

Siemens
EcoTech



SIRIUS soft starter 200-600 V 370 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 3VA2440-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of circuit breaker usable at 500 V 3VA2440-7MN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of circuit breaker usable at 400 V at inside-delta circuit 3VA2580-6HN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of circuit breaker usable at 500 V at inside-delta circuit 3VA2580-6HN32-0AA0; Type of coordination 1, Iq = 65 kA, CLASS 10 • of the gG fuse usable up to 690 V 2x3NA3365-6; Type of coordination 1, Iq = 65 kA • of the gG fuse usable at inside-delta circuit up to 500 V 2x3NA3365-6; Type of coordination 1, Iq = 65 kA • of full range R fuse link for semiconductor protection usable up to 690 V 3NE1334-2; Type of coordination 2, Iq = 65 kA • of back-up R fuse link for semiconductor protection usable up to 690 V 3NE3336; 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 | |
| • 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 | 3 |

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| 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 | 1 600 V |
| service factor | 1 |
| 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 |
| 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 |
| SVHC substance name | Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4 |
| Weight | 9.9 kg |
| 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 | 370 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 ... 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 % |

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| 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 inside-delta circuit at 40 °C rated value | 200 kW |
| • at 400 V at 40 °C rated value | 200 kW |
| • at 400 V at inside-delta circuit at 40 °C rated value | 355 kW |
| • at 500 V at 40 °C rated value | 250 kW |
| • at 500 V at inside-delta circuit at 40 °C rated value | 450 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 | 160 A |
| • at rotary coding switch on switch position 2 | 174 A |
| • at rotary coding switch on switch position 3 | 188 A |
| • at rotary coding switch on switch position 4 | 202 A |
| • at rotary coding switch on switch position 5 | 216 A |
| • at rotary coding switch on switch position 6 | 230 A |
| • at rotary coding switch on switch position 7 | 244 A |
| • at rotary coding switch on switch position 8 | 258 A |
| • at rotary coding switch on switch position 9 | 272 A |
| • at rotary coding switch on switch position 10 | 286 A |
| • at rotary coding switch on switch position 11 | 300 A |
| • at rotary coding switch on switch position 12 | 314 A |
| • at rotary coding switch on switch position 13 | 328 A |
| • at rotary coding switch on switch position 14 | 342 A |
| • at rotary coding switch on switch position 15 | 356 A |
| • at rotary coding switch on switch position 16 | 370 A |
| • minimum | 160 A |
| adjustable motor current | |
| • for inside-delta circuit at rotary coding switch on switch position 1 | 277 A |
| • for inside-delta circuit at rotary coding switch on switch position 2 | 301 A |
| • for inside-delta circuit at rotary coding switch on switch position 3 | 326 A |
| • for inside-delta circuit at rotary coding switch on switch position 4 | 350 A |
| • for inside-delta circuit at rotary coding switch on switch position 5 | 374 A |
| • for inside-delta circuit at rotary coding switch on switch position 6 | 398 A |
| • for inside-delta circuit at rotary coding switch on switch position 7 | 423 A |
| • for inside-delta circuit at rotary coding switch on switch position 8 | 447 A |
| • for inside-delta circuit at rotary coding switch on switch position 9 | 471 A |
| • for inside-delta circuit at rotary coding switch on switch position 10 | 495 A |
| • for inside-delta circuit at rotary coding switch on switch position 11 | 520 A |
| • for inside-delta circuit at rotary coding switch on switch position 12 | 544 A |
| • for inside-delta circuit at rotary coding switch on switch position 13 | 568 A |
| • for inside-delta circuit at rotary coding switch on switch position 14 | 592 A |
| • for inside-delta circuit at rotary coding switch on switch position 15 | 617 A |

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| <ul style="list-style-type: none"> • for inside-delta circuit at rotary coding switch on switch position 16 • at inside-delta circuit minimum | 641 A 277 A |
| minimum load [%] | 15 %; Relative to smallest settable Ie |
| power loss [W] for rated value of the current at AC | |
| <ul style="list-style-type: none"> • at 40 °C after startup • at 50 °C after startup • at 60 °C after startup | 123 W 110 W 102 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 | 5 575 W 4 706 W 4 157 W |

Control circuit/ Control

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| 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 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 | 470 mA |
| inrush current by closing the bypass contacts 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

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|---|---|
| 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

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| 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 | 393 mm |
| width | 210 mm |
| depth | 203 mm |
| required spacing with side-by-side mounting | |

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| <ul style="list-style-type: none"> • forwards • backwards • upwards • downwards • at the side | <p>10 mm</p> <p>0 mm</p> <p>100 mm</p> <p>75 mm</p> <p>5 mm</p> |
| weight without packaging | 9.9 kg |
| Connections/ Terminals | |
| type of electrical connection | |
| <ul style="list-style-type: none"> • for main current circuit • for control circuit | <p>busbar connection</p> <p>screw-type terminals</p> |
| width of connection bar maximum | 45 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 | <p>50 m</p> <p>150 m</p> <p>250 m</p> |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • for DIN cable lug for main contacts stranded • for DIN cable lug for main contacts finely stranded | <p>2x (50 ... 240 mm²)</p> <p>2x (70 ... 240 mm²)</p> |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • for control circuit solid • for control circuit finely stranded with core end processing • for AWG cables for control circuit solid | <p>1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²)</p> <p>1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²)</p> <p>1x (20 ... 12), 2x (20 ... 14)</p> |
| wire length | |
| <ul style="list-style-type: none"> • between soft starter and motor maximum • at the digital inputs at AC maximum • at the digital inputs at DC maximum | <p>800 m</p> <p>100 m</p> <p>1 000 m</p> |
| tightening torque | |
| <ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals | <p>14 ... 24 N·m</p> <p>0.8 ... 1.2 N·m</p> |
| tightening torque [lbf·in] | |
| <ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals | <p>124 ... 210 lbf·in</p> <p>7 ... 10.3 lbf·in</p> |
| 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 • during storage and transport | <p>-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above</p> <p>-40 ... +80 °C</p> |
| environmental category | |
| <ul style="list-style-type: none"> • during operation according to IEC 60721 • during storage according to IEC 60721 • during transport according to IEC 60721 | <p>3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6</p> <p>1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4</p> <p>2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)</p> |
| Environmental footprint | |
| global warming potential [CO ₂ eq] total | 786 kg |
| global warming potential [CO ₂ eq] during manufacturing | 84.2 kg |
| global warming potential [CO ₂ eq] during sales | 2.81 kg |
| global warming potential [CO ₂ eq] during operation | 721 kg |
| global warming potential [CO ₂ eq] after end of life | -21.8 kg |
| Siemens Eco Profile (SEP) | Siemens EcoTech |
| Electromagnetic compatibility | |
| 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 • EtherNet/IP • Modbus RTU • Modbus TCP | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> |

• PROFIBUS

Yes

UL/CSA ratings

manufacturer's article number

• of the fuse

- 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

Type: Class J / L, max. 1200 A; Iq = 18 kA
 Type: Class J / L, max. 1200 A; Iq = 100 kA
 Type: Class J / L, max. 1200 A; Iq = 18 kA
 Type: Class J / L, max. 1200 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 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

100 hp
 125 hp
 250 hp
 300 hp
 200 hp
 200 hp
 450 hp
 600 hp

contact rating of auxiliary contacts according to UL

R300-B300

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

Approvals Certificates

General Product Approval

EMV



EMV

Test Certificates

Maritime application

[KC](#)

[Type Test Certificates/Test Report](#)



other

Environment



[Confirmation](#)



[Environmental Confirmations](#)

Further information

Information on the packaging

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

Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3RW5246-6TC05>

Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5246-6TC05>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5246-6TC05>

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

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5246-6TC05&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

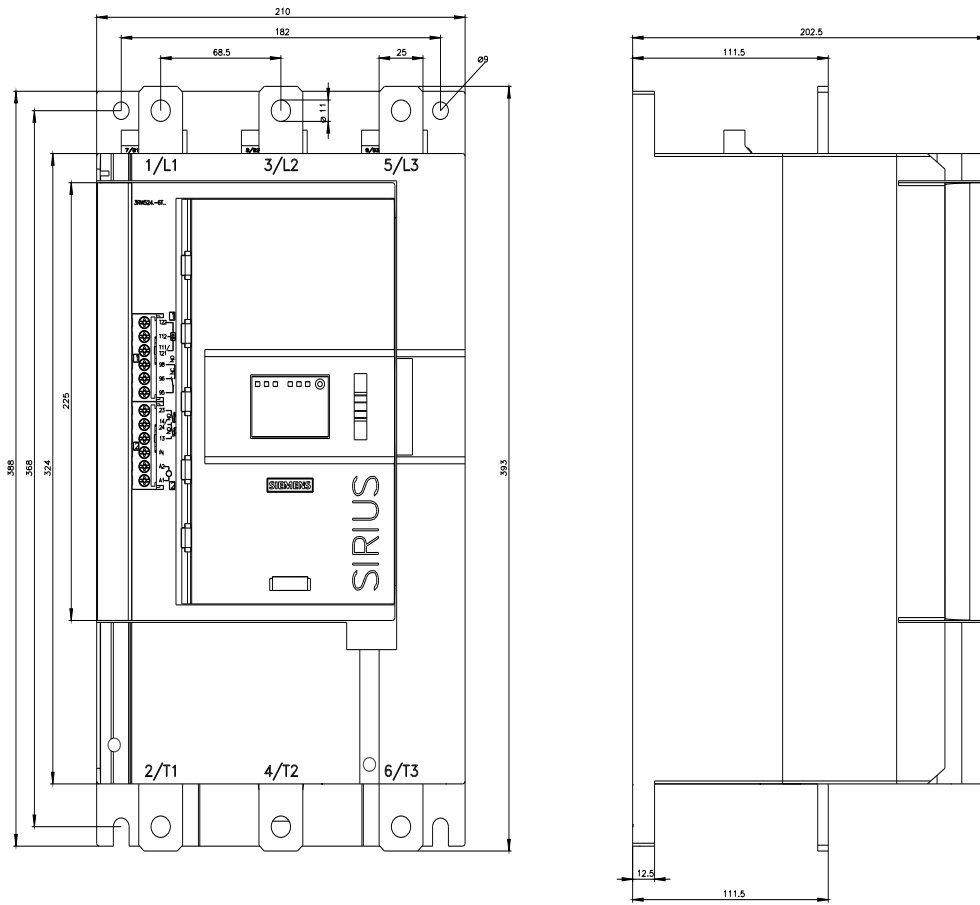
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5246-6TC05/char>

Characteristic: Installation altitude

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5246-6TC05&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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