 W
• at 60 °C after startup	20 W
power loss [W] at AC at current limitation 350 %	2011
	1 751 W
• at 40 °C during startup	1 751 W
• at 50 °C during startup	1 478 W
• at 60 °C during startup	1 308 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	
• 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 voltage at AC at 50 Hz	20 %
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 voltage frequency	-10 %
relative positive tolerance of the control supply voltage frequency	10 %
control supply voltage at DC	
rated value	24 V
	_24 V -20 %
relative negative tolerance of the control supply voltage at DC	-20 /0
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	360 mA
inrush current by closing the bypass contacts maximum	7.6 A
inrush current peak at application of control supply voltage	3.3 A
maximum	
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 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			
nstallation/ 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	5.2 kg			
Connections/ Terminals				
type of electrical connection				
 for main current circuit 	busbar connection			
for control circuit	screw-type 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			
 using the front clamping point finely stranded with core end processing 	16 120 mm²			
 using the front clamping point finely stranded without core end processing 	10 120 mm²			
 using the front clamping point stranded 	16 70 mm²			
 using the back clamping point solid 	16 120 mm²			
 r box terminal using the back clamping point 	6 250 kcmil			
 using both clamping points solid 	max. 1x 95 mm², 1x 120 mm²			
 using both clamping points finely stranded with core end processing 	max. 1x 95 mm², 1x 120 mm²			
 using both clamping points finely stranded without core end processing 	max. 1x 95 mm², 1x 120 mm²			
 using both clamping points stranded 	max. 2x 120 mm ²			
 using the back clamping point finely stranded with core end processing 	16 120 mm²			
 using the back clamping point finely stranded without core end processing 	10 120 mm²			
using the back clamping point stranded	16 120 mm²			
type of connectable conductor cross-sections				
for AWG cables for main current circuit solid	4 250 kcmil			
for DIN cable lug for main contacts stranded	16 95 mm ²			
for DIN cable lug for main contacts finely stranded	25 120 mm²			
type of connectable conductor cross-sections				
for control circuit solid	1x (0.5 4.0 mm ²), 2x (0.5 2.5 mm ²)			
for control circuit finely stranded with core end processing	1x (0.5 2.5 mm ²), 2x (0.5 1.5 mm ²)			
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 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 	0.8 1.2 N·m			

terminals	
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)
Environmental footprint	
Siemens Eco Profile (SEP)	Siemens EcoTech
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
 — usable for High Faults at 460/480 V according to UL • of the fuse 	Siemens type: 3VA52, max. 250 A; Iq max = 65 kA
 — usable for Standard Faults up to 575/600 V according to UL 	Type: Class RK5 / K5, max. 400 A; Iq = 10 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J, max. 350 A; lq = 100 kA
operating power [hp] for 3-phase motors	
 at 200/208 V at 50 °C rated value 	50 hp
 at 220/230 V at 50 °C rated value 	50 hp
 at 460/480 V at 50 °C rated value 	100 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	SIL1
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	
Contrar i roudor Approval	

(Sp)	UK CA	CE EG-Konf.	<u>Confirmation</u>		
General Product Approval	EMV	For use in hazardous	s locations		Test Certificates
EHC	<u>KC</u>	IECEx	K ATEX	<u>Miscellaneous</u>	Type Test Certific- ates/Test Report
Marine / Shipping			other	Environment	
ABS	Lloyds Register us	PRS	<u>Confirmation</u>	Siemens EcoTech	EPD
Environment					
Environmental Oca					

Environmental Confirmations

Further information

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RW5056-6TB04

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5056-6TB04

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

https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-6TB04

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5056-6TB04&lang=en

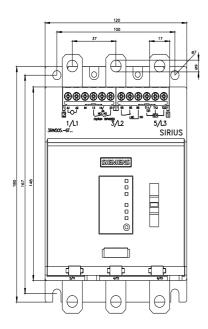
Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-6TB04/char

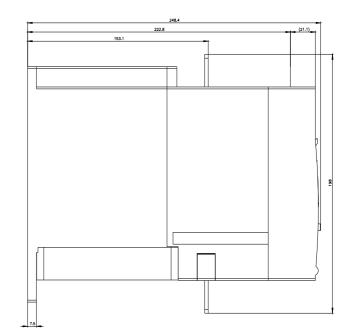
Characteristic: Installation altitude

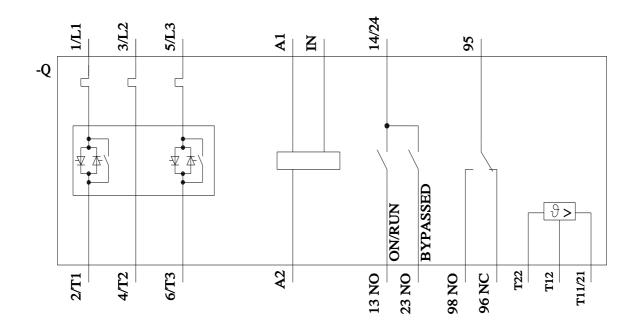
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5056-6TB04&objecttype=14&gridview=view1

Simulation Tool for Soft Starters (STS)

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







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