SIEMENS

Data sheet 3RW5056-6TB04

SIRIUS soft starter 200-480 V 171 A, 24 V AC/DC Screw terminals
Thermistor input

Figure similar

Product brand name	SIRIUS
Product category	Hybrid switching devices
Product designation	Soft starter
Product type designation	3RW50
Manufacturer's article number	
• of HMI module usable	3RW5980-0HS01
• of HMI-Modul high-feature 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	3VA2220-7MN32-0AA0; Type of assignment 1, Iq = 20 kA
• of circuit breaker usable at 500 V	3VA2220-7MN32-0AA0; Type of assignment 1, Iq = 20 kA
• of the gG fuse usable up to 690 V	3NA3244-6; Type of coordination 1, Iq = 65 kA
• of full range R fuse link for semiconductor protection usable up to 690 V	3NE1 230-0; Type of coordination 2, Iq = 65 kA

• of back-up R fuse link for semiconductor protection usable up to 690 V	3NE3 335; Type of coordination 2, Iq = 65 kA
• of line contactor usable up to 480 V	3RT1056
• of line contactor usable up to 690 V	3RT1064

General technical data	
Starting voltage [%]	30 ... 100 %
Stopping voltage [%]	50 ... 50 %
Start-up ramp time of soft starter	0 ... 20 s
Stopping time of soft starter	0 ... 20 s
Current limiting value [%] adjustable	130 ... 700 %
Accuracy class acc. to IEC 61557-12	5 %
Certificate of suitability	
• CE marking	Yes
• UL approval	Yes
• CSA-approval	Yes
Product component	
• 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
Recovery time	300 s
Insulation voltage	
• rated value	600 V
Degree of pollution	3, acc. to IEC 60947-4-2
Impulse voltage rated value	6 V
Blocking voltage of the thyristor maximum	1 400 V
Service factor	1
Protection class IP	IP00; IP20 with additional terminal covers for vertical touching from the front
Reference code acc. to DIN EN 81346-2	Q
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	
Operating 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 three-phase motors	
• at 230 V at 40 °C rated value	45 kW
• at 400 V at 40 °C rated value	90 kW
• at 500 V at 40 °C rated value	110 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 encoding switch on switch position 1	81 A
• at rotary encoding switch on switch position 2	87 A
• at rotary encoding switch on switch position 3	93 A
• at rotary encoding switch on switch position 4	99 A
• at rotary encoding switch on switch position 5	105 A
• at rotary encoding switch on switch position 6	111 A
• at rotary encoding switch on switch position 7	117 A
• at rotary encoding switch on switch position 8	123 A
• at rotary encoding switch on switch position 9	129 A
• at rotary encoding switch on switch position 10	135 A
• at rotary encoding switch on switch position 11	141 A

• at rotary encoding switch on switch position 12	147 A
• at rotary encoding switch on switch position 13	153 A
• at rotary encoding switch on switch position 14	159 A
• at rotary encoding switch on switch position 15	165 A
• at rotary encoding switch on switch position 16	171 A
• minimum	81 A
Minimum load [%]	15 %; Relative to smallest settable Ie
Power loss [W] for rated value of the current at AC	
• at 40 °C to power-up	29 W
• at 50 °C to power-up	23 W
• at 60 °C to power-up	20 W
Power loss [W] at AC at AC	
• at 40 °C during startup	1 751 W
• at 50 °C during startup	1 478 W
• at 60 °C during startup	1 308 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 the by-pass mode operating rated value	360 mA

Starting current at close of by-pass contact maximum	7.6 A
Inrush current peak at connect of control supply voltage maximum	3.3 A
Duration of inrush current peak at connect 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 inputs for thermistor connection	1; Type A PTC or Klixon / Thermoclick
Number of digital outputs	3
• not parameterizable	2
Digital output version	2 normally-open contacts (NO) / 1 changeover contact (CO)
Number of analog outputs	0

Installation/ mounting/ dimensions

Mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
Mounting type	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
Installation altitude at height above sea level maximum	5 000 m; Derating as of 1000 m, see manual
Weight without packaging	5.2 kg

Connections/ Terminals

Type of electrical connection	
• for main current circuit	busbar connection
• for control circuit	screw-type terminals
Width of connection bar maximum	25 mm
Type of connectable conductor cross-sections	
• for main contacts for box terminal using the front clamping point solid	16 ... 120 mm²
• for main contacts for box terminal using the front clamping point finely stranded with core end processing	16 ... 120 mm²

• for main contacts for box terminal using the front clamping point finely stranded without core end processing	10 ... 120 mm²
• for main contacts for box terminal using the front clamping point stranded	16 ... 70 mm²
• at AWG conductors 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 mm²
• at AWG conductors 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 mm², 1x 120 mm²
• for main contacts for box terminal using both clamping points finely stranded with core end processing	max. 1x 95 mm², 1x 120 mm²
• for main contacts for box terminal using both clamping points finely stranded without core end processing	max. 1x 95 mm², 1x 120 mm²
• for main contacts for box terminal using both clamping points stranded	max. 2x 120 mm²
• for main contacts for box terminal using the back clamping point finely stranded with core end processing	16 ... 120 mm²
• for main contacts for box terminal using the back clamping point finely stranded without core end processing	10 ... 120 mm²
• for main contacts for box terminal using the back clamping point stranded	16 ... 120 mm²
Type of connectable conductor cross-sections	
• at AWG conductors for main current circuit solid	4 ... 250 kcmil
• for DIN cable lug for main contacts stranded	16 ... 95 mm²
• for DIN cable lug for main contacts finely stranded	25 ... 120 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 conductors 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	10 ... 14 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	89 ... 124 lbf·in
• for auxiliary and control contacts with screw-type terminals	7 ... 10.3 lbf·in

Ambient conditions

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 acc. 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 acc. to IEC 60721	1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get inside the devices), 1M4
• during transport acc. 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 RK5 / K5, max. 400 A; Iq = 10 kA
— usable for High Faults up to 575/600 V according to UL	Type: Class J, max. 350 A; Iq = 100 kA
Operating power [hp] for three-phase motors	
• at 200/208 V at 50 °C rated value	30 hp
• at 220/230 V at 50 °C rated value	40 hp
• at 460/480 V at 50 °C rated value	75 hp
• at 575/600 V at 50 °C rated value	100 hp

ATEX

Certificate of suitability	
• ATEX	Yes
• IECEx	Yes

Hardware fault tolerance acc. to IEC 61508 relating to ATEX	0
PFDavg with low demand rate acc. to IEC 61508 relating to ATEX	0.09
PFHD with high demand rate acc. to EN 62061 relating to ATEX	0.000009 1/h
Safety Integrity Level (SIL) acc. to IEC 61508 relating to ATEX	SIL1
T1 value for proof test interval or service life acc. to IEC 61508 relating to ATEX	3 y

Certificates/ approvals

General Product Approval				For use in hazardous locations	
CCC	CSA	UL	EAC	IECEx	ATEX

Declaration of Conformity		Test Certific-ates	other
EG-Konf.	Miscellaneous	Type Test Certific-ates/Test Report	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=3RW5056-6TB04

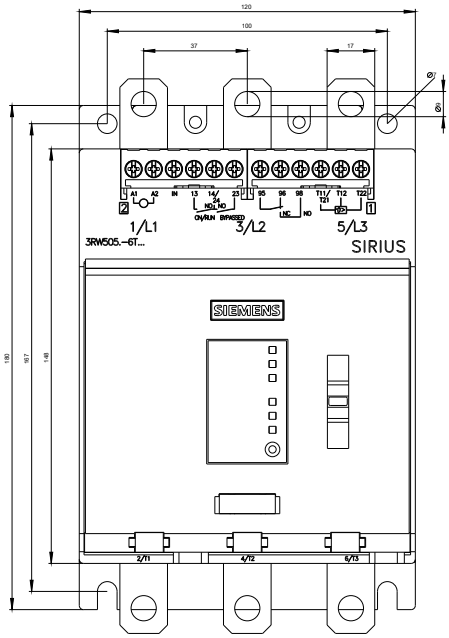
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RW5056-6TB04

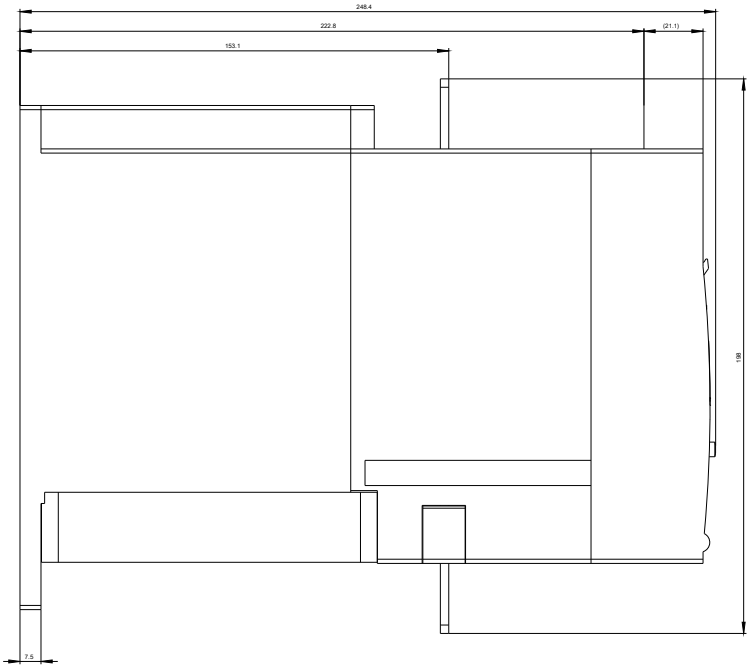
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-6TB04

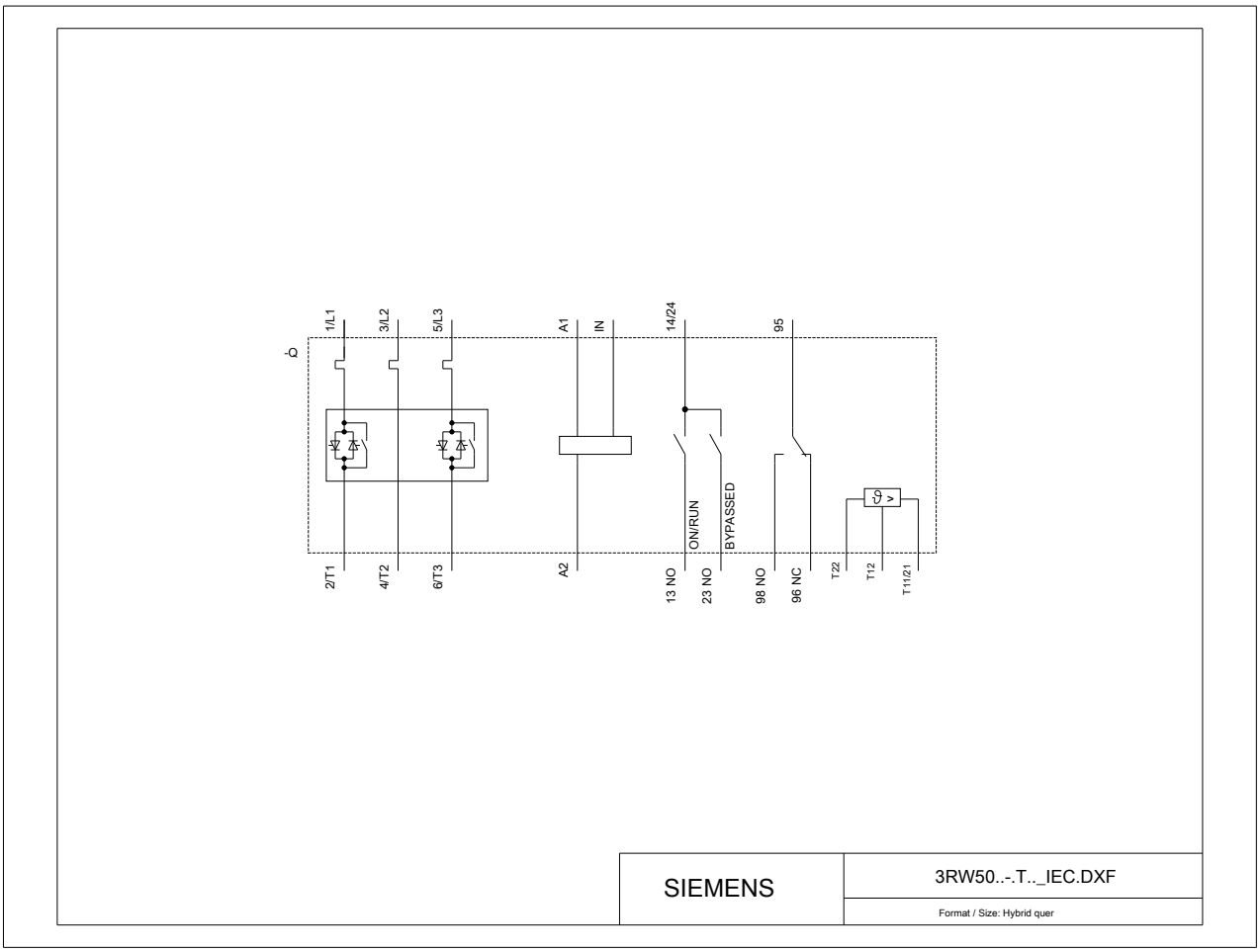
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RW5056-6TB04&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RW5056-6TB04/char

Characteristic: Installation altitude
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RW5056-6TB04&objecttype=14&gridview=view1







last modified: 02/12/2020