SIEMENS

Data sheet

3RW5546-2HA04



SIRIUS soft starter 200-480 V 370 A, 24 V AC/DC spring-type terminals

product brand name SIRIUS product category Hybrid switching devices product type designation Soft starter product type designation 3RW55 manufacturer's article number 3RW5980-01F00 • of high feature HMI module usable 3RW5980-02C800 • of communication module PROFINET high-feature usable 3RW5980-02C100 • of communication module PROFIBUS usable 3RW5980-02C100 • of communication module PROFIBUS usable 3RW5980-02C100 • of communication module PROFIBUS usable 3RW5980-02C100 • of communication module BROFIBUS usable 3RW5980-02C100 • of communication module BROFIBUS usable 3RW5980-02C100 • of coronunication module Ethernet/IP 3RW5980-02C100 • of circuit breaker usable at 400 V 3VA2540-7MN32-0AA0; Type of coordination 1, lq = 65 kA. C • of circuit breaker usable at 400 V at inside-delta circuit 3VA2580-6HN32-0AA0; Type of coordination 1, lq = 65 kA. C • of direcuit breaker usable at 500 V at inside-delta 3VA2580-6HN32-0AA0; Type of coordination 1, lq = 65 kA. C • of the gG fuse usable up to 690 V 2x3NA3365-6; Type of coordination 1, lq = 65 kA. C • of full range R fuse link for semiconductor protection usable up t	
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current limiting value [%] adjustable 125 800 %	
breakaway voltage [%] adjustable 40 100 %	
breakaway time adjustable 0 2 s	
number of parameter sets 3	
accuracy class acc. to IEC 61557-12 5 %	
certificate of suitability	

- CE morking	Vaa
• CE marking	Yes
UL approval	Yes
CSA approval	Yes
product component	
• HMI-High Feature	Yes
is supported HMI-High Feature	Yes
product feature integrated bypass contact system	Yes
number of controlled phases	3
trip class	CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2
current unbalance limiting value [%]	10 60 %
ground-fault monitoring limiting value [%]	10 95 %
recovery time after overload trip adjustable	60 1 800 s
buffering time in the event of power failure	100
for main current circuit	100 ms
for control circuit	100 ms
idle time adjustable	0 255 s
insulation voltage rated value	480 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	1.15
surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
between main and auxiliary circuit	480 V; does not apply for thermistor connection
utilization category acc. to IEC 60947-4-2	AC 53a
shock resistance	15 g / 11 ms, from 6 g / 11 ms with potential contact lifting
vibration resistance	15 mm up to 6 Hz; 2 g up to 500 Hz
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
 breakaway pulse 	Yes
 adjustable current limitation 	Yes
 creep speed in both directions of rotation 	Yes
 pump ramp down 	Yes
DC braking	Yes
 motor heating 	Yes
 slave pointer function 	Yes
 trace function 	Yes
 intrinsic device protection 	Yes
 motor overload protection 	Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) / When using the motor overload protection according to ATEX, an upstream contactor is required in inside-delta circuit.
 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
communication function	Yes
 operating measured value display 	Yes
• event list	Yes
• error logbook	Yes
via software parameterizable	Yes
via software configurable	Yes
screw terminal	No
spring-type terminal	Yes
PROFlenergy	Yes; in connection with the PROFINET Standard and PROFINET High-
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	Feature communication modules				
• firmware update	Yes				
removable terminal for control circuit	Yes				
voltage ramp	Yes				
• torque control	Yes				
combined braking	Yes				
analog output	Yes; 4 20 mA (default) / 0 10 V				
 programmable control inputs/outputs 	Yes				
 condition monitoring 	Yes				
automatic parameterisation	Yes				
application wizards	Yes				
alternative run-down	Yes				
 emergency operation mode 	Yes				
reversing operation	Yes				
 soft starting at heavy starting conditions 	Yes				
Power Electronics					
operational current					
• at 40 °C rated value	370 A				
 at 40 °C rated value minimum 	74 A				
 at 50 °C rated value 	328 A				
• at 60 °C rated value	300 A				
operational current at inside-delta circuit					
 at 40 °C rated value 	641 A				
 at 50 °C rated value 	568 A				
• at 60 °C rated value	519 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	110 kW				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value 	200 kW				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value 	200 kW 200 kW				
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 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 %				
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 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le				
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 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 60 °C after startup at 60 °C after startup 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W				
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 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 60 °C after startup at 40 °C during startup at 50 °C during startup 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % Relative to set le 111 W 98 W 90 W 5 563 W				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 50 °C after startup at 60 °C during startup at 50 °C during startup at 60 °C during startup at 60 °C during startup 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W 4 145 W				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 60 °C after startup at 40 °C during startup at 50 °C during startup 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 60 °C after startup at 40 °C during startup at 60 °C during startup 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W 4 145 W				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 50 °C after startup at 60 °C during startup at 50 °C during startup at 60 °C during startup at 60 °C during startup at 60 °C during startup 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W 4 145 W Electronic, tripping in the event of thermal overload of the motor				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 50 °C after startup at 60 °C direr startup at 50 °C during startup at 60 °C during startup at 60 °C during startup type of the motor protection 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W 4 145 W Electronic, tripping in the event of thermal overload of the motor				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 50 °C after startup at 60 °C differ startup at 50 °C during startup at 60 °C during startup at 60 °C during startup type of the motor protection Control circuit/ Control type of voltage of the control supply voltage control supply voltage at AC 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W 4 145 W Electronic, tripping in the event of thermal overload of the motor AC/DC				
 at 230 V at 40 °C rated value at 230 V at inside-delta circuit at 40 °C rated value at 400 V at 40 °C rated value at 400 V at inside-delta circuit at 40 °C rated value Operating frequency 1 rated value Operating frequency 2 rated value relative negative tolerance of the operating frequency relative positive tolerance of the operating frequency minimum load [%] power loss [W] for rated value of the current at AC at 40 °C after startup at 50 °C after startup at 60 °C differ startup at 50 °C during startup at 50 °C during startup at 60 °C during startup type of the motor protection Control circuit/ Control type of voltage of the control supply voltage control supply voltage at AC at 50 Hz rated value 	200 kW 200 kW 355 kW 50 Hz 60 Hz -10 % 10 % 10 %; Relative to set le 111 W 98 W 90 W 5 563 W 4 694 W 4 145 W Electronic, tripping in the event of thermal overload of the motor AC/DC 24 V				

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 relative negative tolerance of the control supply	24 V -20 %
voltage at DC	
relative positive tolerance of the control supply voltage at DC	20 %
control supply current in standby mode rated value	440 mA
holding current in bypass operation rated value	720 mA
locked-rotor current at close of bypass contact maximum	6.7 A
inrush current peak at application of control supply voltage maximum	7.5 A
duration of inrush current peak at application of control supply voltage	20 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	4
parameterizable	4
number of inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
 number of digital outputs 	4
 number of digital outputs parameterizable 	3
 number of digital outputs not parameterizable 	1
digital output version	3 normally-open contacts (NO) / 1 changeover contact (CO)
number of analog outputs	1
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	Vertical (can be rotated +/- 90° and tilted forward or backward +/- 22.5°)
fastening method	screw fixing
height	393 mm
width	210 mm
depth	203 mm
required spacing with side-by-side mounting	10
forwards bookwards	10 mm
backwards	0 mm
• upwards	100 mm
 downwards at the side 	75 mm 5 mm
weight without packaging	10.9 kg
Connections/ Terminals	
type of electrical connection	
for main current circuit	busbar connection
for control circuit	spring-loaded terminals
width of connection bar maximum	45 mm
width of connection bar maximum wire length for thermistor connection	45 mm

 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 DIN cable lug for main contacts stranded 	2x (50 240 mm²)				
 for DIN cable lug for main contacts finely stranded 	2x (70 240 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 	2x (0.25 1.5 mm ²)				
processing					
 at AWG cables for control circuit solid 	2x (24 16)				
 at AWG cables for control circuit finely stranded with 	2x (24 16)				
core end processing					
wire length	222				
between soft starter and motor maximum	800 m				
at the digital inputs at DC 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]	124 210 lbf in				
for main contacts with screw-type terminals					
 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 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				
 PROFINET high-feature 	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 J / L, max. 1200 A; Iq = 18 kA				
 — usable for High Faults up to 575/600 V according to UL 	Type: Class J / L, max. 1200 A; Iq = 100 kA				
 — usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL 	Type: Class J / L, max. 1200 A; Iq = 18 kA				
 — usable for High Faults at inside-delta circuit up to 575/600 V according to UL 	Type: Class J / L, max. 1200 A; lq = 100 kA				
operating power [hp] for 3-phase motors					
• at 200/208 V at 50 °C rated value	100 hp				
 at 220/230 V at 50 °C rated value 	125 hp				
 at 220/230 V at 50 °C rated value at 460/480 V at 50 °C rated value 	125 hp 250 hp				

value	inside-delta circuit at 5	0 °C rated	200	hn		
value			450			
• at 460/480 V at value	 at 460/480 V at inside-delta circuit at 50 °C rated value 					
contact rating of au	xiliary contacts accor	ding to UL	R30	0-B300		
Safety related data			_			
protection class IP of	on the front acc. to IE	C 60529	IP00	; IP20 with cover		
touch protection on	the front acc. to IEC (60529	finge	er-safe, for vertical conta	act from the front with	cover
electromagnetic cor	npatibility		acc.	to IEC 60947-4-2		
ATEX						
certificate of suitabi	lity					
 ATEX 			Yes			
• IECEx			Yes			
 according to AT 	TEX directive 2014/34/E	U	BVS	18 ATEX F 003 X		
type of protection ac 2014/34/EU	ccording to ATEX dire	ective		G [Ex eb Gb] [Ex db Gb 2) [Ex db Mb]	o] [Ex pxb Gb], II (2)D	[Ex tb Db] [Ex pxb Db],
hardware fault tolera	ance acc. to IEC 6150	8 relating to	0			
	mand rate acc. to IEC	61508	0.00	8		
PFHD with high dem	nand rate acc. to EN 6	2061 relating	0.00	00005 1/h		
to ATEX Safety Integrity Level (SIL) acc. to IEC 61508 relating			SIL1			
to ATEX T1 value for proof test interval or service life acc. to			3 у			
IEC 61508 relating to						
Certificates/ approval	5		_			
General Product Approval EMC For use in hazard- ous locations						
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(QP)	(\mathbf{m})	(ŸL)		FHI	<u>/</u> \(\)	(Ex)
CSA	CCC	Ŭ.		LIIL	RCM	ATEX
For use in boroud	Declaration of					
For use in hazard- ous locations	Declaration of Conformity	Test Certifica	ates	Marine / Shipping		
	,					
		Type Test Ce	rtific-	ACAN AND	States and the second second	
IECEx	(ates/Test Re	port		e Xe B	Register
15/5-	EG-Konf.			ADS		100,000
IECEx	EG-KONT.			AB2	BUREAU	LRS
Marine / Shipping		other				
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	DNV-GL					
PRS	DAVOLICISMON					
Europhan states						
Further information	winloadcanter (0-4)	no Drock	\			
Information- and Downloadcenter (Catalogs, Brochures,) https://www.siemens.com/ic10						
https://www.siemens.com/ic10 Industry Mall (Online ordering system)						

Industry Mall (Online ordering system) https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RW5546-2HA04

- Cax online generator http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5546-2HA04 Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

https://support.industry.siemens.com/cs/ww/en/ps/3RW5546-2HA04

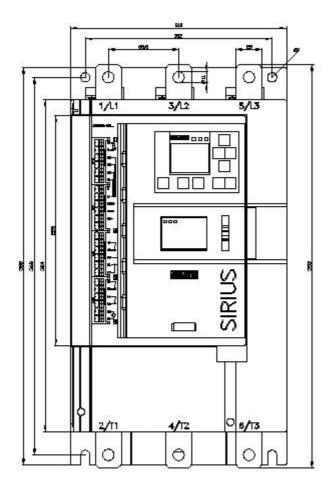
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) <u>http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5546-2HA04&lang=en</u> Characteristic: Tripping characteristics, I²t, Let-through current

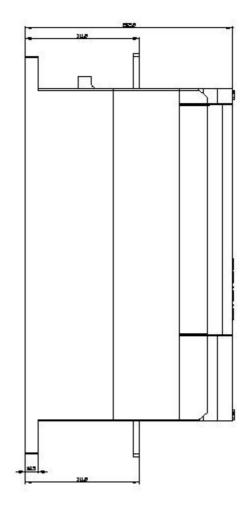
https://support.industry.siemens.com/cs/ww/en/ps/3RW5546-2HA04/char

Characteristic: Installation altitude

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5546-2HA04&objecttype=14&gridview=view1 Simulation Tool for Soft Starters (STS)

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







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