SIEMENS

product brand name

Data sheet 3RW5224-1AC04

SIRIUS



SIRIUS soft starter 200-480 V 47 A, 24 V AC/DC Screw terminals Analog output

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 	3RW5980-0HS00
 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 	3RV2032-4JA10; Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 500 V 	3RV2032-4JA10; Type of coordination 1, Iq = 10 kA, CLASS 10
 of circuit breaker usable at 400 V at inside-delta circuit 	3RV2032-4RA10; Type of coordination 1, Iq = 65 kA, CLASS 10
 of circuit breaker usable at 500 V at inside-delta circuit 	3RV2032-4RA10; Type of coordination 1, Iq = 10 kA, CLASS 10
 of the gG fuse usable up to 690 V 	3NA3824-6; Type of coordination 1, Iq = 65 kA
 of the gG fuse usable at inside-delta circuit up to 500 V 	3NA3824-6; Type of coordination 1, Iq = 65 kA
• of full range R fuse link for semiconductor protection usable up to 690 V	3NE1021-2; Type of coordination 2, Iq = 65 kA
 of back-up R fuse link for semiconductor protection usable up to 690 V 	3NE8024-1; Type of coordination 2, Iq = 65 kA
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	
HMI-High Feature	No
• is supported HMI-Standard	Yes
• is supported HMI-High Feature	Yes

number of controlled phases

product feature integrated bypass contact system

Yes

3

buffering time in the event of power failure	trin class	CLASS 10A (default) / 10E / 20E; and to IEC 60047 4.2
• for main current circuit • for cantot circuit insulation voltage rated value degree of pollution impulse voltage rated value degree of pollution impulse voltage rated value 1 400 V 5 6 KV maximum permissible voltage for safe isolation • between main and auxilary circuit • bottween main and auxilary circuit • form to B Hz; 2g to 500 Hz • Co 2018 • To main to B Hz; 2g to 500 Hz • Co 2018 • To main to B Hz; 2g to 500 Hz • Co 2018 • Form to B Hz; 2g to 500 Hz • For Co 2018 • For Co 2018 • For Co 2018 • For Co 2018 • PRG For Co 2018 • For Co 2018	trip class	CLASS 10A (default) / 10E / 20E; acc. to IEC 60947-4-2
Fractional circuit 100 ms		100 mg
Institution voltage rated value George of poliution 3, acc. to IEC 60947.4-2		
Impulse voltage areted value 8 kV 100 V		
Impulse voltage rated value		
1400 V 1 1400 V 1400		
service factor surge voltage resistance rated value warkimum permissible voltage for safe isolation * between main and surliary circuit * subcock resistance * 15 g / 11 ms, from 12 g / 11 ms with potential contact lifting # ramp-drow year. to IEC 60947.4-2 # C 53a reference code acc. to IEC 81346-2 Q Substance Prohibitance (Date) * ramp-drow (soft stop) * ramp-drow (soft stop) * soft Torque * adjustable current limitation * pump ramp down * intrinsic device protection * pump ramp down * intrinsic device protection * evaluation of thermistor motor protection * inside-delta circuit * yes * communication function * operating measured value * error logbook * via software parameterizable * via software parameterizable * via software configurable * error wable terminal for control circuit * safe or Crated value * a 40 °C rated value * a 50 °C rated value * a 40 °C rated value * a 40 °C rated value * a 40 °C rated value * a 50 °C rated value * a 60 °C rate		
Surge voltage resistance rated value 6 kV		
• 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 SSa reference code acc. to IEC 61348-2 Q Substance Prohibitance (Date) Yes • namp-up (soft starting) Yes • soft Torque Yes • soft Torque Yes • pump ramp down Yes • intrinsic device protection Yes • motor overload protection Yes • evaluation of thermistor motor protection No • inside-delta circuit Yes • manual RESET Yes • memote reset Yes: By turning off the control supply voltage • error logbook Yes: By turning off the control supply voltage • error logbook Yes: Only in conjunction with special accessories • Yes Yes: Only in conjunction with special accessories • rated value Yes • ROPFinerry Yes: in connection with the PROFINET Standard communication module • firmware update		6 KV
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utilization category acc. to IEC 60947-4-2 reference code acc. IEC 81348-2 O Substance Prohibitance (Date) product function • ramp-up (soft starting) • soft Torque • Soft Torque • part and be a substance Prohibitance (Date) • soft Torque • pump ramp down • intrinsic device protection • ramp-up (soft starting) • pump ramp down • intrinsic device protection • real protec		
Internation Content		
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- ramp-up (soft starting) - (amp-down (soft stop) - Soft Torque - adjustable current limitation - pump ramp down - pump ramp ramp ramp ramp ramp ramp ramp ra		15.02.2018
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operating voltage • rated value • rated value • at inside-delta circuit rated value relative negative tolerance of the operating voltage relative positive tolerance of the operating voltage relative negative tolerance of the operating voltage relative negative tolerance of the operating voltage at inside-delta circuit relative positive tolerance of the operating voltage at inside-delta circuit 10 %	• at 50 °C rated value	72 A
 rated value at inside-delta circuit rated value 200 480 V relative negative tolerance of the operating voltage relative positive tolerance of the operating voltage relative negative tolerance of the operating voltage at inside-delta circuit relative positive tolerance of the operating voltage at inside-delta circuit 10 % 10 % 	• at 60 °C rated value	62.7 A
 at inside-delta circuit rated value relative negative tolerance of the operating voltage relative positive tolerance of the operating voltage relative negative tolerance of the operating voltage at inside-delta circuit relative positive tolerance of the operating voltage at inside-delta circuit 10 % 10 % 	operating voltage	
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relative negative tolerance of the operating voltage at inside-delta circuit relative positive tolerance of the operating voltage at inside-delta circuit -15 % 10 %		10 %
relative positive tolerance of the operating voltage at inside-delta circuit	relative negative tolerance of the operating voltage at	-15 %
operating power for 3-phase motors	relative positive tolerance of the operating voltage at	10 %
	operating power for 3-phase motors	

1000 // 140 00 11 1	44100
• at 230 V at 40 °C rated value	11 kW
• at 230 V at inside-delta circuit at 40 °C rated value	22 kW
• at 400 V at 40 °C rated value	22 kW
at 400 V at inside-delta circuit at 40 °C rated value	45 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	00.4
at rotary coding switch on switch position 1	20 A
at rotary coding switch on switch position 2	21.8 A
 at rotary coding switch on switch position 3 	23.6 A
at rotary coding switch on switch position 4	25.4 A
at rotary coding switch on switch position 5	27.2 A
at rotary coding switch on switch position 6 at rotary coding switch on switch position 7.	29 A
at rotary coding switch on switch position 7 at rotary coding switch on switch position 9	30.8 A 32.6 A
at rotary coding switch on switch position 8 at rotary coding switch on switch position 9	34.4 A
 at rotary coding switch on switch position 9 at rotary coding switch on switch position 10 	36.2 A
at rotary coding switch on switch position 10 at rotary coding switch on switch position 11	38 A
at rotary coding switch on switch position 12 at rotary coding switch on switch position 12	39.8 A
at rotary coding switch on switch position 12 at rotary coding switch on switch position 13	41.6 A
at rotary coding switch on switch position 14 at rotary coding switch on switch position 14	43.4 A
at rotary coding switch on switch position 15	45.2 A
at rotary coding switch on switch position 16	47 A
• minimum	20 A
adjustable motor current	
 for inside-delta circuit at rotary coding switch on switch position 1 	34.6 A
 for inside-delta circuit at rotary coding switch on switch position 2 	37.8 A
 for inside-delta circuit at rotary coding switch on switch position 3 	40.9 A
 for inside-delta circuit at rotary coding switch on switch position 4 	44 A
 for inside-delta circuit at rotary coding switch on switch position 5 	47.1 A
 for inside-delta circuit at rotary coding switch on switch position 6 	50.2 A
 for inside-delta circuit at rotary coding switch on switch position 7 	53.3 A
 for inside-delta circuit at rotary coding switch on switch position 8 	56.5 A
for inside-delta circuit at rotary coding switch on switch position 9	59.6 A
 for inside-delta circuit at rotary coding switch on switch position 10 	62.7 A
for inside-delta circuit at rotary coding switch on switch position 11	65.8 A
 for inside-delta circuit at rotary coding switch on switch position 12 	68.9 A
 for inside-delta circuit at rotary coding switch on switch position 13 	72.1 A
 for inside-delta circuit at rotary coding switch on switch position 14 	75.2 A
 for inside-delta circuit at rotary coding switch on switch position 15 	78.3 A
 for inside-delta circuit at rotary coding switch on switch position 16 	81.4 A
at inside-delta circuit minimum	34.6 A
minimum load [%]	15 %; Relative to smallest settable le
power loss [W] for rated value of the current at AC	26 W
at 40 °C after startup at 50 °C after startup	26 W
 at 50 °C after startup 	ZH VV

at 60 °C after startup	23 W
power loss [W] at AC at current limitation 350 %	
 at 40 °C during startup 	606 W
 at 50 °C during startup 	522 W
at 60 °C during startup	438 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 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
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	7.6 A
maximum 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 digital outputs	3
not parameterizable	2
digital output version	2 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	+/- 10° rotation possible and can be tilted forward or backward on vertical mounting surface
fastening method	screw fixing
height	306 mm
width	185 mm
depth	203 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	box terminal
for control circuit	screw-type terminals
width of connection bar maximum	25 mm
type of connectable conductor cross-sections	
for main contacts for box terminal using the front clamping point solid	1x (2.5 16 mm²)
 for main contacts for box terminal using the front clamping point finely stranded with core end processing 	1x (2.5 50 mm²)
 for main contacts for box terminal using the front clamping point stranded 	1x (10 70 mm²)
 at AWG cables for main contacts for box terminal using the front clamping point 	1x (10 2/0)
for main contacts for box terminal using the back clamping point solid	1x (2.5 16 mm²)
at AWG cables for main contacts for box terminal using the back clamping point	1x (10 2/0)
for main contacts for box terminal using both clamping points solid	2x (2.5 16 mm²)
 for main contacts for box terminal using both clamping points finely stranded with core end processing 	2x (2.5 35 mm²)
for main contacts for box terminal using both clamping points stranded	2x (6 16 mm²), 2x (10 50 mm²)
 for main contacts for box terminal using the back clamping point finely stranded with core end processing 	1x (2.5 50 mm²)
for main contacts for box terminal using the back clamping point stranded	1x (10 70 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	100 m
at the digital inputs at DC maximum	1 000 m
tightening torque	
for main contacts with screw-type terminals	4.5 6 N·m
for auxiliary and control contacts with screw-type	0.8 1.2 N·m
terminals	V.O 1.2 IV III
tightening torque [lbf·in]	
• for main contacts with screw-type terminals	40 53 lbf·in
for auxiliary and control contacts with screw-type terminals	7 10.3 lbf·in
mbient conditions	
installation altitude at height above sea level maximum	5 000 m; Derating as of 1000 m, see catalog
ambient temperature	- 5 555 m, Deraing as or 1000 m, see edialog
during operation	-25 +60 °C; Please observe derating at temperatures of 40 °C or
• during operation	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	
ommunication/ Frotocol	

 PROFINET standard 	Yes
EtherNet/IP	Yes
Modbus RTU	Yes
Modbus TCP	Yes
• PROFIBUS	Yes

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 insidedelta circuit according to UL
- usable for Standard Faults at 575/600 V according to UL
- usable for Standard Faults at 575/600 V at inside-delta circuit according to UL

- usable for Standard Faults up to 575/600 V according to UL
- usable for High Faults up to 575/600 V according to UL
- usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL
- usable for High Faults at inside-delta circuit up to 575/600 V according to UL

Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA

Siemens type: 3VA51, max. 60 A; Iq max = 65 kA

Siemens type: 3VA51, max. 90 A; Iq = 5 kA

Siemens type: 3VA51, max. 60 A; Iq max = 65 kA

Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; Iq = 5 kA

Siemens type: 3VA51, max. 90 A; Iq = 5 kA

Type: Class RK5 / K5, max. 175 A; Iq = 5 kA

Type: Class J / L, max. 175 A; Iq = 100 kA

Type: Class RK5 / K5, max. 175 A; Iq = 5 kA

Type: Class J / L, max. 175 A; Iq = 100 kA

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
- at 200/208 V at inside-delta circuit at 50 °C rated
- at 220/230 V at inside-delta circuit at 50 °C rated value
- at 460/480 V at inside-delta circuit at 50 °C rated value

10 hp 10 hp

- 30 hp
- 20 hp
- 25 hp
- 50 hp

contact rating of auxiliary contacts according to UL

R300-B300

Safety related data

protection class IP on the front acc. to IEC 60529 touch protection on the front acc. to IEC 60529 electromagnetic compatibility

IP00; IP20 with cover

finger-safe, for vertical contact from the front with cover

in accordance with IEC 60947-4-2

Certificates/ approvals

General Product Approval

EMC

Declaration of Conformity











UK Declaration of Conformity

Declaration of Conformity

Test Certificates

Marine / Shipping



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=3RW5224-1AC04

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-1AC04

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

https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1AC04

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-1AC04&lang=en

Characteristic: Tripping characteristics, I2t, Let-through current

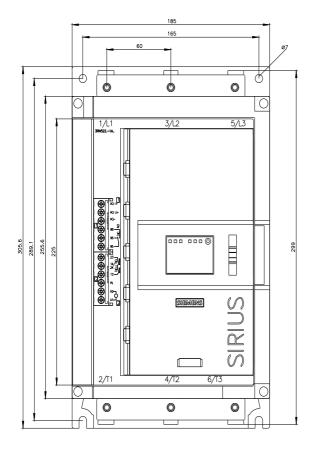
https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1AC04/char

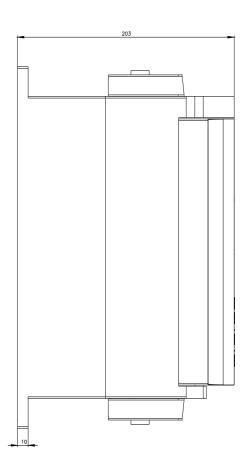
Characteristic: Installation altitude

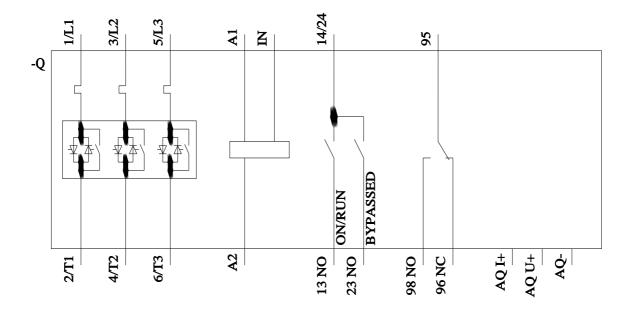
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-1AC04&objecttype=14&gridview=view1

Simulation Tool for Soft Starters (STS)

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







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