



SIRIUS soft starter 200-600 V 47 A, 24 V AC/DC Screw terminals
Thermistor input

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| product brand name | SIRIUS |
| product category | Hybrid switching devices |
| product designation | Soft starter |
| product type designation | 3RW52 |
| manufacturer's article number | <ul style="list-style-type: none"> • 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 %; non-adjustable |
| start-up ramp time of soft starter | 0 ... 20 s |
| current limiting value [%] adjustable | 130 ... 700 % |
| certificate of suitability | <ul style="list-style-type: none"> • CE marking Yes • UL approval Yes • CSA approval Yes |
| product component | <ul style="list-style-type: none"> • 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 | 3 |

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| 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 |
| 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 | 1 800 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) | 02/15/2018 |
| 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 |
| • PROFenergy | 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 | 47 A |
| • at 50 °C rated value | 42 A |
| • at 60 °C rated value | 36 A |
| operational current at inside-delta circuit | |
| • at 40 °C rated value | 81.4 A |
| • at 50 °C rated value | 72 A |
| • at 60 °C rated value | 62.7 A |
| operating voltage | |
| • rated value | 200 ... 600 V |
| • at inside-delta circuit rated value | 200 ... 600 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 | |

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| • 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 |
| • at 500 V at 40 °C rated value | 30 kW |
| • at 500 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 | |
| • 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 | 29 A |
| • at rotary coding switch on switch position 7 | 30.8 A |
| • at rotary coding switch on switch position 8 | 32.6 A |
| • at rotary coding switch on switch position 9 | 34.4 A |
| • at rotary coding switch on switch position 10 | 36.2 A |
| • at rotary coding switch on switch position 11 | 38 A |
| • at rotary coding switch on switch position 12 | 39.8 A |
| • at rotary coding switch on switch position 13 | 41.6 A |
| • 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 | |

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| <ul style="list-style-type: none"> • at 40 °C after startup • at 50 °C after startup • at 60 °C after startup | 26 W 24 W 23 W |
| power loss [W] at AC at current limitation 350 % | |
| <ul style="list-style-type: none"> • at 40 °C during startup • at 50 °C during startup • at 60 °C during startup | 606 W 522 W 438 W |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | AC/DC |
| control supply voltage at AC | |
| <ul style="list-style-type: none"> • at 50 Hz rated value • at 60 Hz rated value | 24 V 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 | |
| <ul style="list-style-type: none"> • 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 (I _{cu} =1 kA), 6 A quick-acting fuse (I _{cu} =1 kA), C1 miniature circuit breaker (I _{cu} = 600 A), C6 miniature circuit breaker (I _{cu} = 300 A); Is not part of scope of supply |
| Inputs/ Outputs | |
| number of digital inputs | 1 |
| number of digital outputs | 3 |
| <ul style="list-style-type: none"> • 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 | |
| <ul style="list-style-type: none"> • at AC-15 at 250 V rated value • at DC-13 at 24 V rated value | 3 A 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 | |
| <ul style="list-style-type: none"> • forwards • backwards • upwards | 10 mm 0 mm 100 mm |

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| <ul style="list-style-type: none"> • downwards | 75 mm |
| <ul style="list-style-type: none"> • at the side | 5 mm |
| weight without packaging | 5.2 kg |
| Connections/ Terminals | |
| type of electrical connection | |
| <ul style="list-style-type: none"> • for main current circuit • for control circuit | box terminal screw-type terminals |
| width of connection bar maximum | 25 mm |
| wire length for thermistor connection | |
| <ul style="list-style-type: none"> • with conductor cross-section = 0.5 mm² maximum • with conductor cross-section = 1.5 mm² maximum • with conductor cross-section = 2.5 mm² maximum | 50 m 150 m 250 m |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • for main contacts for box terminal using the front clamping point solid | 1x (2.5 ... 16 mm ²) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using the front clamping point finely stranded with core end processing | 1x (2.5 ... 50 mm ²) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using the front clamping point stranded | 1x (10 ... 70 mm ²) |
| <ul style="list-style-type: none"> • at AWG cables for main contacts for box terminal using the front clamping point | 1x (10 ... 2/0) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using the back clamping point solid | 1x (2.5 ... 16 mm ²) |
| <ul style="list-style-type: none"> • at AWG cables for main contacts for box terminal using the back clamping point | 1x (10 ... 2/0) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using both clamping points solid | 2x (2.5 ... 16 mm ²) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using both clamping points finely stranded with core end processing | 2x (2.5 ... 35 mm ²) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using both clamping points stranded | 2x (6 ... 16 mm ²), 2x (10 ... 50 mm ²) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using the back clamping point finely stranded with core end processing | 1x (2.5 ... 50 mm ²) |
| <ul style="list-style-type: none"> • for main contacts for box terminal using the back clamping point stranded | 1x (10 ... 70 mm ²) |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • for control circuit solid | 1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²) |
| <ul style="list-style-type: none"> • for control circuit finely stranded with core end processing | 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²) |
| <ul style="list-style-type: none"> • at AWG cables for control circuit solid | 1x (20 ... 12), 2x (20 ... 14) |
| wire length | |
| <ul style="list-style-type: none"> • between soft starter and motor maximum | 800 m |
| <ul style="list-style-type: none"> • at the digital inputs at AC maximum | 100 m |
| <ul style="list-style-type: none"> • at the digital inputs at DC maximum | 1 000 m |
| tightening torque | |
| <ul style="list-style-type: none"> • for main contacts with screw-type terminals | 4.5 ... 6 N·m |
| <ul style="list-style-type: none"> • for auxiliary and control contacts with screw-type terminals | 0.8 ... 1.2 N·m |
| tightening torque [lbf·in] | |
| <ul style="list-style-type: none"> • for main contacts with screw-type terminals | 40 ... 53 lbf·in |
| <ul style="list-style-type: none"> • 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 | |
| <ul style="list-style-type: none"> • during operation | -25 ... +60 °C; Please observe derating at temperatures of 40 °C or above |
| <ul style="list-style-type: none"> • during storage and transport | -40 ... +80 °C |
| environmental category | |
| <ul style="list-style-type: none"> • 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 |

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| <ul style="list-style-type: none"> during storage according to IEC 60721 | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4 |
| <ul style="list-style-type: none"> 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 | |
| <ul style="list-style-type: none"> PROFINET standard | Yes |
| <ul style="list-style-type: none"> EtherNet/IP | Yes |
| <ul style="list-style-type: none"> Modbus RTU | Yes |
| <ul style="list-style-type: none"> Modbus TCP | Yes |
| <ul style="list-style-type: none"> PROFIBUS | Yes |
| UL/CSA ratings | |
| manufacturer's article number | |
| <ul style="list-style-type: none"> of circuit breaker <ul style="list-style-type: none"> — 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 — 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 | <p>Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; I_q = 5 kA</p> <p>Siemens type: 3VA51, max. 60 A; I_q max = 65 kA</p> <p>Siemens type: 3VA51, max. 90 A; I_q = 5 kA</p> <p>Siemens type: 3VA51, max. 60 A; I_q max = 65 kA</p> <p>Siemens type: 3RV2742, max. 70 A or 3VA51, max. 90 A; I_q = 5 kA</p> <p>Siemens type: 3VA51, max. 90 A; I_q = 5 kA</p> |
| <ul style="list-style-type: none"> of the fuse <ul style="list-style-type: none"> — 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 | <p>Type: Class RK5 / K5, max. 175 A; I_q = 5 kA</p> <p>Type: Class J / L, max. 175 A; I_q = 100 kA</p> <p>Type: Class RK5 / K5, max. 175 A; I_q = 5 kA</p> <p>Type: Class J / L, max. 175 A; I_q = 100 kA</p> |
| operating power [hp] for 3-phase motors | |
| <ul style="list-style-type: none"> 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 575/600 V at 50 °C rated value at 200/208 V at inside-delta circuit at 50 °C rated value 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 at 575/600 V at inside-delta circuit at 50 °C rated value | <p>10 hp</p> <p>10 hp</p> <p>30 hp</p> <p>40 hp</p> <p>20 hp</p> <p>25 hp</p> <p>50 hp</p> <p>60 hp</p> |
| contact rating of auxiliary contacts according to UL | R300-B300 |
| 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 |
| electromagnetic compatibility | in accordance with IEC 60947-4-2 |
| Certificates/ approvals | |
| General Product Approval | EMC |



[Confirmation](#)



| Declaration of Conformity | Test Certificates | Marine / Shipping |
|---------------------------|-------------------|-------------------|
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EG-Konf.

[Type Test Certificates/Test Report](#)



ABS



BUREAU
VERITAS



LRS

| Marine / Shipping | other |
|-------------------|-------|
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PRS



DNV GL

[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=3RW5224-1TC05>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5224-1TC05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1TC05>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5224-1TC05&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5224-1TC05/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5224-1TC05&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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

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