

For Operation in the Control Cabinet

3RW Soft Starters

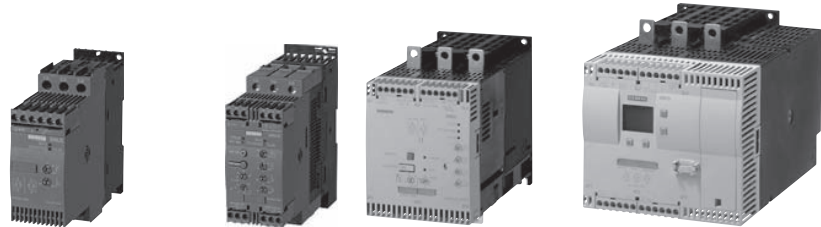
General Data

Overview

The advantages of the SIRIUS soft starters at a glance:

- Soft starting and smooth ramp-down¹⁾
- Stepless starting
- Reduction of current peaks
- Avoidance of mains voltage fluctuations during starting
- Reduced load on the power supply network

- Reduction of the mechanical load in the operating mechanism
- Considerable space savings and reduced wiring compared with conventional starters
- Maintenance-free switching
- Very easy handling
- Fits perfectly in the SIRIUS modular system



		SIRIUS 3RW30 Standard applications	SIRIUS 3RW40 Standard applications	SIRIUS 3RW44 High-Feature applications
Rated current up to 50 °C	A	3 ... 98	11 ... 385	26 ... 1076
Rated operational voltage	V	200 ... 480	200 ... 600	200 ... 690
Motor rating at 460 V				
• Inline circuit	Hp	1.5 ... 75	7.5 ... 300	15 ... 900
• Inside-delta circuit	Hp	--	--	22 ... 1600
Ambient temperature	°C	-25 ... +60	-25 ... +60	0 ... +60
Soft starting/ramp-down		✓ ¹⁾	✓	✓
Voltage ramp		✓	✓	✓
Starting/stopping voltage	%	40 ... 100	40 ... 100	20 ... 100
Starting and ramp-down time ⁷⁾	s	0 ... 20	0 ... 20	1 ... 360
Torque control		--	--	✓
Starting/stopping torque	%	--	--	20 ... 100
Torque limit	%	--	--	20 ... 200
Ramp time	s	--	--	1 ... 360
Integral bypass contact system		✓	✓	✓
Intrinsic device protection		--	✓	✓
Motor overload protection		--	✓	✓
Thermistor motor protection		--	✓ ²⁾	✓
Integrated remote RESET		--	✓ ³⁾	✓
Adjustable current limiting		--	✓	✓
Inside-delta circuit		--	--	✓
Breakaway pulse		--	--	✓
Creep speed in both directions of rotation		--	--	✓
Pump ramp-down		--	--	✓ ⁴⁾
DC braking		--	--	✓ ^{4) 5)}
Combined braking		--	--	✓ ^{4) 5)}
Motor heating		--	--	✓
Communication		--	--	With PROFIBUS DP (optional)
External display and operator module		--	--	(optional)
Operating measured value display		--	--	✓
Error logbook		--	--	✓
Event list		--	--	✓
Slave pointer function		--	--	✓
Trace function		--	--	✓ ⁶⁾
Programmable control inputs and outputs		--	--	✓
Number of parameter sets		1	1	3
Parameterization software (Soft Starter ES)		--	--	✓
Power semiconductors (thyristors)		2 controlled phases	2 controlled phases	3 controlled phases
Screw terminals		✓	✓	✓
Spring-type terminals		✓	✓	✓
UL/CSA		✓	✓	✓
CE marking		✓	✓	✓
Soft starting under heavy starting conditions		--	--	✓ ⁴⁾

Configuring support

Win-Soft Starter, Electronic Application Selector, Technical Assistance Tel.: 1-800-333-7421

✓ Function is available; -- Function is not available.

¹⁾ Only soft starting available for 3RW30.

²⁾ Optional up to size S3 (device variant).

³⁾ Available for 3RW40 2. to 3RW40 4., optional for 3RW40 5. and 3RW40 7..

⁴⁾ Calculate soft starter and motor with size allowance where required.

⁵⁾ Not possible in inside-delta circuit.

⁶⁾ Trace function with Soft Starter ES software.

⁷⁾ Actual motor start times are load dependent.

You can find further information on the Internet at:

www.usa.siemens.com/softstarters

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3RW Soft Starters

3RW30 for standard applications

Overview

The SIRIUS 3RW30 soft starters reduce the motor voltage through variable phase control and increase it in ramp-like mode from a selectable starting voltage up to mains voltage. During starting, these devices limit the torque as well as the current and prevent the shocks which arise during direct starts or wye-delta starts. In this way, mechanical loads and mains voltage dips can be reliably reduced.

Soft starting reduces the stress on the connected equipment and results in lower wear and therefore longer periods of trouble-free production. The selectable start value means that the soft starters can be adjusted individually to the requirements of the application in question and unlike wye-delta starters are not restricted to two-stage starting with fixed voltage ratios.¹⁾

The SIRIUS 3RW30 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that minimal power loss is used at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

Various versions of the SIRIUS 3RW30 soft starters are available:

- Standard version for fixed-speed three-phase motors, sizes S00, S0, S2 and S3, with integrated bypass contact system
- Version for fixed-speed three-phase motors in a 22.5 mm enclosure without bypass

Soft starters rated up to 75 Hp (at 460 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple start-up are just three of the many advantages of this soft starter.

¹⁾ Actual motor start times are load dependent.

Application

The 3RW30 soft starters are suitable for soft starting of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time. Due to continuous voltage influencing, current and torque peaks, which are unavoidable in the case of wye-delta starters, for instance, do not occur.

Application areas

- Pumps
- Heat pumps
- Hydraulic pumps
- Presses
- Conveyors
- Roller conveyor
- Screw conveyors

Selection and ordering data



Ambient temperature 40 °C			Ambient temperature 50 °C				Size	Order No.	List Price \$ per PU	PS*	Weight per PU approx.
Rated operational current $I_e^{(1)}$	Rated power of induction motors for rated operational voltage U_e			Rated operational current $I_e^{(1)}$	Rated power of induction motors for rated operational voltage U_e						
A	230 V kW	400 V kW	500 V kW	A	200 V hp	230 V hp	460 V hp	575 V hp			

Rated operational voltage U_e 200 ... 480 V

• With screw terminals												
3.6	0.75	1.5	--	3	0.5	0.5	1.5	--	S00	3RW30 13-1BB□4	1 unit	0.580
6.5	1.5	3	--	4.8	1	1	3	--	S00	3RW30 14-1BB□4	1 unit	0.580
9	2.2	4	--	7.8	2	2	5	--	S00	3RW30 16-1BB□4	1 unit	0.580
12.5	3	5.5	--	11	3	3	7.5	--	S00	3RW30 17-1BB□4	1 unit	0.580
17.6	4	7.5	--	17	3	3	10	--	S00	3RW30 18-1BB□4	1 unit	0.580
• With spring-type terminals												
3.6	0.75	1.5	--	3	0.5	0.5	1.5	--	S00	3RW30 13-2BB□4	1 unit	0.580
6.5	1.5	3	--	4.8	1	1	3	--	S00	3RW30 14-2BB□4	1 unit	0.580
9	2.2	4	--	7.8	2	2	5	--	S00	3RW30 16-2BB□4	1 unit	0.580
12.5	3	5.5	--	11	3	3	7.5	--	S00	3RW30 17-2BB□4	1 unit	0.580
17.6	4	7.5	--	17	3	3	10	--	S00	3RW30 18-2BB□4	1 unit	0.580
• With screw terminals												
25	5.5	11	--	23	5	5	15	--	S0	3RW30 26-1BB□4	1 unit	0.690
32	7.5	15	--	29	7.5	7.5	20	--	S0	3RW30 27-1BB□4	1 unit	0.690
38	11	18.5	--	34	10	10	25	--	S0	3RW30 28-1BB□4	1 unit	0.690
• With spring-type terminals												
25	5.5	11	--	23	5	5	15	--	S0	3RW30 26-2BB□4	1 unit	0.690
32	7.5	15	--	29	7.5	7.5	20	--	S0	3RW30 27-2BB□4	1 unit	0.690
38	11	18.5	--	34	10	10	25	--	S0	3RW30 28-2BB□4	1 unit	0.690
• With screw-type or spring-type terminals												
45	11	22	--	42	10	15	30	--	S2	3RW30 36-□BB□4	1 unit	1.200
63	18.5	30	--	58	15	20	40	--	S2	3RW30 37-□BB□4	1 unit	1.200
72	22	37	--	62	20	20	40	--	S2	3RW30 38-□BB□4	1 unit	1.200
• With screw-type or spring-type terminals												
80	22	45	--	73	20	25	50	--	S3	3RW30 46-□BB□4	1 unit	1.710
106	30	55	--	98	30	30	75	--	S3	3RW30 47-□BB□4	1 unit	1.710

Order No. supplement for connection types

- With screw terminals
- With spring-type terminals²⁾

Order No. supplement for rated control supply voltage U_s

- 24 V AC/DC
- 110 ... 230 V

1
2

0
1

Soft starters for easy starting conditions and high switching frequency, rated operational voltage U_e 200 ... 400 V, rated control supply voltage U_s 24 ... 230 V AC/DC

3	0.55	1.1	--	2.6	0.5	0.5	--	--	22.5 mm	3RW30 03-1CB54	1 unit	0.207
										3RW30 03-2CB54	1 unit	0.188

- With screw terminals
 - With spring-type terminals
- 1) Stand-alone installation.
2) Power connection: screw terminals.

Note:

Selection of the soft starter depends on the rated motor current.

The SIRIUS 3RW30 solid-state soft starters are designed for easy starting conditions. $J_{Load} < 10 \times J_{Motor}$. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device.


Siemens recommends the use of the selection and simulation program Win-Soft Starter. For information about rated currents for ambient temperatures > 40 °C, see technical specifications (see technical information on page 7/44).

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Accessories

For soft starters		Motor starter protectors		Order No.	List Price \$ per PU	PS*	Weight per PU approx. kg
Type	Size	Size	Size				
Auxiliary terminals							
Auxiliary terminals, 3-pole							
3RW30 4.	S3			3RT19 46-4F		1 unit	0.035
Covers for soft starters							
Terminal covers for box terminals							
Additional touch protection to be fitted at the box terminals (2 units required per device)							
3RW30 3.	S2			3RT19 36-4EA2		1 unit	0.020
3RW30 4.	S3			3RT19 46-4EA2		1 unit	0.025
Terminal covers for cable lugs and busbar connections							
For complying with the phase clearances and as touch protection if box terminal is removed (2 units required per contactor)							
3RW30 4.	S3			3RT19 46-4EA1		1 unit	0.040
Link modules to motor starter protectors							
	3RW30 13,	S00	S0	3RA19 21-1A		10 units	0.028
	3RW30 14,						
	3RW30 16,						
	3RW30 17,						
	3RW30 18						
3RW30 26	S0	S0	3RA19 21-1A		10 units	0.028	
3RW30 36	S2	S2	3RA19 31-1A		5 units	0.033	
3RW30 46,	S3	S3	3RA19 41-1A		5 units	0.072	
3RW30 47							
Operating instructions¹⁾							
For soft starters							
3RW30 1.	S00			3ZX10 12-0RW30-2DA1			
3RW30 2.	S0						
3RW30 3.	S2						
3RW30 4.	S3						

¹⁾ The operating instructions are included in the scope of supply.

Version		Functionality Functions		Order No.	List Price \$ per PU	PS*	Weight per PU approx. kg
Covers and push-in lugs (only for 3RW30 03)							
	Sealable covers		For securing against unauthorized adjustment of setting knobs	3RP1 902		5 units	0.004
	Push-in lugs		For screw fixing	3RP1 903		10 units	0.002