



SIRIUS soft starter 200-480 V 171 A, 24 V AC/DC 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 | 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 % |
| accuracy class according to IEC 61557-12 | 5 % |
| certificate of suitability | |
| <ul style="list-style-type: none"> • CE marking • UL approval • CSA approval | Yes Yes Yes |
| product component | |
| <ul style="list-style-type: none"> • HMI-High Feature • is supported HMI-Standard • is supported HMI-High Feature | No Yes Yes |
| product feature integrated bypass contact system | Yes |
| number of controlled phases | 2 |
| trip class | CLASS 10A / 10E (preset) / 20E; acc. to IEC 60947-4-2 |

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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 | 1 400 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) | 09/23/2019 |
| 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 |
| • 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 |
| • PROFInergy | Yes; in connection with the PROFINET Standard communication module |
| • voltage ramp | Yes |
| • torque control | No |
| • analog output | No |
| Power Electronics | |
| operational current | |
| • at 40 °C rated value | 171 A |
| • at 50 °C rated value | 153 A |
| • at 60 °C rated value | 141 A |
| operating voltage | |
| • 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 | |
| • at 230 V at 40 °C rated value | 45 kW |
| • at 400 V at 40 °C rated value | 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 | |
| • at rotary coding switch on switch position 1 | 81 A |
| • at rotary coding switch on switch position 2 | 87 A |
| • at rotary coding switch on switch position 3 | 93 A |
| • at rotary coding switch on switch position 4 | 99 A |

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| <ul style="list-style-type: none"> • 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 | <p>105 A</p> <p>111 A</p> <p>117 A</p> <p>123 A</p> <p>129 A</p> <p>135 A</p> <p>141 A</p> <p>147 A</p> <p>153 A</p> <p>159 A</p> <p>165 A</p> <p>171 A</p> <p>81 A</p> |
| 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 | <p>29 W</p> <p>23 W</p> <p>20 W</p> |
| 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 | <p>1 751 W</p> <p>1 478 W</p> <p>1 308 W</p> |
| 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 | |
| <ul style="list-style-type: none"> • at 50 Hz rated value • at 60 Hz rated value | <p>24 V</p> <p>24 V</p> |
| 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 | 360 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 |

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| digital output version | 2 normally-open contacts (NO) / 1 changeover contact (CO) |
| number of analog outputs | 0 |
| 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 | 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 | |
| • 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 | busbar connection |
| • for control circuit | spring-loaded terminals |
| width of connection bar maximum | 25 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 main contacts for box terminal using the front clamping point solid | 16 ... 120 mm ² |
| • for main contacts for box terminal using the front clamping point finely stranded with core end processing | 16 ... 120 mm ² |
| • for main contacts for box terminal using the front clamping point finely stranded without core end processing | 10 ... 120 mm ² |
| • for main contacts for box terminal using the front clamping point stranded | 16 ... 70 mm ² |
| • at AWG cables for main contacts for box terminal using the front clamping point | 6 ... 250 kcmil |
| • for main contacts for box terminal using the back clamping point solid | 16 ... 120 mm ² |
| • at AWG cables for main contacts for box terminal using the back clamping point | 6 ... 250 kcmil |
| • for main contacts for box terminal using both clamping points solid | max. 1x 95 mm ² , 1x 120 mm ² |
| • for main contacts for box terminal using both clamping points finely stranded with core end processing | max. 1x 95 mm ² , 1x 120 mm ² |
| • for main contacts for box terminal using both clamping points finely stranded without core end processing | max. 1x 95 mm ² , 1x 120 mm ² |
| • for main contacts for box terminal using both clamping points stranded | max. 2x 120 mm ² |
| • for main contacts for box terminal using the back clamping point finely stranded with core end processing | 16 ... 120 mm ² |
| • for main contacts for box terminal using the back clamping point finely stranded without core end processing | 10 ... 120 mm ² |
| • for main contacts for box terminal using the back clamping point stranded | 16 ... 120 mm ² |
| type of connectable conductor cross-sections | |
| • at AWG cables for main current circuit solid | 4 ... 250 kcmil |

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| <ul style="list-style-type: none"> • for DIN cable lug for main contacts stranded • for DIN cable lug for main contacts finely stranded | <p>16 ... 95 mm² 25 ... 120 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 • at AWG cables for control circuit solid • at AWG cables for control circuit finely stranded with core end processing | <p>2x (0.25 ... 1.5 mm²) 2x (0.25 ... 1.5 mm²) 2x (24 ... 16) 2x (24 ... 16)</p> |
| wire length <ul style="list-style-type: none"> • between soft starter and motor maximum • at the digital inputs at AC maximum | <p>800 m 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>10 ... 14 N·m 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>89 ... 124 lbf·in 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 Manual |
| 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 -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 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4 2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)</p> |
| 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 • PROFIBUS | <p>Yes Yes Yes Yes Yes</p> |
| 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 • 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 | <p>Siemens type: 3VA5225, max. 250 A; I_q = 10 kA Siemens type: 3VA52, max. 250 A; I_q max = 65 kA Type: Class RK5 / K5, max. 400 A; I_q = 10 kA Type: Class J, max. 350 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 | <p>50 hp 50 hp 100 hp</p> |
| 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 |
| ATEX | |
| certificate of suitability | |

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| • ATEX | Yes |
| • IECEx | Yes |
| hardware fault tolerance according to IEC 61508 relating to ATEX | 0 |
| PFDAvg with low demand rate according to IEC 61508 relating to ATEX | 0.09 |
| PFHD with high demand rate according to EN 62061 relating to ATEX | 9E-6 1/h |
| Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX | SIL1 |
| T1 value for proof test interval or service life according to IEC 61508 relating to ATEX | 3 y |

Certificates/ approvals

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| General Product Approval | For use in hazardous locations |
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[Confirmation](#)



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| For use in hazardous locations | Declaration of Conformity | Test Certificates | Marine / Shipping |
|--------------------------------|---------------------------|-------------------|-------------------|



[Type Test Certificates/Test Report](#)



other

[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=3RW5056-2TB04>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5056-2TB04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-2TB04>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5056-2TB04&lang=en

Characteristic: Tripping characteristics, I^t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-2TB04/char>

Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5056-2TB04&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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

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