

Siemens
EcoTech



SIRIUS soft starter 200-690 V 315 A, 24 V AC/DC Screw terminals



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| product brand name | SIRIUS |
| product category | Hybrid switching devices |
| product designation | Soft starter |
| product type designation | 3RW55 |
| manufacturer's article number | <ul style="list-style-type: none"> • of high feature HMI module usable 3RW5980-0HF00 • of communication module PROFINET standard usable 3RW5980-0CS00 • of communication module PROFINET high-feature usable 3RW5950-0CH00 • 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 [%] | 20 ... 100 % |
| stopping voltage [%] | 50 %; non-adjustable |
| start-up ramp time of soft starter | 0 ... 360 s |
| ramp-down time of soft starter | 0 ... 360 s |
| start torque [%] | 10 ... 100 % |
| stopping torque [%] | 10 ... 100 % |
| torque limitation [%] | 20 ... 200 % |
| current limiting value [%] adjustable | 125 ... 800 % |
| breakaway voltage [%] adjustable | 40 ... 100 % |
| breakaway time adjustable | 0 ... 2 s |
| number of parameter sets | 3 |
| accuracy class | 5 (based on IEC 61557-12) |
| certificate of suitability | |
| • CE marking | Yes |
| • UL approval | Yes |

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| <ul style="list-style-type: none"> • CSA approval | Yes |
| product component | |
| <ul style="list-style-type: none"> • HMI-High Feature | Yes |
| <ul style="list-style-type: none"> • is supported HMI-High Feature | Yes |
| product feature integrated bypass contact system | Yes |
| number of controlled phases | 3 |
| current unbalance limiting value [%] | 10 ... 60 % |
| ground-fault monitoring limiting value [%] | 10 ... 95 % |
| buffering time in the event of power failure | |
| <ul style="list-style-type: none"> • for main current circuit | 100 ms |
| <ul style="list-style-type: none"> • for control circuit | 100 ms |
| idle time adjustable | 0 ... 255 s |
| insulation voltage rated value | 690 V |
| degree of pollution | 3, acc. to IEC 60947-4-2 |
| impulse voltage rated value | 8 kV |
| blocking voltage of the thyristor maximum | 1 800 V |
| service factor | 1.15 |
| surge voltage resistance rated value | 8 kV |
| maximum permissible voltage for protective separation | |
| <ul style="list-style-type: none"> • between main and auxiliary circuit | 690 V; does not apply for thermistor connection |
| 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 |
| recovery time after overload trip adjustable | 60 ... 1 800 s |
| 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 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 Lead titanium trioxide - 12060-00-3 |
| Weight | 11.5 kg |
| product function | |
| <ul style="list-style-type: none"> • ramp-up (soft starting) | Yes |
| <ul style="list-style-type: none"> • ramp-down (soft stop) | Yes |
| <ul style="list-style-type: none"> • breakaway pulse | Yes |
| <ul style="list-style-type: none"> • adjustable current limitation | Yes |
| <ul style="list-style-type: none"> • creep speed in both directions of rotation | Yes |
| <ul style="list-style-type: none"> • pump ramp down | Yes |
| <ul style="list-style-type: none"> • DC braking | Yes |
| <ul style="list-style-type: none"> • motor heating | Yes |
| <ul style="list-style-type: none"> • min/max pointer | Yes |
| <ul style="list-style-type: none"> • trace function | Yes |
| <ul style="list-style-type: none"> • intrinsic device protection | Yes |
| <ul style="list-style-type: none"> • motor overload protection | Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) |
| <ul style="list-style-type: none"> • evaluation of thermistor motor protection | Yes; Type A PTC or Klixon / Thermoclick |
| <ul style="list-style-type: none"> • inside-delta circuit | Yes; Only up to 600 V operating voltage |
| <ul style="list-style-type: none"> • auto-RESET | Yes |
| <ul style="list-style-type: none"> • manual RESET | Yes |
| <ul style="list-style-type: none"> • remote reset | Yes |
| <ul style="list-style-type: none"> • communication function | Yes |
| <ul style="list-style-type: none"> • operating measured value display | Yes |
| <ul style="list-style-type: none"> • event list | Yes |
| <ul style="list-style-type: none"> • error logbook | Yes |
| <ul style="list-style-type: none"> • via software parameterizable | Yes |
| <ul style="list-style-type: none"> • via software configurable | Yes |
| <ul style="list-style-type: none"> • screw terminal | Yes |
| <ul style="list-style-type: none"> • spring-loaded terminal | No |
| <ul style="list-style-type: none"> • PROFenergy | Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules |
| <ul style="list-style-type: none"> • firmware update | Yes |

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| • 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 | 315 A |
| • at 40 °C rated value minimum | 63 A |
| • at 50 °C rated value | 279 A |
| • at 60 °C rated value | 255 A |
| operational current at inside-delta circuit | |
| • at 40 °C rated value | 546 A |
| • at 50 °C rated value | 483 A |
| • at 60 °C rated value | 442 A |
| operating voltage | |
| • rated value | 200 ... 690 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 | |
| • at 230 V at 40 °C rated value | 90 kW |
| • at 230 V at inside-delta circuit at 40 °C rated value | 160 kW |
| • at 400 V at 40 °C rated value | 160 kW |
| • at 400 V at inside-delta circuit at 40 °C rated value | 315 kW |
| • at 500 V at 40 °C rated value | 200 kW |
| • at 500 V at inside-delta circuit at 40 °C rated value | 355 kW |
| • at 690 V at 40 °C rated value | 315 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 % |
| minimum load [%] | 10 %; Relative to set le |
| power loss [W] for rated value of the current at AC | |
| • at 40 °C after startup | 95 W |
| • at 50 °C after startup | 84 W |
| • at 60 °C after startup | 77 W |
| power loss [W] at AC at current limitation 350 % | |
| • at 40 °C during startup | 4 966 W |
| • at 50 °C during startup | 4 153 W |
| • at 60 °C during startup | 3 646 W |
| type of the motor protection | Electronic, tripping in the event of thermal overload of the motor |
| 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 % |

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| 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 | 440 mA |
| holding current in bypass operation rated value | 720 mA |
| inrush current by closing the bypass contacts 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 (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

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|---|---|
| number of digital inputs | 4 |
| • parameterizable | 4 |
| • 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

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| 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 | |
| • forwards | 10 mm |
| • backwards | 0 mm |
| • upwards | 100 mm |
| • downwards | 75 mm |
| • at the side | 5 mm |
| weight without packaging | 10.2 kg |

Connections/ Terminals

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| type of electrical connection | |
| • for main current circuit | busbar connection |
| • for control circuit | screw-type terminals |
| width of connection bar maximum | 45 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 | |
| • for DIN cable lug for main contacts stranded | 2x (50 ... 240 mm ²) |
| • for DIN cable lug for main contacts finely stranded | 2x (70 ... 240 mm ²) |

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| 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 DC maximum | <p>800 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 | 2 000 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 | 833 kg |
| global warming potential [CO ₂ eq] during manufacturing | 95.3 kg |
| global warming potential [CO ₂ eq] during sales | 2.8 kg |
| global warming potential [CO ₂ eq] during operation | 756 kg |
| global warming potential [CO ₂ eq] after end of life | -21 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 • PROFINET high-feature • EtherNet/IP • Modbus RTU • Modbus TCP • PROFIBUS | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> |
| UL/CSA ratings | |
| manufacturer's article number | |
| <ul style="list-style-type: none"> • of circuit breaker usable for Standard Faults <ul style="list-style-type: none"> — at 460/480 V according to UL — 60/480 V according to UL — at 460/480 V at inside-delta circuit according to UL — 60/480 V at inside-delta circuit according to UL — at 575/600 V according to UL — 75/600 V at inside-delta circuit according to UL — at 575/600 V at inside-delta circuit according to UL • 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>Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; I_q = 18 kA</p> <p>Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; I_q max = 65 kA</p> <p>Siemens type: 3VA54, max. 600 A; I_q = 18 kA</p> <p>Siemens type: 3VA54, max. 600 A; I_q max = 65 kA</p> <p>Siemens type: 3VA53, max. 400 A or 3VA54, max. 600 A; I_q = 18 kA</p> <p>Siemens type: 3VA54, max. 600 A; I_q max = 65 kA</p> <p>Siemens type: 3VA54, max. 600 A; I_q = 18 kA</p> <p>Type: Class J / L, max. 1000 A; I_q = 18 kA</p> <p>Type: Class J / L, max. 1000 A; I_q = 100 kA</p> <p>Type: Class J / L, max. 1000 A; I_q = 18 kA</p> <p>Type: Class J / L, max. 1000 A; I_q = 100 kA</p> |
| operating power [hp] for 3-phase motors | |

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| <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>75 hp</p> <p>100 hp</p> <p>200 hp</p> <p>250 hp</p> <p>150 hp</p> <p>200 hp</p> <p>400 hp</p> <p>500 hp</p> |
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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

ATEX

Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX SIL 1

PFHD with high demand rate according to IEC 61508 relating to ATEX 5E-7 1/h

PFDAvg with low demand rate according to IEC 61508 relating to ATEX 0.008

hardware fault tolerance according to IEC 61508 relating to ATEX 0

T1 value for proof test interval or service life according to IEC 61508 relating to ATEX 3 a

certificate of suitability

- ATEX Yes
- IECEx Yes
- according to ATEX directive 2014/34/EU BVS 18 ATEX F 003 X

type of protection according to ATEX directive 2014/34/EU II (2)G [Ex eb Gb] [Ex db Gb] [Ex pxb Gb], II (2)D [Ex tb Db] [Ex pxb Db], I (M2) [Ex db Mb]

Approvals Certificates

General Product Approval EMV



EMV For use in hazardous locations Test Certificates Maritime application

[KC](#)



[Type Test Certificates/Test Report](#)



Maritime application other Environment



[Confirmation](#)



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=3RW5545-6HA06>
- Cax online generator <https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5545-6HA06>
- Service&Support (Manuals, Certificates, Characteristics, FAQs,...) <https://support.industry.siemens.com/cs/ww/en/ps/3RW5545-6HA06>
- Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5545-6HA06&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

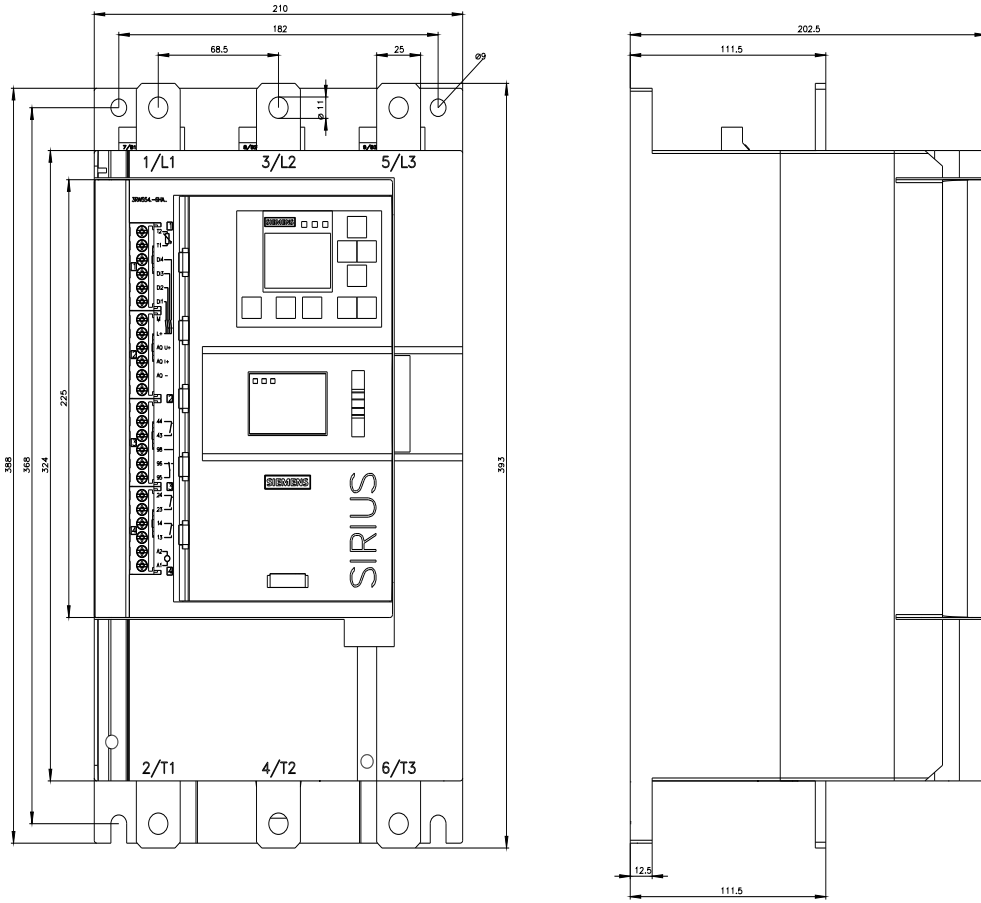
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5545-6HA06/char>

Characteristic: Installation altitude

<https://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5545-6HA06&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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