SIEMENS

Data sheet

3RW5235-2TC04



SIRIUS soft starter 200-480 V 143 A, 24 V AC/DC spring-type terminals Thermistor input

product brand name	SIRIUS
product category	Hybrid switching devices
product designation	Soft starter
product type designation	3RW52
manufacturer's article number	
 of standard HMI module usable 	<u>3RW5980-0HS00</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 coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 400 V at inside-delta circuit 	3VA2325-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10
 of the gG fuse usable up to 690 V 	3NA3244-6; Type of coordination 1, Iq = 65 kA
 of the gG fuse usable at inside-delta circuit up to 500 V 	<u>3NA3244-6; Type of coordination 1, Iq = 65 kA</u>
 of full range R fuse link for semiconductor protection usable up to 690 V 	<u>3NE1227-0: Type of coordination 2. Iq = 65 kA</u>
 of back-up R fuse link for semiconductor protection usable up to 690 V 	<u>3NE3334-0B; Type of coordination 2, Iq = 65 kA</u>
General technical data	
starting voltage [%]	30 100 %
stopping voltage [%]	50 50 %
start-up ramp 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 is supported	
HMI-Standard	Yes
HMI-High Feature	Yes
product feature integrated bypass contact system	Yes
number of controlled phases	3
trip class	CLASS 10A (default) / 10E / 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

inculation voltage reted volue	600.1/
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 acc. to IEC 60947-4-2	AC 53a
reference code acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	15.02.2018 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)
 evaluation of thermistor motor protection 	Yes; Type A PTC or Klixon / Thermoclick
inside-delta circuit	Yes
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
PROFlenergy	Yes; in connection with the PROFINET Standard communication
	module
 firmware update 	Yes
 removable terminal for control circuit 	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
operational current at inside-delta circuit	
 at 40 °C rated value 	248 A
 at 50 °C rated value 	222 A
• at 60 °C rated value	204 A
operating voltage	
rated value	200 480 V
 at inside-delta circuit rated value 	200 480 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	
• at 230 V at 40 °C rated value	37 kW
 at 230 V at inside-delta circuit at 40 °C rated value 	75 kW
 at 400 V at 40 °C rated value 	75 kW
 at 400 V at inside-delta circuit at 40 °C rated value 	132 kW

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switch position 9196 A• for inside-delta circuit at rotary coding switch on switch position 10204 A• for inside-delta circuit at rotary coding switch on switch position 11204 A• for inside-delta circuit at rotary coding switch on switch position 12213 A• for inside-delta circuit at rotary coding switch on switch position 13222 A• for inside-delta circuit at rotary coding switch on switch position 13230 A• for inside-delta circuit at rotary coding switch on switch position 14230 A• for inside-delta circuit at rotary coding switch on switch position 15239 A• for inside-delta circuit at rotary coding switch on switch position 16248 A• for inside-delta circuit at rotary coding switch on switch position 16248 A• at inside-delta circuit at rotary coding switch on switch position 1655 W• at a 0°C after startup50 W• at 40 °C after startup50 W• at 60 °C after startup50 W• at 40 °C during startup212 W	switch position 8	
switch position 10 • for inside-delta circuit at rotary coding switch on switch position 11 • for inside-delta circuit at rotary coding switch on switch position 12 • for inside-delta circuit at rotary coding switch on switch position 13 • for inside-delta circuit at rotary coding switch on switch position 14 • for inside-delta circuit at rotary coding switch on switch position 14 • for inside-delta circuit at rotary coding switch on switch position 14 • for inside-delta circuit at rotary coding switch on switch position 15 • for inside-delta circuit at rotary coding switch on switch position 16 • at inside-delta circuit at rotary coding switch on switch position 16 • at inside-delta circuit at rotary coding switch on switch position 16 • at inside-delta circuit minimum for inside-delta circuit at rotary coding switch on switch position 16 • at sole Cafter startup • at 40 °C after startup • at 60 °C after startup • at 60 °C after startup • at 40 °C during startup	switch position 9	
switch position 11213 A• for inside-delta circuit at rotary coding switch on switch position 12213 A• for inside-delta circuit at rotary coding switch on switch position 13222 A• for inside-delta circuit at rotary coding switch on switch position 14230 A• for inside-delta circuit at rotary coding switch on switch position 14239 A• for inside-delta circuit at rotary coding switch on switch position 15248 A• for inside-delta circuit at rotary coding switch on switch position 16118 A• at inside-delta circuit minimum118 A• at 40 °C after startup • at 60 °C after startup55 W• at 0 °C after startup • at 40 °C during startup20 W• at 0 °C during startup21 27 W	switch position 10	
• for inside-delta circuit at rotary coding switch on switch position 13222 A• for inside-delta circuit at rotary coding switch on switch position 14230 A• for inside-delta circuit at rotary coding switch on switch position 15239 A• for inside-delta circuit at rotary coding switch on switch position 15248 A• for inside-delta circuit at rotary coding switch on switch position 16248 A• for inside-delta circuit minimum118 Aminimum load [%]15 %; Relative to smallest settable lepower loss [W] for rated value of the current at AC • at 40 °C after startup55 W• at 60 °C after startup50 W• at 60 °C after startup2127 W	switch position 11	213 A
• for inside-delta circuit at rotary coding switch on switch position 14230 A• for inside-delta circuit at rotary coding switch on switch position 15239 A• for inside-delta circuit at rotary coding switch on switch position 16248 A• at inside-delta circuit minimum118 Aminimum load [%]15 %; Relative to smallest settable le• at 40 °C after startup55 W• at 40 °C after startup50 W• at 60 °C after startup20 W• at 40 °C after startup2127 W	 for inside-delta circuit at rotary coding switch on 	222 A
• for inside-delta circuit at rotary coding switch on switch position 15239 A• for inside-delta circuit at rotary coding switch on switch position 16248 A• at inside-delta circuit minimum118 Aminimum load [%]15 %; Relative to smallest settable le• at 40 °C after startup55 W• at 60 °C after startup50 W• at 40 °C after startup50 W• at 60 °C after startup2127 W	• for inside-delta circuit at rotary coding switch on	230 A
• for inside-delta circuit at rotary coding switch on switch position 16248 A• at inside-delta circuit minimum118 Aminimum load [%]15 %; Relative to smallest settable lepower loss [W] for rated value of the current at AC-• at 40 °C after startup55 W• at 50 °C after startup50 W• at 60 °C after startup47 Wpower loss [W] at AC at current limitation 350 %-• at 40 °C during startup2 127 W	 for inside-delta circuit at rotary coding switch on 	239 A
• at inside-delta circuit minimum118 Aminimum load [%]15 %; Relative to smallest settable lepower loss [W] for rated value of the current at AC55 W• at 40 °C after startup55 W• at 50 °C after startup50 W• at 60 °C after startup47 Wpower loss [W] at AC at current limitation 350 %2127 W	 for inside-delta circuit at rotary coding switch on 	248 A
minimum load [%]15 %; Relative to smallest settable lepower loss [W] for rated value of the current at AC-• at 40 °C after startup55 W• at 50 °C after startup50 W• at 60 °C after startup47 Wpower loss [W] at AC at current limitation 350 %-• at 40 °C during startup2 127 W		118 A
power loss [W] for rated value of the current at AC• at 40 °C after startup55 W• at 50 °C after startup50 W• at 60 °C after startup47 Wpower loss [W] at AC at current limitation 350 %2 127 W		
• at 40 °C after startup55 W• at 50 °C after startup50 W• at 60 °C after startup47 W• power loss [W] at AC at current limitation 350 %2 127 W		
• at 50 °C after startup 50 W • at 60 °C after startup 47 W • power loss [W] at AC at current limitation 350 % 2 127 W		55 W
• at 60 °C after startup 47 W power loss [W] at AC at current limitation 350 % 2 127 W	•	
power loss [W] at AC at current limitation 350 % • at 40 °C during startup 2 127 W		
• at 40 °C during startup 2 127 W		
		2 127 W
• at 50 °C during startup 1 807 W		1 807 W

• at 60 °C during startup	1 605 W
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	-20 %
voltage at AC at 50 Hz	
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
relative negative tolerance of the control supply voltage at DC	-20 %
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	380 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	306 mm
width	185 mm
depth	203 mm
required spacing with side-by-side mounting	10 mm
 forwards backwards 	10 mm 0 mm
 Dackwards upwards 	100 mm
downwards	75 mm
at the side	5 mm
weight without packaging	6.6 kg
Connections/ Terminals	
type of electrical connection	
Second 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 mm ² maximum	50 m
• with conductor cross-section = 1.5 mm ² maximum	150 m
• with conductor cross-section = 2.5 mm ² maximum	250 m
type of connectable conductor cross-sections	200 m
for DIN cable lug for main contacts stranded	2x (16 95 mm²)
 for DIN cable lug for main contacts finely stranded 	2x (25 120 mm ²)
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 mm ²)
 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 	100 m
 at the digital inputs at DC 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 	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 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	
UL/CSA ratings manufacturer's article number	
manufacturer's article number • of circuit breaker — usable for Standard Faults at 460/480 V according to UL	Siemens type: 3VA52, max. 250 A; lq = 10 kA
 manufacturer's article number of circuit breaker usable for Standard Faults at 460/480 V according to UL usable for High Faults at 460/480 V according to UL 	Siemens type: 3VA52, max. 250 A; lq max = 65 kA
 manufacturer's article number of circuit breaker usable for Standard Faults at 460/480 V according to UL usable for High Faults at 460/480 V according to UL usable for Standard Faults at 460/480 V at inside-delta circuit according to UL 	Siemens type: 3VA52, max. 250 A; lq max = 65 kA Siemens type: 3VA52, max. 250 A; lq = 10 kA
 manufacturer's article number of circuit breaker usable for Standard Faults at 460/480 V according to UL usable for High Faults at 460/480 V according to UL usable for Standard Faults at 460/480 V at inside-delta circuit according to UL usable for High Faults at 460/480 V at inside-delta circuit according to UL 	Siemens type: 3VA52, max. 250 A; lq max = 65 kA Siemens type: 3VA52, max. 250 A; lq = 10 kA Siemens type: 3VA52, max. 250 A; lq max = 65 kA
 manufacturer's article number of circuit breaker usable for Standard Faults at 460/480 V according to UL usable for High Faults at 460/480 V according to UL usable for Standard Faults at 460/480 V at inside-delta circuit according to UL usable for High Faults at 460/480 V at inside- 	Siemens type: 3VA52, max. 250 A; lq max = 65 kA Siemens type: 3VA52, max. 250 A; lq = 10 kA

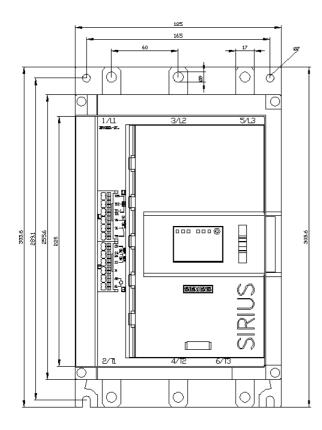
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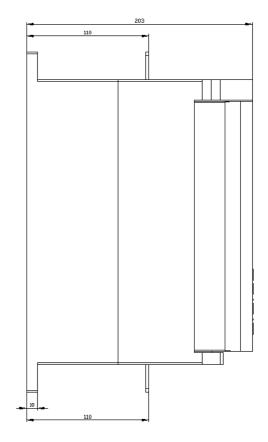
inside-delta c	circuit according to UL				
-611 6					
 of the fuse — usable for according to 	Standard Faults up to 5	75/600 V	Type: Class RK5 / K5, ma	x. 350 A; lq = 10 kA	
— usable for High Faults up to 575/600 V according to UL			Type: Class J / L, max. 350 A; Iq = 100 kA		
 usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL 			Type: Class RK5 / K5, max. 350 A; lq = 10 kA		
	High Faults at inside-de according to UL	Ita circuit up	Type: Class J / L, max. 35	i0 A; Iq = 100 kA	
operating power [hp	o] for 3-phase motors				
• at 200/208 V at	t 50 °C rated value		40 hp		
• at 220/230 V at	t 50 °C rated value		40 hp		
• at 460/480 V at	t 50 °C rated value		100 hp		
 at 200/208 V at value 	t inside-delta circuit at 50) °C rated	75 hp		
 at 220/230 V at value 	t inside-delta circuit at 50) °C rated	75 hp		
● at 460/480 V at value	t inside-delta circuit at 50) °C rated	150 hp		
contact rating of au	xiliary contacts accord	ling to UL	R300-B300		
Safety related data					
protection class IP	on the front acc. to IEC	; 60529	IP00; IP20 with cover		
touch protection on	the front acc. to IEC 6	0529	finger-safe, for vertical con	ntact from the front with	cover
electromagnetic cor	mpatibility		in accordance with IEC 60	947-4-2	
Certificates/ approval	s				
General Product Ap	oproval			EMC	Declaration of Conformity
		\sim		A	
A		(UL)	EHL	RCM	EG-Konf.
Test Certificates	CCC	Ű	EHL	RCM	EG-Konf.
Test Certificates <u>Type Test Certific- ates/Test Report</u>			Lloyd's Register LRS	RCM	EG-Konf.
Type Test Certific-			Lloveds Register Lus	RCM	DNV-GL
<u>Type Test Certific-</u> ates/Test Report			Lovd's Register us	RCM PRS	DNV-GL
<u>Type Test Certific-</u> ates/Test Report			Loves Register us	RCM	DNV-GL
Type Test Certific- ates/Test Report			LICS LINE	RCM PRS	DNV-GL
Type Test Certific- ates/Test Report			Lloved's Register Lits	RCM PRS	DNV-GL
Type Test Certific- ates/Test Report			Les Lis	RCM PRS	DNV-GL

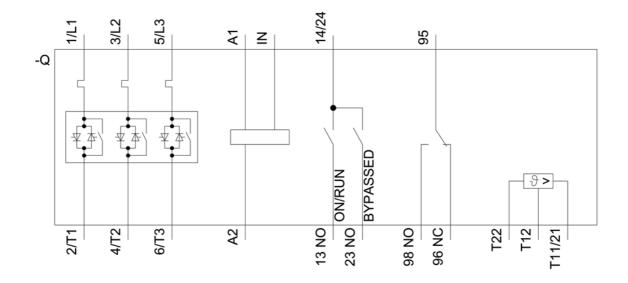
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https://www.siemens.com/ic10
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RW5235-2TC04
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5235-2TC04
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RW5235-2TC04
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5235-2TC04&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RW5235-2TC04/char

Characteristic: Installation altitude

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5235-2TC04&objecttype=14&gridview=view1 Simulation Tool for Soft Starters (STS) https://support.industry.siemens.com/cs/ww/en/view/101494917







last modified:

12/15/2020 🖸