

Siemens  
EcoTech



SIRIUS soft starter 200-480 V 470 A, 110-250 V AC Screw terminals Analog output



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"><li>• of standard HMI module usable <a href="#">3RW5980-0HS01</a></li><li>• of high feature HMI module usable <a href="#">3RW5980-0HF00</a></li><li>• of communication module PROFINET standard usable <a href="#">3RW5980-0CS00</a></li><li>• of communication module PROFIBUS usable <a href="#">3RW5980-0CP00</a></li><li>• of communication module Modbus TCP usable <a href="#">3RW5980-0CT00</a></li><li>• of communication module Modbus RTU usable <a href="#">3RW5980-0CR00</a></li><li>• of communication module Ethernet/IP <a href="#">3RW5980-0CE00</a></li><li>• of circuit breaker usable at 400 V <a href="#">3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA</a></li><li>• of circuit breaker usable at 500 V <a href="#">3VA2580-6HN32-0AA0; Type of assignment 1, Iq = 65 kA</a></li><li>• of the gG fuse usable up to 690 V <a href="#">2x3NA3365-6; Type of coordination 1, Iq = 65 kA</a></li><li>• of full range R fuse link for semiconductor protection usable up to 690 V <a href="#">3NE1 436-2; Type of coordination 2, Iq = 65 kA</a></li><li>• of back-up R fuse link for semiconductor protection usable up to 690 V <a href="#">3NE3 340-8; Type of coordination 2, Iq = 65 kA</a></li><li>• of line contactor usable up to 480 V <a href="#">3RT1076</a></li><li>• of line contactor usable up to 690 V <a href="#">3RT1076</a></li></ul>
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"><li>• CE marking Yes</li><li>• UL approval Yes</li><li>• CSA approval Yes</li></ul>
product component	<ul style="list-style-type: none"><li>• HMI-High Feature No</li><li>• is supported HMI-Standard Yes</li><li>• is supported HMI-High Feature Yes</li></ul>
product feature integrated bypass contact system	Yes
number of controlled phases	2
buffering time in the event of power failure	

<ul style="list-style-type: none"> <li>• for main current circuit</li> <li>• for control circuit</li> </ul>	100 ms
<b>insulation voltage rated value</b>	600 V
<b>degree of pollution</b>	3, acc. to IEC 60947-4-2
<b>impulse voltage rated value</b>	6 kV
<b>blocking voltage of the thyristor maximum</b>	1 600 V
<b>service factor</b>	1
<b>surge voltage resistance rated value</b>	6 kV
<b>maximum permissible voltage for protective separation</b> <ul style="list-style-type: none"> <li>• between main and auxiliary circuit</li> </ul>	600 V
<b>shock resistance</b>	15 g / 11 ms, from 12 g / 11 ms with potential contact lifting
<b>vibration resistance</b>	15 mm to 6 Hz; 2g to 500 Hz
utilization category according to IEC 60947-4-2	AC-53a
<b>reference code according to IEC 81346-2</b>	Q
<b>Substance Prohibitance (Date)</b>	09/23/2019
<b>SVHC substance name</b>	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1
<b>Weight</b>	8.3 kg
<b>product function</b> <ul style="list-style-type: none"> <li>• ramp-up (soft starting)</li> <li>• ramp-down (soft stop)</li> <li>• Soft Torque</li> <li>• adjustable current limitation</li> <li>• pump ramp down</li> <li>• intrinsic device protection</li> <li>• motor overload protection</li> <li>• evaluation of thermistor motor protection</li> <li>• auto-RESET</li> <li>• manual RESET</li> <li>• remote reset</li> <li>• communication function</li> <li>• operating measured value display</li> <li>• error logbook</li> <li>• via software parameterizable</li> <li>• via software configurable</li> <li>• <b>PROFenergy</b></li> <li>• voltage ramp</li> <li>• torque control</li> <li>• analog output</li> </ul>	Yes Yes Yes Yes Yes Yes Yes; Electronic motor overload protection No 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 Yes; 4 ... 20 mA (default) / 0 ... 10 V (parameterizable with High Feature HMI)
<b>Power Electronics</b>	
<b>operational current</b> <ul style="list-style-type: none"> <li>• at 40 °C rated value</li> <li>• at 50 °C rated value</li> <li>• at 60 °C rated value</li> </ul>	470 A 416 A 380 A
<b>operating voltage</b> <ul style="list-style-type: none"> <li>• rated value</li> </ul>	200 ... 480 V
<b>relative negative tolerance of the operating voltage</b>	-15 %
<b>relative positive tolerance of the operating voltage</b>	10 %
<b>operating power for 3-phase motors</b> <ul style="list-style-type: none"> <li>• at 230 V at 40 °C rated value</li> <li>• at 400 V at 40 °C rated value</li> </ul>	132 kW 250 kW
<b>Operating frequency 1 rated value</b>	50 Hz
<b>Operating frequency 2 rated value</b>	60 Hz
<b>relative negative tolerance of the operating frequency</b>	-10 %
<b>relative positive tolerance of the operating frequency</b>	10 %
<b>adjustable motor current</b> <ul style="list-style-type: none"> <li>• at rotary coding switch on switch position 1</li> <li>• at rotary coding switch on switch position 2</li> <li>• at rotary coding switch on switch position 3</li> </ul>	200 A 218 A 236 A

<ul style="list-style-type: none"> <li>• at rotary coding switch on switch position 4</li> <li>• at rotary coding switch on switch position 5</li> <li>• at rotary coding switch on switch position 6</li> <li>• at rotary coding switch on switch position 7</li> <li>• at rotary coding switch on switch position 8</li> <li>• at rotary coding switch on switch position 9</li> <li>• at rotary coding switch on switch position 10</li> <li>• at rotary coding switch on switch position 11</li> <li>• at rotary coding switch on switch position 12</li> <li>• at rotary coding switch on switch position 13</li> <li>• at rotary coding switch on switch position 14</li> <li>• at rotary coding switch on switch position 15</li> <li>• at rotary coding switch on switch position 16</li> <li>• minimum</li> </ul>	254 A 272 A 290 A 308 A 326 A 344 A 362 A 380 A 398 A 416 A 434 A 452 A 470 A 200 A
<b>minimum load [%]</b>	15 %; Relative to smallest settable I <sub>e</sub>
<b>power loss [W] for rated value of the current at AC</b> <ul style="list-style-type: none"> <li>• at 40 °C after startup</li> <li>• at 50 °C after startup</li> <li>• at 60 °C after startup</li> </ul>	56 W 44 W 37 W
<b>power loss [W] at AC at current limitation 350 %</b> <ul style="list-style-type: none"> <li>• at 40 °C during startup</li> <li>• at 50 °C during startup</li> <li>• at 60 °C during startup</li> </ul>	5 344 W 4 438 W 3 876 W
<b>type of the motor protection</b>	Electronic, tripping in the event of thermal overload of the motor
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage at AC</b> <ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	110 ... 250 V 110 ... 250 V
<b>relative negative tolerance of the control supply voltage at AC at 50 Hz</b>	-15 %
<b>relative positive tolerance of the control supply voltage at AC at 50 Hz</b>	10 %
<b>relative negative tolerance of the control supply voltage at AC at 60 Hz</b>	-15 %
<b>relative positive tolerance of the control supply voltage at AC at 60 Hz</b>	10 %
<b>control supply voltage frequency</b>	50 ... 60 Hz
<b>relative negative tolerance of the control supply voltage frequency</b>	-10 %
<b>relative positive tolerance of the control supply voltage frequency</b>	10 %
<b>control supply current in standby mode rated value</b>	30 mA
<b>holding current in bypass operation rated value</b>	105 mA
<b>inrush current by closing the bypass contacts maximum</b>	2.2 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
<b>design of the overvoltage protection</b>	Varistor
<b>design of short-circuit protection for control circuit</b>	4 A gG fuse (I <sub>cu</sub> =1 kA), 6 A quick-acting fuse (I <sub>cu</sub> =1 kA), C1 miniature circuit breaker (I <sub>cu</sub> = 600 A), C6 miniature circuit breaker (I <sub>cu</sub> = 300 A); Is not part of scope of supply
<b>Inputs/ Outputs</b>	
<b>number of digital inputs</b>	1
<b>number of digital outputs</b> <ul style="list-style-type: none"> <li>• not parameterizable</li> </ul>	3 2
<b>digital output version</b>	2 normally-open contacts (NO) / 1 changeover contact (CO)
<b>number of analog outputs</b>	1
<b>switching capacity current of the relay outputs</b> <ul style="list-style-type: none"> <li>• at AC-15 at 250 V rated value</li> <li>• at DC-13 at 24 V rated value</li> </ul>	3 A 1 A
<b>Installation/ mounting/ dimensions</b>	
<b>mounting position</b>	with vertical mounting surface +/-90° rotatable, with vertical mounting surface

	+/- 22.5° tiltable to the front and back
<b>fastening method</b>	screw fixing
<b>height</b>	230 mm
<b>width</b>	160 mm
<b>depth</b>	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
<b>weight without packaging</b>	7.3 kg
<b>Connections/ Terminals</b>	
<b>type of electrical connection</b>	
• for main current circuit	busbar connection
• for control circuit	screw-type terminals
<b>width of connection bar maximum</b>	35 mm; with connection cover 3RT1966-4EA1 maximum length 45 mm
<b>type of connectable conductor cross-sections for main contacts for box terminal</b>	
• using the front clamping point solid	95 ... 300 mm²
• using the front clamping point finely stranded with core end processing	70 ... 240 mm²
• using the front clamping point finely stranded without core end processing	70 ... 240 mm²
• using the front clamping point stranded	95 ... 300 mm²
• using the back clamping point solid	120 ... 240 mm²
• r box terminal using the back clamping point	250 ... 500 kcmil
• using both clamping points solid	min. 2x 70 mm², max. 2x 240 mm²
• using both clamping points finely stranded with core end processing	min. 2x 50 mm², max. 2x 185 mm²
• using both clamping points finely stranded without core end processing	min. 2x 50 mm², max. 2x 185 mm²
• using both clamping points stranded	min. 2x 70 mm², max. 2x 240 mm²
• using the back clamping point finely stranded with core end processing	120 ... 185 mm²
• using the back clamping point finely stranded without core end processing	120 ... 185 mm²
• using the back clamping point stranded	120 ... 240 mm²
<b>type of connectable conductor cross-sections</b>	
• for AWG cables for main current circuit solid	2/0 ... 500 kcmil
• for DIN cable lug for main contacts stranded	50 ... 240 mm²
• for DIN cable lug for main contacts finely stranded	70 ... 240 mm²
<b>type of connectable conductor cross-sections</b>	
• 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)
<b>wire length</b>	
• between soft starter and motor maximum	800 m
• at the digital inputs at AC maximum	1 000 m
<b>tightening torque</b>	
• 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
<b>tightening torque [lbf·in]</b>	
• 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
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	5 000 m; derating as of 1000 m, see Manual
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above
• during storage and transport	-40 ... +80 °C
<b>environmental category</b>	

<ul style="list-style-type: none"> <li>during operation according to IEC 60721</li> <li>during storage according to IEC 60721</li> <li>during transport according to IEC 60721</li> </ul>	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)
<b>Environmental footprint</b>	
global warming potential [CO2 eq] total	464 kg
global warming potential [CO2 eq] during manufacturing	87.4 kg
global warming potential [CO2 eq] during sales	2.05 kg
global warming potential [CO2 eq] during operation	407 kg
global warming potential [CO2 eq] after end of life	-32.4 kg
Siemens Eco Profile (SEP)	Siemens EcoTech
<b>Electromagnetic compatibility</b>	
<b>EMC emitted interference</b>	acc. to IEC 60947-4-2: Class A
<b>Communication/ Protocol</b>	
<b>communication module is supported</b>	
<ul style="list-style-type: none"> <li>PROFINET standard</li> <li>EtherNet/IP</li> <li>Modbus RTU</li> <li>Modbus TCP</li> <li>PROFIBUS</li> </ul>	Yes Yes Yes Yes Yes
<b>UL/CSA ratings</b>	
<b>manufacturer's article number</b>	
<ul style="list-style-type: none"> <li>of the fuse <ul style="list-style-type: none"> <li>— usable for Standard Faults up to 575/600 V according to UL</li> <li>— usable for High Faults up to 575/600 V according to UL</li> </ul> </li> </ul>	Type: Class L, max. 1600 A; Iq = 30 kA  Type: Class L, max. 1200 A; Iq = 100 kA
<b>operating power [hp] for 3-phase motors</b>	
<ul style="list-style-type: none"> <li>at 200/208 V at 50 °C rated value</li> <li>at 220/230 V at 50 °C rated value</li> <li>at 460/480 V at 50 °C rated value</li> </ul>	150 hp 150 hp 350 hp
<b>Electrical Safety</b>	
<b>protection class IP on the front according to IEC 60529</b>	IP00; IP20 with cover
<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front with cover
<b>ATEX</b>	
<b>Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX</b>	SIL1
<b>PFHD with high demand rate according to IEC 61508 relating to ATEX</b>	9E-6 1/h
<b>PFDavg with low demand rate according to IEC 61508 relating to ATEX</b>	0.09
<b>hardware fault tolerance according to IEC 61508 relating to ATEX</b>	0
<b>T1 value for proof test interval or service life according to IEC 61508 relating to ATEX</b>	3 a
<b>certificate of suitability</b>	
<ul style="list-style-type: none"> <li>ATEX</li> <li>IECEx</li> <li>UKEX</li> </ul>	Yes Yes Yes
<b>Approvals Certificates</b>	
<b>General Product Approval</b>	<b>EMV</b>


[KC](#)

For use in hazardous locations	Test Certificates	Marine / Shipping
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Miscellaneous

Type Test Certificates/Test Report



Marine / Shipping

other

Environment



Confirmation



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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=3RW5076-6AB14>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5076-6AB14>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5076-6AB14>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5076-6AB14&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5076-6AB14&lang=en)

Characteristic: Tripping characteristics, I<sup>2</sup>t, Let-through current

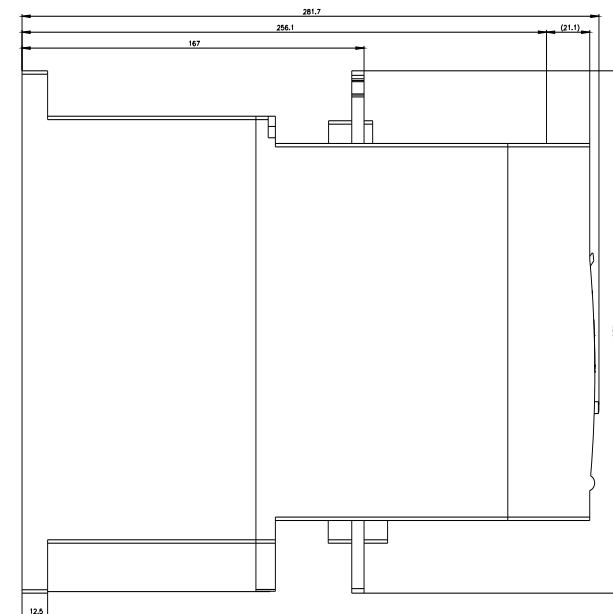
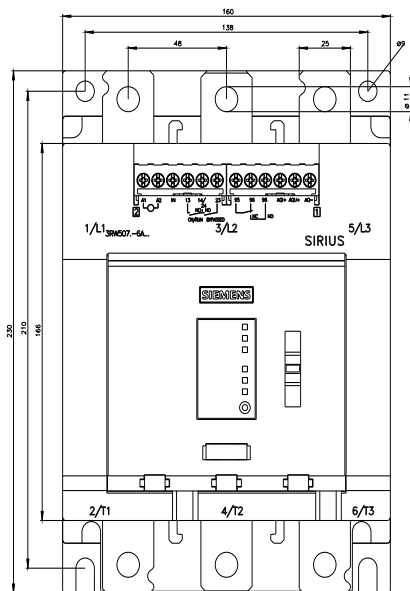
<https://support.industry.siemens.com/cs/ww/en/ps/3RW5076-6AB14/char>

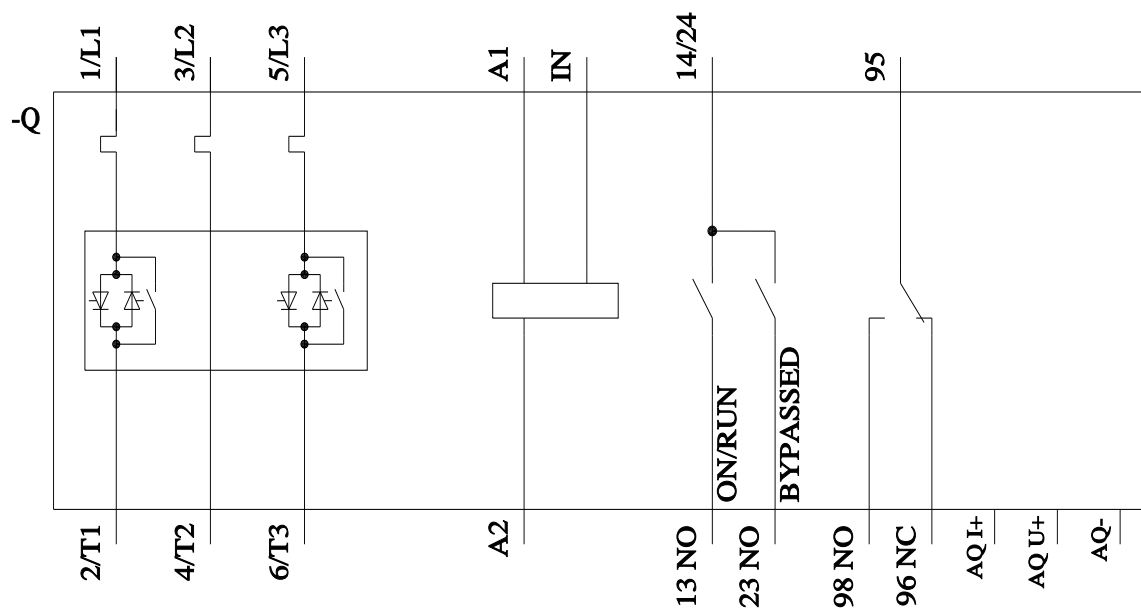
Characteristic: Installation altitude

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5076-6AB14&objecttype=14&gridview=view1>

Simulation Tool for Soft Starters (STS)

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





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