SIEMENS

## Data sheet 3RW5077-6TB04

SIRIUS soft starter 200-480 V 570 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** | 3RW50 |
| **manufacturer's article number** | |
| ● of standard HMI module usable | 3RW5980-0HS01 |
| ● 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 | 3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA |
| ● of circuit breaker usable at 500 V | 3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA |
| ● of the gG fuse usable up to 690 V | 2x3NA3365-6; Type of coordination 1, Iq = 65 kA |
| ● of full range R fuse link for semiconductor protection usable up to 690 V | 3NE1 437-2; Type of coordination 2, Iq = 65 kA |
| ● of back-up R fuse link for semiconductor protection usable up to 690 V | 3NE3 340-8; Type of coordination 2, Iq = 65 kA |
| ● of line contactor usable up to 480 V | 3TF68 |
| ● of line contactor usable up to 690 V | 3TF68 |
| **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** | |
| ● 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** | 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** | 1 600 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 |
| ● **PROFIenergy** | 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 | 570 A |
| ● at 50 °C rated value | 504 A |
| ● at 60 °C rated value | 460 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 | 160 kW |
| ● at 400 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 % |
| **adjustable motor current** | |
| ● at rotary coding switch on switch position 1 | 240 A |
| ● at rotary coding switch on switch position 2 | 262 A |
| ● at rotary coding switch on switch position 3 | 284 A |
| ● at rotary coding switch on switch position 4 | 306 A |

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| ● at rotary coding switch on switch position 5 | 328 A |
| ● at rotary coding switch on switch position 6 | 350 A |
| ● at rotary coding switch on switch position 7 | 372 A |
| ● at rotary coding switch on switch position 8 | 394 A |
| ● at rotary coding switch on switch position 9 | 416 A |
| ● at rotary coding switch on switch position 10 | 438 A |
| ● at rotary coding switch on switch position 11 | 460 A |
| ● at rotary coding switch on switch position 12 | 482 A |
| ● at rotary coding switch on switch position 13 | 504 A |
| ● at rotary coding switch on switch position 14 | 526 A |
| ● at rotary coding switch on switch position 15 | 548 A |
| ● at rotary coding switch on switch position 16 | 570 A |
| ● minimum | 240 A |
| **minimum load [%]** | 15 %; Relative to smallest settable Ie |
| **power loss [W] for rated value of the current at AC** | |
| ● at 40 °C after startup | 73 W |
| ● at 50 °C after startup | 57 W |
| ● at 60 °C after startup | 47 W |
| **power loss [W] at AC at current limitation 350 %** | |
| ● at 40 °C during startup | 7 019 W |
| ● at 50 °C during startup | 5 801 W |
| ● at 60 °C during startup | 5 048 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 % |
| **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** | 490 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 (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 |
| ● 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** | 230 mm |
| **width** | 160 mm |
| **depth** | 282 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** | 7.3 kg |
| **Connections/ Terminals** | |
| **type of electrical connection** | |
| ● for main current circuit | busbar connection |
| ● for control circuit | screw-type terminals |
| **width of connection bar maximum** | 35 mm; with connection cover 3RT1966-4EA1 maximum length 45 mm |
| **wire length for thermistor connection** | |
| ● with conductor cross-section = 0.5 mm² maximum | 50 m |
| ● with conductor cross-section = 1.5 mm² maximum | 150 m |
| ● with conductor cross-section = 2.5 mm² maximum | 250 m |
| **type of connectable conductor cross-sections** | |
| ● for main contacts for box terminal using the front clamping point solid | 95 ... 300 mm² |
| ● for main contacts for box terminal using the front clamping point finely stranded with core end processing | 70 ... 240 mm² |
| ● for main contacts for box terminal using the front clamping point finely stranded without core end processing | 70 ... 240 mm² |
| ● for main contacts for box terminal using the front clamping point stranded | 95 ... 300 mm² |
| ● at AWG cables for main contacts for box terminal using the front clamping point | 3/0 ... 600 kcmil |
| ● for main contacts for box terminal using the back clamping point solid | 120 ... 240 mm² |
| ● at AWG cables for main contacts for box terminal using the back clamping point | 250 ... 500 kcmil |
| ● for main contacts for box terminal using both clamping points solid | min. 2x 70 mm², max. 2x 240 mm² |
| ● for main contacts for box terminal using both clamping points finely stranded with core end processing | min. 2x 50 mm², max. 2x 185 mm² |
| ● for main contacts for box terminal using both clamping points finely stranded without core end processing | min. 2x 50 mm², max. 2x 185 mm² |
| ● for main contacts for box terminal using both clamping points stranded | min. 2x 70 mm², max. 2x 240 mm² |
| ● for main contacts for box terminal using the back clamping point finely stranded with core end processing | 120 ... 185 mm² |
| ● for main contacts for box terminal using the back clamping point finely stranded without core end processing | 120 ... 185 mm² |
| ● for main contacts for box terminal using the back clamping point stranded | 120 ... 240 mm² |
| **type of connectable conductor cross-sections** | |
| ● at AWG cables for main current circuit solid | 2/0 ... 500 kcmil |

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| ● for DIN cable lug for main contacts stranded | 50 ... 240 mm² |
| ● for DIN cable lug for main contacts finely stranded | 70 ... 240 mm² |
| **type of connectable conductor cross-sections** | |
| ● for control circuit solid | 1x (0.5 ... 4.0 mm²), 2x (0.5 ... 2.5 mm²) |
| ● for control circuit finely stranded with core end processing | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1.5 mm²) |
| ● at AWG cables for control circuit solid | 1x (20 ... 12), 2x (20 ... 14) |
| **wire length** | |
| ● between soft starter and motor maximum | 800 m |
| ● at the digital inputs at AC maximum | 1 000 m |
| **tightening torque** | |
| ● for main contacts with screw-type terminals | 14 ... 24 N·m |
| ● for auxiliary and control contacts with screw-type terminals | 0.8 ... 1.2 N·m |
| **tightening torque [lbf·in]** | |
| ● for main contacts with screw-type terminals | 124 ... 210 lbf·in |
| ● 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 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) |
| **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 the fuse** | |
| — usable for Standard Faults up to 575/600 V according to UL | Type: Class L, max. 1600 A; Iq = 30 kA |
| — usable for High Faults up to 575/600 V according to UL | Type: Class L, max. 1200 A; Iq = 100 kA |
| **operating power [hp] for 3-phase motors** | |
| ● at 200/208 V at 50 °C rated value | 150 hp |
| ● at 220/230 V at 50 °C rated value | 200 hp |
| ● at 460/480 V at 50 °C rated value | 400 hp |
| **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** | |
| ● 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** | 9E-6 1/h |

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| **relating to ATEX** | |
| **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

| General Product Approval | | | | | For use in hazardous locations |
|---|---|---|---|---|---|
| CSA | Confirmation | CCC | UL | EAC | ATEX |

| For use in hazardous locations | Declaration of Conformity | Test Certificates | Marine / Shipping | | |
|---|---|---|---|---|---|
| IECEx | EG-Konf. | Type Test Certificates/Test Report | ABS | LRS | PRS |

## 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=3RW5077-6TB04
**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5077-6TB04
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-6TB04
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5077-6TB04&lang=en
**Characteristic: Tripping characteristics, I²t, Let-through current**
https://support.industry.siemens.com/cs/ww/en/ps/3RW5077-6TB04/char
**Characteristic: Installation altitude**
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5077-6TB04&objecttype=14&gridview=view1
**Simulation Tool for Soft Starters (STS)**
https://support.industry.siemens.com/cs/ww/en/view/101494917

**last modified:** 4/11/2022