



SIRIUS soft starter 200-480 V 470 A, 24 V AC/DC Screw terminals Analog output

Siemens  
EcoTech



<b>product brand name</b>	SIRIUS
<b>product category</b>	Hybrid switching devices
<b>product designation</b>	Soft starter
<b>product type designation</b>	3RW50
<b>manufacturer's article number</b>	<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>
<b>General technical data</b>	
<b>starting voltage [%]</b>	30 ... 100 %
<b>stopping voltage [%]</b>	50 %; non-adjustable
<b>start-up ramp time of soft starter</b>	0 ... 20 s
<b>ramp-down time of soft starter</b>	0 ... 20 s
<b>current limiting value [%] adjustable</b>	130 ... 700 %
<b>certificate of suitability</b>	
• CE marking	Yes
• UL approval	Yes
• CSA approval	Yes
<b>product component</b>	
• HMI-High Feature	No
• is supported HMI-Standard	Yes
• is supported HMI-High Feature	Yes
<b>product feature integrated bypass contact system</b>	Yes
<b>number of controlled phases</b>	2

<b>buffering time in the event of power failure</b>	
• for main current circuit	100 ms
• for control circuit	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>	
• between main and auxiliary circuit	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; 2 g 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 (day/month/year)</b>	09/23/2019
<b>SVHC substance name</b>	Lead CAS-No. 7439-92-1 Lead monoxide (lead oxide) CAS-No. 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol CAS-No. 79-94-7 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol CAS-No. 119-47-1
<b>Net Weight</b>	8.237 kg
<b>product function</b>	
• ramp-up (soft starting)	Yes
• soft stopping	Yes
• Soft Torque	Yes
• adjustable current limitation	Yes
• pump stop	Yes
• intrinsic device protection	Yes
• motor overload protection	Yes; Electronic motor overload protection
• evaluation of thermistor motor protection	No
• 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
• <b>PROFInergy</b>	Yes; in connection with the PROFINET Standard communication module
• voltage ramp	Yes
• torque control	No
• analog output	Yes; 4 ... 20 mA (default) / 0 ... 10 V (parameterizable with High Feature HMI)
<b>Power Electronics</b>	
<b>operational current</b>	
• at 40 °C rated value	470 A
• at 50 °C rated value	416 A
• at 60 °C rated value	380 A
<b>operating voltage</b>	
• rated value	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>	
• at 230 V at 40 °C rated value	132 kW
• at 400 V at 40 °C rated value	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>	
• at rotary coding switch on switch position 1	200 A
• at rotary coding switch on switch position 2	218 A
• at rotary coding switch on switch position 3	236 A
• at rotary coding switch on switch position 4	254 A
• at rotary coding switch on switch position 5	272 A
• at rotary coding switch on switch position 6	290 A
• at rotary coding switch on switch position 7	308 A
• at rotary coding switch on switch position 8	326 A
• at rotary coding switch on switch position 9	344 A
• at rotary coding switch on switch position 10	362 A
• at rotary coding switch on switch position 11	380 A
• at rotary coding switch on switch position 12	398 A
• at rotary coding switch on switch position 13	416 A
• at rotary coding switch on switch position 14	434 A
• at rotary coding switch on switch position 15	452 A
• at rotary coding switch on switch position 16	470 A
• minimum	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>	
• at 40 °C after startup	56 W
• at 50 °C after startup	44 W
• at 60 °C after startup	37 W
<b>power loss [W] at AC at current limitation 350 %</b>	
• at 40 °C during startup	5 344 W
• at 50 °C during startup	4 438 W
• at 60 °C during startup	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/DC
<b>control supply voltage at AC</b>	
• at 50 Hz rated value	24 V
• at 60 Hz rated value	24 V
<b>relative negative tolerance of the control supply voltage at AC at 50 Hz</b>	-20 %
<b>relative positive tolerance of the control supply voltage at AC at 50 Hz</b>	20 %
<b>relative negative tolerance of the control supply voltage at AC at 60 Hz</b>	-20 %
<b>relative positive tolerance of the control supply voltage at AC at 60 Hz</b>	20 %
<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 voltage at DC rated value</b>	24 V
<b>relative negative tolerance of the control supply voltage at DC</b>	-20 %
<b>relative positive tolerance of the control supply voltage at DC</b>	20 %
<b>control supply current in standby mode rated value</b>	160 mA
<b>holding current in bypass operation rated value</b>	490 mA
<b>inrush current by closing the bypass contacts maximum</b>	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
<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

Inputs/ Outputs	
number of digital inputs	1
number of digital outputs	3
<ul style="list-style-type: none"> <li>not parameterizable</li> </ul>	2
digital output version	2 normally-open contacts (NO) / 1 changeover contact (CO)
number of analog outputs	1
switching capacity current of the relay outputs	
<ul style="list-style-type: none"> <li>at AC-15 at 250 V rated value</li> </ul>	3 A
<ul style="list-style-type: none"> <li>at DC-13 at 24 V rated value</li> </ul>	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	
<ul style="list-style-type: none"> <li>forwards</li> </ul>	10 mm
<ul style="list-style-type: none"> <li>backwards</li> </ul>	0 mm
<ul style="list-style-type: none"> <li>upwards</li> </ul>	100 mm
<ul style="list-style-type: none"> <li>downwards</li> </ul>	75 mm
<ul style="list-style-type: none"> <li>at the side</li> </ul>	5 mm
weight without packaging	7.3 kg
Connections/ Terminals	
type of electrical connection	
<ul style="list-style-type: none"> <li>for main current circuit</li> </ul>	busbar connection
<ul style="list-style-type: none"> <li>for control circuit</li> </ul>	screw-type terminals
width of connection bar maximum	35 mm; with connection cover 3RT1966-4EA1 maximum length 45 mm
type of connectable conductor cross-sections for main contacts for box terminal	
<ul style="list-style-type: none"> <li>using the front clamping point solid</li> </ul>	95 ... 300 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the front clamping point finely stranded with core end processing</li> </ul>	70 ... 240 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the front clamping point finely stranded without core end processing</li> </ul>	70 ... 240 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the front clamping point stranded</li> </ul>	95 ... 300 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the back clamping point solid</li> </ul>	120 ... 240 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>r box terminal using the back clamping point</li> </ul>	250 ... 500 kcmil
<ul style="list-style-type: none"> <li>using both clamping points solid</li> </ul>	min. 2x 70 mm <sup>2</sup> , max. 2x 240 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using both clamping points finely stranded with core end processing</li> </ul>	min. 2x 50 mm <sup>2</sup> , max. 2x 185 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using both clamping points finely stranded without core end processing</li> </ul>	min. 2x 50 mm <sup>2</sup> , max. 2x 185 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using both clamping points stranded</li> </ul>	min. 2x 70 mm <sup>2</sup> , max. 2x 240 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the back clamping point finely stranded with core end processing</li> </ul>	120 ... 185 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the back clamping point finely stranded without core end processing</li> </ul>	120 ... 185 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>using the back clamping point stranded</li> </ul>	120 ... 240 mm <sup>2</sup>
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> <li>for AWG cables for main current circuit solid</li> </ul>	2/0 ... 500 kcmil
<ul style="list-style-type: none"> <li>for DIN cable lug for main contacts stranded</li> </ul>	50 ... 240 mm <sup>2</sup>
<ul style="list-style-type: none"> <li>for DIN cable lug for main contacts finely stranded</li> </ul>	70 ... 240 mm <sup>2</sup>
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> <li>for control circuit solid</li> </ul>	1x (0.5 ... 4.0 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>for control circuit finely stranded with core end processing</li> </ul>	1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
<ul style="list-style-type: none"> <li>for AWG cables for control circuit solid</li> </ul>	1x (20 ... 12), 2x (20 ... 14)
wire length	
<ul style="list-style-type: none"> <li>between soft starter and motor maximum</li> </ul>	800 m
<ul style="list-style-type: none"> <li>at the digital inputs at AC maximum</li> </ul>	1 000 m
tightening torque	

<ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>	<p>14 ... 24 N·m</p> <p>0.8 ... 1.2 N·m</p>
<b>tightening torque [lbf·in]</b> <ul style="list-style-type: none"> <li>• for main contacts with screw-type terminals</li> <li>• for auxiliary and control contacts with screw-type terminals</li> </ul>	<p>124 ... 210 lbf·in</p> <p>7 ... 10.3 lbf·in</p>
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	5 000 m
<b>ambient temperature</b> <ul style="list-style-type: none"> <li>• during operation</li> <li>• during storage and transport</li> </ul>	<p>-25 ... +60 °C; Please observe derating at temperatures of 40 °C or above</p> <p>-40 ... +80 °C</p>
<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>	<p>3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6</p> <p>1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4</p> <p>2K2, 2C1, 2S1, 2M2 (max. fall height 0.3 m)</p>
<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>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
<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>	<p>Type: Class L, max. 1600 A; Iq = 30 kA</p> <p>Type: Class L, max. 1200 A; Iq = 100 kA</p>
<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>	<p>150 hp</p> <p>150 hp</p> <p>350 hp</p>
<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>	SIL 1
<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>	<p>Yes</p> <p>Yes</p> <p>Yes</p>
<b>Approvals Certificates</b>	
<b>Environmental Product Declaration</b>	
<ul style="list-style-type: none"> <li>• global warming potential [CO2 eq] / during manufacturing</li> <li>• global warming potential [CO2 eq] / during sales</li> <li>• global warming potential [CO2 eq] / during operation</li> <li>• global warming potential [CO2 eq] / after end of life</li> </ul>	<p>87.4 kg</p> <p>2.05 kg</p> <p>407 kg</p> <p>-32.4 kg</p>

• global warming potential [CO2 eq] / total

464 kg

### Environment

### General Product Approval

[Environmental Confirmations](#)

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### General Product Approval

### EMV

### For use in hazardous locations



[Miscellaneous](#)

### Test Certificates

### Maritime application

### other

[Type Test Certificates/Test Report](#)



[Confirmation](#)

### other

[Confirmation](#)



### Further information

#### Information on the packaging

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

#### Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

#### 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=3RW5076-6AB04>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5076-6AB04>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RW5076-6AB04&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5076-6AB04&lang=en)

#### Cax online generator

<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5076-6AB04>

#### Characteristic curves

[https://curves.simaris.siemens.com/curves/<mmp\\_prod\\_noCOMP="HAUPT"></mmp\\_prod\\_no>](https://curves.simaris.siemens.com/curves/<mmp_prod_noCOMP=)

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RW5076-6AB04/char>

#### Characteristic: Installation altitude

[https://www.automation.siemens.com/bilddb/index.aspx?gridview=view2&objkey=G\\_NSB0\\_XX\\_01704&showdetail=true&view=Search](https://www.automation.siemens.com/bilddb/index.aspx?gridview=view2&objkey=G_NSB0_XX_01704&showdetail=true&view=Search)

#### Simulation Tool for Soft Starters (STS)

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





