

Siemens
EcoTech



SIRIUS soft starter 200-480 V 171 A, 110-250 V AC Spring-loaded terminals
Thermistor input



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| product brand name | SIRIUS |
| product category | Hybrid switching devices |
| product designation | Soft starter |
| product type designation | 3RW50 |
| manufacturer's article number | |
| <ul style="list-style-type: none"> of standard HMI module usable of high feature HMI module usable of communication module PROFINET standard usable of communication module PROFIBUS usable of communication module Modbus TCP usable of communication module Modbus RTU usable of communication module Ethernet/IP of circuit breaker usable at 400 V of circuit breaker usable at 500 V of the gG fuse usable up to 690 V of full range R fuse link for semiconductor protection usable up to 690 V of back-up R fuse link for semiconductor protection usable up to 690 V of line contactor usable up to 480 V of line contactor usable up to 690 V | <ul style="list-style-type: none"> 3RW5980-0HS01 3RW5980-0HF00 3RW5980-0CS00 3RW5980-0CP00 3RW5980-0CT00 3RW5980-0CR00 3RW5980-0CE00 3VA2220-7MN32-0AA0; Type of assignment 1, Iq = 20 kA 3VA2220-7MN32-0AA0; Type of assignment 1, Iq = 20 kA 3NA3244-6; Type of coordination 1, Iq = 65 kA 3NE1 230-0; Type of coordination 2, Iq = 65 kA 3NE3 335; Type of coordination 2, Iq = 65 kA 3RT1056 3RT1064 |
| General technical data | |
| starting voltage [%] | 30 ... 100 % |
| stopping voltage [%] | 50 %; non-adjustable |
| start-up ramp time of soft starter | 0 ... 20 s |
| ramp-down time of soft starter | 0 ... 20 s |
| current limiting value [%] adjustable | 130 ... 700 % |
| certificate of suitability | |
| <ul style="list-style-type: none"> CE marking UL approval CSA approval | <ul style="list-style-type: none"> Yes Yes Yes |
| product component | |
| <ul style="list-style-type: none"> HMI-High Feature is supported HMI-Standard is supported HMI-High Feature | <ul style="list-style-type: none"> No Yes Yes |
| product feature integrated bypass contact system | Yes |
| number of controlled phases | 2 |
| buffering time in the event of power failure | |

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| <ul style="list-style-type: none"> • for main current circuit • for control circuit | 100 ms 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 | 1 400 V |
| service factor | 1 |
| surge voltage resistance rated value | 6 kV |
| maximum permissible voltage for protective separation | |
| <ul style="list-style-type: none"> • between main and auxiliary circuit | 600 V |
| shock resistance | 15 g / 11 ms, from 12 g / 11 ms with potential contact lifting |
| utilization category according to IEC 60947-4-2 | AC-53a |
| reference code according to IEC 81346-2 | Q |
| Substance Prohibitance (Date) | 09/23/2019 |
| SVHC substance name | Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus™") covering any of its individual anti- and syn-isomers or any combination thereof - - Dodecamethylcyclohexasiloxane (D6) - 540-97-6 |
| product function | |
| <ul style="list-style-type: none"> • ramp-up (soft starting) • ramp-down (soft stop) • Soft Torque • adjustable current limitation • pump ramp down • intrinsic device protection • motor overload protection | Yes Yes Yes Yes Yes Yes Yes |
| <ul style="list-style-type: none"> • evaluation of thermistor motor protection • auto-RESET • manual RESET • remote reset • communication function • operating measured value display • error logbook • via software parameterizable • via software configurable • PROFenergy • voltage ramp • torque control • analog output | Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) Yes; Type A PTC or Klixon / Thermoclick Yes Yes Yes; By turning off the control supply voltage Yes Yes; Only in conjunction with special accessories Yes; Only in conjunction with special accessories No Yes Yes; in connection with the PROFINET Standard communication module Yes No No |
| Power Electronics | |
| operational current | |
| <ul style="list-style-type: none"> • at 40 °C rated value • at 50 °C rated value • at 60 °C rated value | 171 A 153 A 141 A |
| operating voltage | |
| <ul style="list-style-type: none"> • rated value | 200 ... 480 V |
| relative negative tolerance of the operating voltage | -15 % |
| relative positive tolerance of the operating voltage | 10 % |
| operating power for 3-phase motors | |
| <ul style="list-style-type: none"> • at 230 V at 40 °C rated value • at 400 V at 40 °C rated value | 45 kW 90 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 | |
| <ul style="list-style-type: none"> • at rotary coding switch on switch position 1 | 81 A |

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| <ul style="list-style-type: none"> • at rotary coding switch on switch position 2 • at rotary coding switch on switch position 3 • at rotary coding switch on switch position 4 • at rotary coding switch on switch position 5 • at rotary coding switch on switch position 6 • at rotary coding switch on switch position 7 • at rotary coding switch on switch position 8 • at rotary coding switch on switch position 9 • at rotary coding switch on switch position 10 • at rotary coding switch on switch position 11 • at rotary coding switch on switch position 12 • at rotary coding switch on switch position 13 • at rotary coding switch on switch position 14 • at rotary coding switch on switch position 15 • at rotary coding switch on switch position 16 • minimum | 87 A 93 A 99 A 105 A 111 A 117 A 123 A 129 A 135 A 141 A 147 A 153 A 159 A 165 A 171 A 81 A |
| minimum load [%] | 15 %; Relative to smallest settable le |
| 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 | 29 W 23 W 20 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 | 1 751 W 1 478 W 1 308 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 |
| control supply voltage at AC | |
| <ul style="list-style-type: none"> • at 50 Hz • at 60 Hz | 110 ... 250 V 110 ... 250 V |
| relative negative tolerance of the control supply voltage at AC at 50 Hz | -15 % |
| relative positive tolerance of the control supply voltage at AC at 50 Hz | 10 % |
| relative negative tolerance of the control supply voltage at AC at 60 Hz | -15 % |
| relative positive tolerance of the control supply voltage at AC at 60 Hz | 10 % |
| 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 current in standby mode rated value | 30 mA |
| holding current in bypass operation rated value | 80 mA |
| inrush current by closing the bypass contacts maximum | 2.5 A |
| inrush current peak at application of control supply voltage maximum | 12.2 A |
| duration of inrush current peak at application of control supply voltage | 2.2 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 |
| <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 | 198 mm |
| width | 120 mm |
| depth | 249 mm |
| required spacing with side-by-side mounting | |
| <ul style="list-style-type: none"> • forwards • backwards • upwards • downwards • at the side | <ul style="list-style-type: none"> 10 mm 0 mm 100 mm 75 mm 5 mm |
| weight without packaging | 5.2 kg |

Connections/ Terminals

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| type of electrical connection | |
| <ul style="list-style-type: none"> • for main current circuit • for control circuit | <ul style="list-style-type: none"> busbar connection spring-loaded 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 | <ul style="list-style-type: none"> 50 m 150 m 250 m |
| type of connectable conductor cross-sections for main contacts for box terminal | |
| <ul style="list-style-type: none"> • using the front clamping point solid • using the front clamping point finely stranded with core end processing • using the front clamping point finely stranded without core end processing • using the front clamping point stranded • using the back clamping point solid • r box terminal using the back clamping point • using both clamping points solid • using both clamping points finely stranded with core end processing • using both clamping points finely stranded without core end processing • using both clamping points stranded • using the back clamping point finely stranded with core end processing • using the back clamping point finely stranded without core end processing • using the back clamping point stranded | <ul style="list-style-type: none"> 16 ... 120 mm² 16 ... 120 mm² 10 ... 120 mm² 16 ... 70 mm² 16 ... 120 mm² 6 ... 250 kcmil max. 1x 95 mm², 1x 120 mm² max. 1x 95 mm², 1x 120 mm² max. 1x 95 mm², 1x 120 mm² max. 2x 120 mm² 16 ... 120 mm² 10 ... 120 mm² 16 ... 120 mm² |
| type of connectable conductor cross-sections | |
| <ul style="list-style-type: none"> • for AWG cables for main current circuit solid • for DIN cable lug for main contacts stranded • for DIN cable lug for main contacts finely stranded | <ul style="list-style-type: none"> 4 ... 250 kcmil 16 ... 95 mm² 25 ... 120 mm² |
| 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 • for AWG cables for control circuit finely stranded with core end processing | <ul style="list-style-type: none"> 2x (0.25 ... 1.5 mm²) 2x (0.25 ... 1.5 mm²) 2x (24 ... 16) 2x (24 ... 16) |
| wire length | |
| <ul style="list-style-type: none"> • between soft starter and motor maximum • at the digital inputs at AC maximum | <ul style="list-style-type: none"> 800 m 1 000 m |
| tightening torque | |
| <ul style="list-style-type: none"> • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals | <ul style="list-style-type: none"> 10 ... 14 N·m 0.8 ... 1.2 N·m |
| 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 | <ul style="list-style-type: none"> 89 ... 124 lbf·in 7 ... 10.3 lbf·in |

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| terminals | |
| Ambient conditions | |
| installation altitude at height above sea level maximum | 5 000 m; derating as of 1000 m, see Manual |
| 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 according 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 according to IEC 60721 | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4 |
| • during transport according to IEC 60721 | 2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m) |
| Environmental footprint | |
| Siemens Eco Profile (SEP) | Siemens EcoTech |
| EMC emitted interference | acc. to IEC 60947-4-2: Class A |
| Communication/ Protocol | |
| communication module is supported | |
| • PROFINET standard | Yes |
| • EtherNet/IP | Yes |
| • Modbus RTU | Yes |
| • Modbus TCP | Yes |
| • PROFIBUS | Yes |
| UL/CSA ratings | |
| manufacturer's article number | |
| • of circuit breaker | |
| — usable for Standard Faults at 460/480 V according to UL | Siemens type: 3VA5225, max. 250 A; Iq = 10 kA |
| — usable for High Faults at 460/480 V according to UL | Siemens type: 3VA52, max. 250 A; Iq max = 65 kA |
| • of the fuse | |
| — usable for Standard Faults up to 575/600 V according to UL | Type: Class RK5 / K5, max. 400 A; Iq = 10 kA |
| — usable for High Faults up to 575/600 V according to UL | Type: Class J, max. 350 A; Iq = 100 kA |
| operating power [hp] for 3-phase motors | |
| • at 200/208 V at 50 °C rated value | 50 hp |
| • at 220/230 V at 50 °C rated value | 50 hp |
| • at 460/480 V at 50 °C rated value | 100 hp |
| 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 | SIL1 |
| PFHD with high demand rate according to IEC 61508 relating to ATEX | 9E-6 1/h |
| PFDavg with low demand rate according to IEC 61508 relating to ATEX | 0.09 |
| 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 |
| • UKEX | Yes |
| Approvals Certificates | |
| General Product Approval | |



EG-Konf.



CCC

[Confirmation](#)



UL

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|--------------------------|-----|--------------------------------|-------------------|
| General Product Approval | EMV | For use in hazardous locations | Test Certificates |
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[KC](#)



[Miscellaneous](#)

[Type Test Certificates/Test Report](#)

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|-------------------|-------|-------------|
| Marine / Shipping | other | Environment |
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[Confirmation](#)

Siemens EcoTech



Environment

[Environmental Confirmations](#)

Further information

Information on the packaging

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

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=3RW5056-2TB14>

Cax online generator

<http://support.automation.siemens.com/WWW/CAXorder/default.aspx?lang=en&mlfb=3RW5056-2TB14>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-2TB14>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5056-2TB14&lang=en

Characteristic: Tripping characteristics, I_t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-2TB14/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5056-2TB14&objectype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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



