SIEMENS

## Data sheet 3RW5527-1HF04



Figure similar

SIRIUS soft starter 200-480 V 93 A, 24 V AC/DC Screw terminals Fail-safe

| | |
|---|---|
| **product brand name** | SIRIUS |
| **product category** | Hybrid switching devices |
| **product designation** | Failsafe soft starters |
| **product type designation** | 3RW55 |
| **manufacturer's article number** | |
| ● 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 | 3VA2216-7MN32-0AA0; Type of coordination 1, Iq = 15 kA, CLASS 10 |
| ● of circuit breaker usable at 500 V | 3VA2216-7MN32-0AA0; Type of coordination 1, Iq = 10 kA, CLASS 10 |
| ● of circuit breaker usable at 400 V at inside-delta circuit | 3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 15 kA, CLASS 10 |
| ● of circuit breaker usable at 500 V at inside-delta circuit | 3VA2220-7MN32-0AA0; Type of coordination 1, Iq = 10 kA, CLASS 10 |
| ● of the gG fuse usable up to 690 V | 3NA3136-6; Type of coordination 1, Iq = 65 kA |
| ● of the gG fuse usable at inside-delta circuit up to 500 V | 3NA3136-6; Type of coordination 1, Iq = 65 kA |
| ● of full range R fuse link for semiconductor protection usable up to 690 V | 3NE1224-0; Type of coordination 2, Iq = 65 kA |
| ● of back-up R fuse link for semiconductor protection usable up to 690 V | 3NE3227; Type of coordination 2, Iq = 65 kA |
| ● of the redundant contactor for applications > SIL 1 according to EN 62061 | 3RT1055 |
| ● of the redundant contactor for applications > SIL 1 at inside-delta circuit according to EN 62061 | 3RT1055 |
| ● of the redundant contactor for applications > SIL 1 according to EN ISO 13849-1 | 3RT1064 |
| ● of the redundant contactor for applications > SIL 1 at inside-delta circuit according to EN ISO 13849-1 | 3RT1064 |
| **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 |


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| | |
|---|---|
| **number of parameter sets** | 3 |
| **accuracy class** | 5 (based on IEC 61557-12) |
| **certificate of suitability** | |
| ● CE marking | Yes |
| ● UL approval | Yes |
| ● CSA approval | Yes |
| **product component** | |
| ● HMI-High Feature | Yes |
| ● is supported HMI-High Feature | Yes |
| **product feature integrated bypass contact system** | Yes |
| **number of controlled phases** | 3 |
| **trip class** | CLASS 10A / 10E (default) / 20E / 30E; acc. to IEC 60947-4-2 |
| **current unbalance limiting value [%]** | 10 ... 60 % |
| **ground-fault monitoring limiting value [%]** | 10 ... 95 % |
| **buffering time in the event of power failure** | |
| ● for main current circuit | 100 ms |
| ● for control circuit | 100 ms |
| **idle time adjustable** | 0 ... 255 s |
| **insulation voltage rated value** | 480 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** | 1.15 |
| **surge voltage resistance rated value** | 6 kV |
| **maximum permissible voltage for protective separation** | |
| ● between main and auxiliary circuit | 480 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)** | 11/22/2019 |
| **product function** | |
| ● ramp-up (soft starting) | Yes |
| ● ramp-down (soft stop) | Yes |
| ● breakaway pulse | Yes |
| ● adjustable current limitation | Yes |
| ● creep speed in both directions of rotation | Yes |
| ● pump ramp down | Yes |
| ● DC braking | Yes |
| ● motor heating | Yes |
| ● slave pointer function | Yes |
| ● trace function | Yes |
| ● intrinsic device protection | Yes |
| ● motor overload protection | Yes; Full motor protection (thermistor motor protection and electronic motor overload protection) / When using the motor overload protection according to ATEX, an upstream contactor is required in inside-delta circuit. |
| ● 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 |
| ● communication function | Yes |
| ● operating measured value display | Yes |
| ● event list | Yes |
| ● error logbook | Yes |
| ● via software parameterizable | Yes |
| ● via software configurable | Yes |
| ● screw terminal | Yes |
| ● spring-loaded terminal | No |
| ● **PROFIenergy** | Yes; in connection with the PROFINET Standard and PROFINET High-Feature communication modules |


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|---|---|
| ● **firmware update** | Yes |
| ● **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 | 93 A |
| ● at 40 °C rated value minimum | 19 A |
| ● at 50 °C rated value | 82.5 A |
| ● at 60 °C rated value | 75.5 A |
| **operational current at inside-delta circuit** | |
| ● at 40 °C rated value | 161 A |
| ● at 50 °C rated value | 143 A |
| ● at 60 °C rated value | 131 A |
| **operating voltage** | |
| ● rated value | 200 ... 480 V |
| ● at inside-delta circuit rated value | 200 ... 480 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 | 22 kW |
| ● at 230 V at inside-delta circuit at 40 °C rated value | 45 kW |
| ● at 400 V at 40 °C rated value | 45 kW |
| ● at 400 V at inside-delta circuit 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 % |
| **minimum load [%]** | 10 %; Relative to set Ie |
| **power loss [W] for rated value of the current at AC** | |
| ● at 40 °C after startup | 28 W |
| ● at 50 °C after startup | 25 W |
| ● at 60 °C after startup | 23 W |
| **power loss [W] at AC at current limitation 350 %** | |
| ● at 40 °C during startup | 1 258 W |
| ● at 50 °C during startup | 1 065 W |
| ● at 60 °C during startup | 948 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** | -20 % |


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| | |
|---|---|
| **AC at 60 Hz** | |
| **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** | 870 mA |
| **inrush current by closing the bypass contacts maximum** | 6.3 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 (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** | 4 |
| ● with fail-safe | 1 |
| ● parameterizable | 4 |
| ● **number of digital outputs** | 3 |
| ● Number of digital outputs with fail-safe | 1 |
| ● number of digital outputs parameterizable | 2 |
| ● number of digital outputs not parameterizable | 1 |
| **digital output version** | 2 normally-open contacts (NO) / 1 normally-closed contact (NC) / 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 |
| **Response times** | |
| OFF-delay time with safety-related request when switched off via control inputs maximum | 100 ms |
| **Installation/ mounting/ dimensions** | |
| **mounting position** | Vertical (can be rotated +/- 90° and tilted forward or backward +/- 22.5°) |
| **fastening method** | screw fixing |
| **height** | 306 mm |
| **width** | 185 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** | 7.15 kg |
| **Connections/ Terminals** | |
| **type of electrical connection** | |
| ● for main current circuit | box terminal |
| ● for control circuit | screw-type terminals |
| **width of connection bar maximum** | 25 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 |


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|---|---|
| ● 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 | 1x (2.5 ... 16 mm²) |
| ● for main contacts for box terminal using the front clamping point finely stranded with core end processing | 1x (2.5 ... 50 mm²) |
| ● for main contacts for box terminal using the front clamping point stranded | 1x (10 ... 70 mm²) |
| ● for main contacts for box terminal using the back clamping point solid | 1x (2.5 ... 16 mm²) |
| ● for AWG cables for main contacts for box terminal using the back clamping point | 1x (10 ... 2/0) |
| ● for main contacts for box terminal using both clamping points solid | 2x (2.5 ... 16 mm²) |
| ● for main contacts for box terminal using both clamping points finely stranded with core end processing | 2x (2.5 ... 35 mm²) |
| ● for main contacts for box terminal using both clamping points stranded | 2x (6 ... 16 mm²), 2x (10 ... 50 mm²) |
| ● for main contacts for box terminal using the back clamping point finely stranded with core end processing | 1x (2.5 ... 50 mm²) |
| ● for main contacts for box terminal using the back clamping point stranded | 1x (10 ... 70 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) |
| ● for 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 DC maximum | 1 000 m |
| **tightening torque** | |
| ● for main contacts with screw-type terminals | 4.5 ... 6 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 | 40 ... 53 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 | 2 000 m; Derating as of 1000 m, see catalog |
| **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 |
| ● PROFINET high-feature | 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: 3VA51, max. 125 A; Iq = 10 kA |
| — usable for High Faults at 460/480 V according to UL | Siemens type: 3VA51, max. 125 A; Iq max = 65 kA |
| — usable for Standard Faults at 460/480 V at inside-delta circuit according to UL | Siemens type: 3VA51, max. 125 A; Iq = 10 kA |


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|---|---|
| — usable for High Faults at 460/480 V at inside-delta circuit according to UL | Siemens type: 3VA51, max. 125 A; Iq max = 65 kA |
| — usable for Standard Faults at 575/600 V according to UL | Siemens type: 3VA51, max. 125 A; Iq = 10 kA |
| — usable for High Faults at 575/600 V at inside-delta circuit according to UL | Siemens type: 3VA51, max. 125 A; Iq max = 65 kA |
| — usable for Standard Faults at 575/600 V at inside-delta circuit according to UL | Siemens type: 3VA51, max. 125 A; Iq = 10 kA |
| **● of the fuse** | |
| — usable for Standard Faults up to 575/600 V according to UL | Type: Class RK5 / K5, max. 300 A; Iq = 10 kA |
| — usable for High Faults up to 575/600 V according to UL | Type: Class J / L, max. 250 A; Iq = 100 kA |
| — usable for Standard Faults at inside-delta circuit up to 575/600 V according to UL | Type: Class RK5 / K5, max. 300 A; Iq = 10 kA |
| — usable for High Faults at inside-delta circuit up to 575/600 V according to UL | Type: Class J / L, max. 250 A; Iq = 100 kA |
| **operating power [hp] for 3-phase motors** | |
| ● at 200/208 V at 50 °C rated value | 25 hp |
| ● at 220/230 V at 50 °C rated value | 30 hp |
| ● at 460/480 V at 50 °C rated value | 60 hp |
| ● at 200/208 V at inside-delta circuit at 50 °C rated value | 40 hp |
| ● at 220/230 V at inside-delta circuit at 50 °C rated value | 50 hp |
| ● at 460/480 V at inside-delta circuit at 50 °C rated value | 100 hp |
| **contact rating of auxiliary contacts according to UL** | R300-B300 |
| **Safety related data** | |
| **safety device type according to IEC 61508-2** | Type B |
| **B10d value** | 1 000 000 |
| **Safety Integrity Level (SIL)** | |
| ● according to IEC 61508 | SIL1 |
| **SIL Claim Limit (subsystem) according to EN 62061** | SIL 1 |
| performance level (PL) according to EN ISO 13849-1 | c |
| category according to EN ISO 13849-1 | 2 |
| **stop category according to EN 60204-1** | 0 |
| **Safe failure fraction (SFF)** | 60 % |
| **average diagnostic coverage level (DCavg)** | 90 % |
| **diagnostics test interval by internal test function maximum** | 1 000 s |
| PFHD with high demand rate according to EN 62061 | 1E-6 1/h |
| **PFDavg with low demand rate according to IEC 61508** | 0.09 |
| **hardware fault tolerance according to IEC 61508** | 0 |
| T1 value for proof test interval or service life according to IEC 61508 | 20 a |
| **safe state** | Open load circuit |
| **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 |
| **electromagnetic compatibility** | acc. to IEC 60947-4-2 |
| **ATEX** | |
| **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] |
| **hardware fault tolerance according to IEC 61508 relating to ATEX** | 0 |
| **PFDavg with low demand rate according to IEC 61508 relating to ATEX** | 0.008 |
| **PFHD with high demand rate according to EN 62061 relating to ATEX** | 5E-7 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 a |
| **Certificates/ approvals** | |
| **General Product Approval** | |


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Confirmation

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

| Marine / Shipping | | | other |
|---|---|---|---|
| BUREAU VERITAS | LRS | PRS | Confirmation |

## Further information

**Siemens has decided to exit the Russian market (see here).**
https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

**Siemens is working on the renewal of the current EAC certificates.**
Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

**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=3RW5527-1HF04

**Cax online generator**
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5527-1HF04

**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RW5527-1HF04

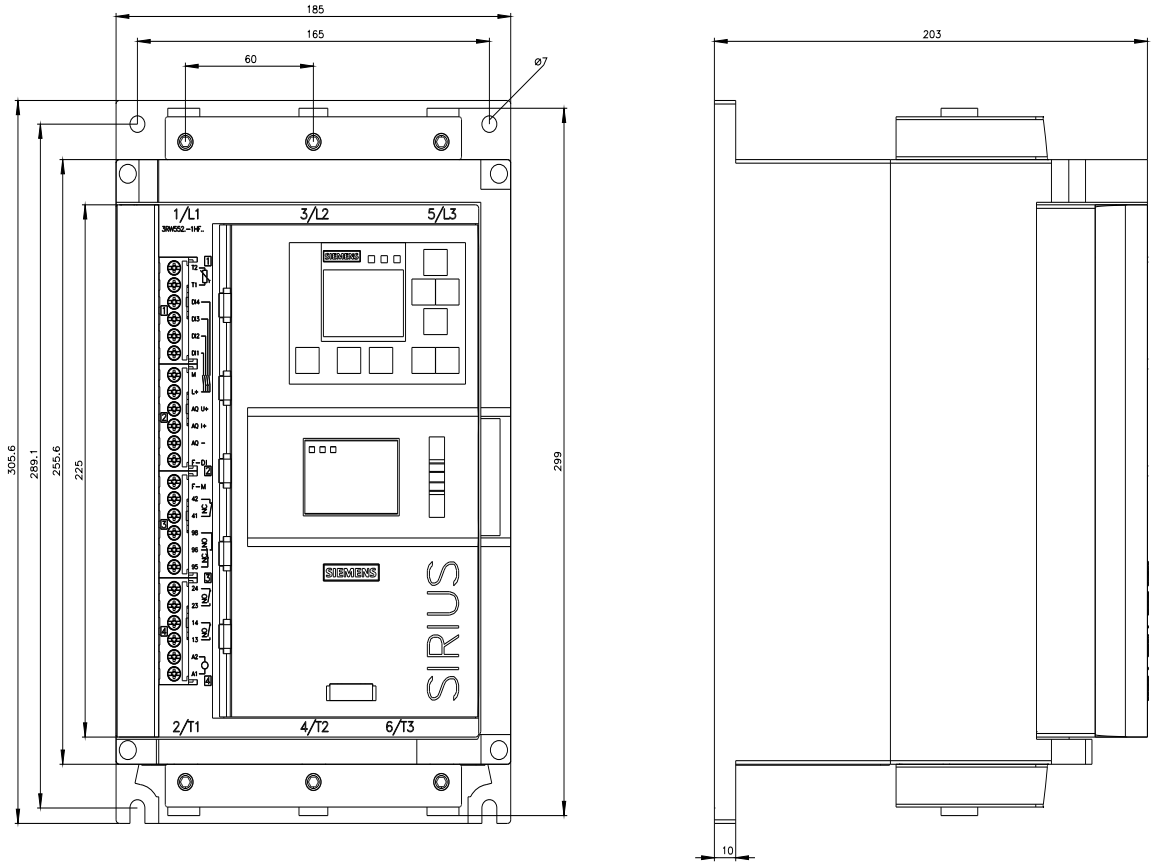
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5527-1HF04&lang=en

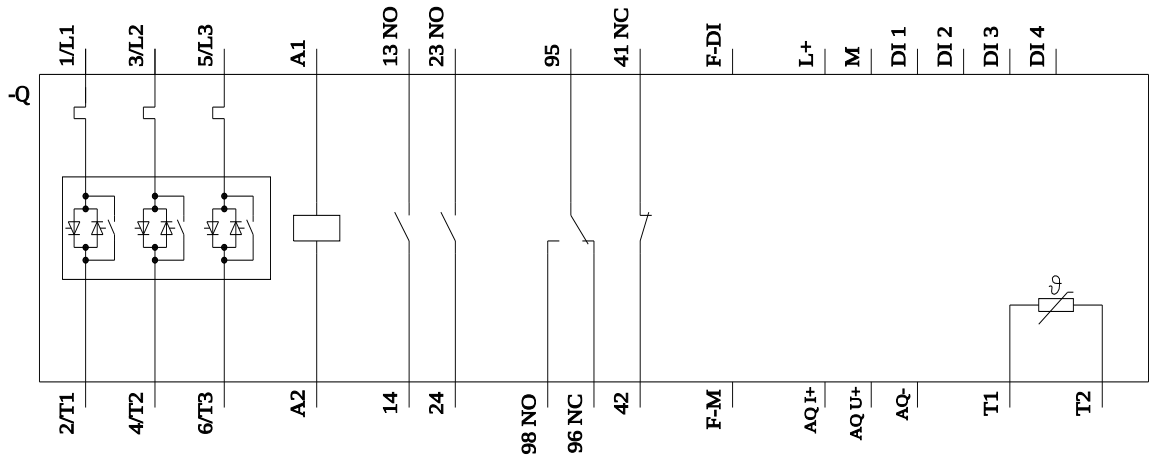
**Characteristic: Tripping characteristics, I²t, Let-through current**
https://support.industry.siemens.com/cs/ww/en/ps/3RW5527-1HF04/char

**Characteristic: Installation altitude**
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5527-1HF04&objecttype=14&gridview=view1

**Simulation Tool for Soft Starters (STS)**
https://support.industry.siemens.com/cs/ww/en/view/101494917


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