

Solid-State Soft Starters

SIRIUS 3RW30, 3RW31

SIRIUS 3R



Selection and ordering data

	Rated operational voltage U_e	At ambient temperature 40 °C					Size	Order No.	Price	Weight approx.	Pack.
		Rated operational current I_e	Rated outputs of three-phase motors at rated operational voltage U_e								
			230 V	400 V	500 V						
V	A	kW	kW	kW			1 Unit	kg	Unit		
Soft starters for three-phase asynchronous motors											
	200 to 460	6	0.55	1.1	–	S00	3RW30 14-1CB□4		0.26	1	
		6	0.75	1.5	–	S00	3RW30 14-1CB□4				
		6	1.1	2.2	–	S00	3RW30 14-1CB□4				
		6	1.5	3	–	S00	3RW30 14-1CB□4				
		9	2.2	4	–	S00	3RW30 16-1CB□4				
		12.5	3	5.5	–	S0	3RW30 24-1AB□4				
		16	4	7.5	–	S0	3RW30 25-1AB□4				
		25	5.5	11	–	S0	3RW30 26-1AB□4				
		32	7.5	15	–	S2	3RW30 34-1AB□4				
		38	11	18.5	–	S2	3RW30 35-1AB□4				
45	15	22	–	S2	3RW30 36-1AB□4						
63	18.5	30	–	S3	3RW30 44-1AB□4						
75	22	37	–	S3	3RW30 45-1AB□4						
100	30	45	–	S3	3RW30 46-1AB□4						
100	–	55	–	S3	3RW30 46-1AB□4						
	460 to 575	12.5	–	–	1.5	S0	3RW30 24-1AB□5		0.44	1	
		12.5	–	–	2.2	S0	3RW30 24-1AB□5				
		12.5	–	–	3	S0	3RW30 24-1AB□5				
		12.5	–	–	4	S0	3RW30 24-1AB□5				
		12.5	–	–	5.5	S0	3RW30 24-1AB□5				
		12.5	–	–	7.5	S0	3RW30 24-1AB□5				
		16	–	–	7.5	S0	3RW30 25-1AB□5				
		25	–	–	15	S0	3RW30 26-1AB□5				
		32	–	–	18.5	S2	3RW30 34-1AB□5				
		38	–	–	22	S2	3RW30 35-1AB□5				
		45	–	–	30	S2	3RW30 36-1AB□5				
		63	–	–	37	S3	3RW30 44-1AB□5				
		75	–	–	45	S3	3RW30 45-1AB□5				
		75	–	–	55	S3	3RW30 45-1AB□5				
100	–	–	70	S3	3RW30 46-1AB□5						

Order No. suffix

Rated control supply voltage

UC 24 V **0**

UC 110 V to 230 V **1**

Soft starters with two-ramp control for three-phase motors with two speeds (double pole-reversing)										
200 to 460	12.5	3	5.5	–	S0	3RW31 24-1CB14		0.44	1	
	16	4	7.5	–	S0	3RW31 25-1CB14				
	25	5.5	11	–	S0	3RW31 26-1CB14				
460 to 575	12.5	–	–	7.5	S0	3RW31 24-1CB15		0.44	1	
	16	–	–	11	S0	3RW31 25-1CB15				
	25	–	–	15	S0	3RW31 26-1CB15				

	Rated operational voltage U_e	At ambient temperature 40 °C				Size	Order No.	Price	Weight approx.	Pack.
		Rated operational current I_e	Rated outputs of three-phase motors at rated operational voltage U_e							
			115 V	230 V						
V	A	kW	kW			1 Unit	kg	Unit		
Soft starters for single-phase motors (please inquire about delivery launch)										
	115 to 240	25	2.2	4		S0	3RW30 26-1AA12		0.42	1
		38	3	5.5		S2	3RW30 35-1AA12			
		75	5.5	11		S3	3RW30 45-1AA12			



The SIRIUS 3RW3 solid-state soft starters are designed for simple starting conditions.



In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger unit.

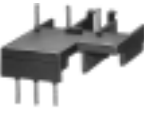


See technical data for information about rated currents for ambient temperatures >40 °C.

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



For devices Type	Design	Order No.	Price	Weight approx.	Pack.
			1 Unit	kg	Unit
Fans					
3RW39 26-8A	To increase switching frequency and for unit mounting in positions different from the normal position. The fan is snapped into the housing from below.	3RW39 26-8A		0.008	1
					
3RW39 36-8A		3RW39 36-8A		0.018	1
					

For devices Type	Design	Order No.	Price	Weight approx.	Pack.
			1 Pack.	kg	Pack.
Covers					
3RT19 36-4EA2	Terminal cover for box terminals				
	Additional touch guard to be fitted at the box terminals (2 units required per device, 1 Pack. = 10 Units)				
	3RW30 3. 3RW30 4.	3RT19 36-4EA2 3RT19 46-4EA2	2.70 3.20	0.012	1
3RT19 46-4EA1	Terminal cover for cable lug and busbar connection				
	For meeting the clearance and as protection against accidental fingertouch with distant box terminals (2 units required per device, 1 Pack. = 1 Unit)				
	3RW30 4.	3RT19 46-4EA1	5.20	0.028	1

For devices Type	Design	Order No.	Price	Weight approx.	Pack.				
Link module									
3RA19 11-1A	Electrical and mechanical link between circuit-breaker and soft starter. Note: For fuseless load feeders with soft starter of size SO, the link module has an integrated conductor routing.	No. of units per packg.			1 Pack.				
						10	3RA19 11-1A	25.90	0.15
3RA19 21-1A						10	3RA19 21-1A	38.20	0.21
						5	3RA19 31-1A	38.20	0.1
3RA19 31-1A						5	3RA19 41-1A	43.30	0.3
									

Note: The covers and connection modules listed here are also used for load feeders (circuit-breaker 3RV + contactor 3RT). [Further technical data in Part 3.](#)



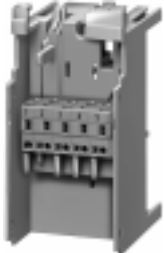





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Accessories

For devices	Design	Order No.	Price	Weight approx.	Pack.
Type		Preferred type	1 Unit	kg	
AS-Interface load feeder modules					
3RK1 400-1KG01-0AA1 3RK1 400-1MG01-0AA1 	AS-Interface load feeder module • For snapping onto standard mounting rail • For sizes S00 and S0 For mounting onto 40 mm or 60 mm busbar systems and SIRIUS busbar adapters the fitting support is required. The AS-Interface connector for data and auxiliary supply cables (yellow and black) must be ordered separately.  2 inputs / 1 output / DC 24 V 4 inputs / 2 outputs / DC 24 V 2 inputs / 1 relay output / AC 120/230 V 3 inputs / 2 relay outputs / AC 120/230 V	▶ 3RK1 400-1KG01-0AA1 ▶ 3RK1 400-1MG01-0AA1 ▶ 3RK1 402-3KG02-0AA1 ▶ 3RK1 402-3LG02-0AA1		0.08	1 Unit
Support with mounted power plug coupling 	Manual for AS-Interface load feeder module German, English Italian, French	3RK1 701-2GB00-0AA0 3RK1 701-2HB00-0AA0			1 Unit 1 Unit
	Support for AS-Interface load feeder module for mounting onto 3RA19 22-1A SIRIUS standard mounting rail adapter	3RK1 901-3GA00	45 mm	0.04	1 Unit
3RK1 901-0EA00 	Power connector set 5-pole, 2.5 mm ² (1 Pack. = 5 plugs and 5 couplings)	3RK1 901-0EA00		1 Pack. 0.02	1 Pack.
3RK1 901-0NA00 3RK1 901-0PA00 3RK1 091-0QA0 	AS-Interface connector for data and auxiliary supply cables with overlapping terminals for 2 x (0.5 to 0.75 mm ²) flexible lead (1 Pack. = 5 Units)	yellow 3RK1 901-0NA00 black 3RK1 901-0PA00		1 Pack. 0.01	1 Pack. 1 Pack.
Adapters for rail mounting					
3RA19 22 	3RW30 .1 For mechanical fixing of circuit-breaker and soft starter; suitable for snap-on fitting on standard mounting rail or for screw fitting (1 Pack. = 5 Units)	3RA19 22-1A		1 Pack. 0.35	1 Pack.
Surge suppressor of RC network for PLC control					
3TX7 462-3. 	RC element for snapping onto 35 mm standard mounting rail	AC 127 V to 240 V 3TX7 462-3T		0.075	10

See Part 1 for further accessories and technical data for communication devices. See Part 3 for technical data for adapters for rail mounting and surge suppressors. See page 5/57 for details of the RC network for PLC control when using the surge suppressor.



Control electronics

Type		3RW3. ...-1.B0.	3RW3. ...-1.B1.	3RW30 ...-1AA14
Rated control supply voltage	V	UC 24	UC 110 to 230	
Rated control supply current	mA	approx. 50	approx. 25 to 20	
Rated frequency for AC	Hz	50/60 ± 10 %		

Power electronics

Type		3RW3. ...-1.B.4	3RW3. ...-1.B.5	3RW30 ...-1AA14
Operating range voltage	V	AC 200 to 460 3-phase (± 10 %)	AC 460 to 575 3-phase (± 10 %)	AC 115 to 240 1-phase (± 10 %)
Rated frequency	Hz	50/60 ± 10 %		
Permissible installation altitude	Reduction of I_e <ul style="list-style-type: none"> • up to 1000 m above sea level • up to 2000 m above sea level • up to 3000 m above sea level • up to 4000 m above sea lev.¹) 	100 % 92 % 85 % 78 %		

Type		3RW30 1. S00	3RW3. 2. S0	3RW30 3. S2	3RW30 4. S3
Size					
Uninterrupted operation (% of I_e)	%	100			
Minimum load²) (% of I_e); at 40 °C	%	4			
Permissible ambient temperature	°C	-25 to +60 (derating from 40 °C; see below)			
Making/breaking capacity of the auxiliary contacts	230 V/AC-15 A 230 V/DC-13 A 24 V/DC-13 A	3 0.1 1			

Type		3RW30 14	3RW30 16	3RW30 24	3RW30 25	3RW30 26
Load ratings						
Rated operational current I_e acc. to IEC	at 40/50/60 °C, AC-53b	A	6/5/4	9/8/7	12.5/11/9	16/14/12
Rated operational current I_e acc. to UL/CSA	at 40/50/60 °C, AC-53b	A	4.8/4.8/4	7.8/7.8/7	11/11/9	17.5/14/12
Power loss at rated operational current (40 °C) approx.	W	5	7	7	9	13
Permissible starts per hour when not using a fan						
intermittent duty S4, $T_v = 40$ °C	1/h	60	40	30		12
ON-period = 30 %; single installation	%	250 × I_e , 2 s		300 × I_e , 2 s		
Permissible starts per hour when using a fan						
intermittent duty S4, $T_v = 40$ °C	1/h	-³)			54	21
ON-period = 30 %; single installation						
Pause intervals after continuous duty						
with I_e before a new start	s	0				200
Degree of protection	acc. to IEC 60 529	IP 20 (terminal compartment IP 00)				
Conductor cross-sections						
Screw connection						
(1 or 2 conductors connections possible) for screw driver Size 2 and Pozidriv 2	Auxiliary conductors: <ul style="list-style-type: none"> • solid • finely stranded with end sleeve • AWG conductor connections, solid or stranded - Terminal screws - Tightening torque 	mm² mm² AWG Nm lb.in	2 x (0.5 to 1.5); 2 x (0.75 to 2.5) 2 x (0.5 to 1.5); 2 x (0.75 to 2.5) 2 x (18 to 14) M 3, PZ2 0.8 to 1.0 7.1 to 8.9	according to IEC 60 947; max. 2 x (0.75 to 4) 0.8 to 1.0 7.1 to 8.9		
	Main conductor: <ul style="list-style-type: none"> • solid • finely stranded with end sleeve • stranded • AWG conductor connections, solid or stranded - Terminal screws - Tightening torque 	mm² mm² mm² AWG Nm lb.in	2 x (0.5 to 1.5) 2 x (0.75 to 2.5) 2 x (0.5 to 2.5) - 2 x (18 to 14) M 3, PZ2 0.8 to 1.2 7 on 10.3	2 x (1 to 2.5) 2 x (2.5 to 6) 2 x (1 to 2.5) 2 x (2.5 to 6) - 2 x (14 to 10) M 4, PZ2 2 to 2.2 18 to 22		

Please inquire about technical data of soft starters for single-phase motors.

1) Please inquire about more than 4000 m.

2) The motor's rated current (specified on the motor's rating plate) should at least amount to the specified percentage of the SIRIUS soft starter's rated current I_e .

3) Installation of the fan, which is available as an accessory, is not possible for size S00.



Technical data

Power electronics

Type		3RW30 34	3RW30 35	3RW30 36	3RW30 44	3RW30 45	3RW30 46
Load ratings							
Rated operational current I_e acc. to IEC	at 40/50/60 °C, AC-53b	A	32/27/23	38/32/27	45/38/32	63/54/46	75/64/54
Rated operational current I_e acc. to UL/CSA	at 40/50/60 °C, AC-53b	A	27/27/23	34/32/27	42/38/32	62/54/46	68/64/54
Power loss at rated operational current (40 °C) approx.		W	10	13	17	13	16
Permissible starts per hour							
intermittent duty S4, $T_u = 40$ °C ON-period = 30 %	1/h %	20 300 x I_e , 3 s	15	5	20 300 x I_e , 4 s	30	15
Permissible starts per hour when using a fan							
intermittent duty S4, $T_u = 40$ °C ON-period 30 %; single installation	1/h	44	27	9	32	48	24
Pause times after continuous duty with I_e before a new start	s	0		400	0		
Degree of protection	acc. to IEC 60 529	IP 20 (terminal compartment IP 00)			IP 20 ¹⁾		
Conductor cross-sections							
Screw connection (1 or 2 conductor connections possible) for screw driver Size 2 and Pozidriv 2		Auxiliary conductor:					
		mm ²	2 x (0.5 to 1.5); 2 x (0.75 to 2.5) acc. to IEC 60 947; max. 2 x (0.75 to 4)				
		mm ²	2 x (0.5 to 1.5); 2 x (0.75 to 2.5)				
		AWG	2 x (18 to 14)				
		M	M 3				
		Nm	0.8 to 1.0				
		lb.in	7.1 to 8.9				
			- Terminal screws				
			- Tightening torque				
			Main conductor:				
		mm ²	2 x (0.75 to 16)				
		mm ²	2 x (0.75 to 16)				
		mm ²	1 x (0.75 to 25)				
		mm ²	2 x (0.75 to 25)				
		mm ²	1 x (0.75 to 35)				
		AWG	2 x (18 to 3)				
		AWG	1 x (18 to 2)				
		M	M 6, box terminal, PZ2				
		Nm	3 to 4.5				
		lb.in	27 to 40				
			- Terminal screws				
			- Tightening torque				
			2 x (10 to 50)				
			1 x (10 to 70)				
			2 x (10 to 1/0)				
			1 x (10 to 2/0)				
			M6 (socket-head cap screw)				
			4 to 6				
			35 to 53				

General data

	Standard	Parameters
Noise immunity		
Electrostatic discharge (ESD)	IEC 61 000-4-2, IEC 60 801-2: 1991 IEC 60 947-4-2 SN-IACS	Pulse shape: 1/60 ns Test severity 6 kV or 8 kV 4 kV charging voltage in the event of contact discharge 8 kV charging voltage in the event of air discharge
Electromagnetic RF fields	IEC 61 000-4-3 EN 60 947-4-2, SN-IACS	Frequency range: 80 to 1000 MHz with 80 % @ 1 kHz Field strength 10 V/m
Conducted low-frequency interference (harmonics)	IEC 60 945: 1996 IEC 60 947-4-2 SN-IACS	Frequency range: 50 Hz to 10 kHz – DC supply: 3 V_{off} 50 Hz supply: 50 to 750 Hz: 10 % U_{vers} 0.75 to 5 kHz: 10 to 1 % U_{vers} 5 to 6 kHz: 1 % U_{vers}
RF voltages and RF currents on conductors	IEC 61 000-4-6 IEC 60 947-4-2 SN-IACS	Frequency range: 80 to 1000 MHz with 80 % @ 1 kHz 10 V at 0.15 to 80 MHz 3 V at 10 kHz to 80 MHz
Burst Surge	IEC 61 000-4-4 IEC 61 000-4-5	Test severity: 2 kV or 1 kV Test severity: 2 kV or 1 kV

Emitted interferences

Radio interference field strength	CISPR 11/09.1990 EN 60 947-4-2 SN-IACS	H field: 150 kHz to 30 MHz E field: 30 MHz to 1000 MHz Class B limit at 30 to 1000 MHz Limit acc. to Section 19.2 for "Power distribution" location
Radio interference voltage	CISPR 11/09.1990 IEC 60 947-4-2 SN-IACS	Frequency range: 9 kHz to 30 MHz (0.15 to 30 MHz): Unit class A (industry) and unit class B (public networks) (9 kHz to 30 MHz): Limits acc. Section 19.2 for "Power distribution" or "bridge and open deck" location

Unit class B (public networks) is only met in the case of versions 3RW3,-1AB0. with UC 24 V control voltage. For versions 3RW3,-1A.1. with UC 110 V to 230 V control voltage, the units must be preceded by single-stage filters (e.g. type B84143-A...).

1) IP 20 only with installed box terminal ('as-delivered'). IP 00 without box terminal.



Fuse coordination

Fuseless version			Fused version						
Soft starter	Circuit breaker ¹⁾	Link module ²⁾	Soft starter	Line fuse			Overload relay		Contactor
							thermal	electronic	
Order No.	Order No.	Order No.	Order No.	Order No.	Rated current A	Size	Order No.	Order No.	Order No.

Type of coordination 1: $I_q = 50 \text{ kA at } 400 \text{ V}$

3RW30 14	3RV10 11 ³⁾	3RA19 11-1A	3RW30 14	3NA38 10	25	00	3RU11 16 ⁵⁾	3RB10 16 ⁵⁾	3RT10 15
3RW30 16	3RV10 11 ³⁾	3RA19 11-1A	3RW30 16	3NA38 10	25	00	3RU11 16 ⁵⁾	3RB10 16 ⁵⁾	3RT10 16
3RW30 24 / 3RW31 24	3RV10 21	3RA19 21-1A	3RW30 24 / 3RW31 24	3NA38 22	63	00	3RU11 26 ⁵⁾	3RB10 26 ⁵⁾	3RT10 24
3RW30 25 / 3RW31 25	3RV10 21	3RA19 21-1A	3RW30 25 / 3RW31 25	3NA38 22	63	00	3RU11 26 ⁵⁾	3RB10 26 ⁵⁾	3RT10 25
3RW30 26 / 3RW31 26	3RV10 21	3RA19 21-1A	3RW30 26 / 3RW31 26	3NA38 24	80	00	3RU11 26 ⁵⁾	3RB10 26 ⁵⁾	3RT10 26
3RW30 34	3RV10 31	3RA19 31-1A	3RW30 34	3NA38 30	100	00	3RU11 36 ⁵⁾	–	3RT10 34
3RW30 35	3RV10 31	3RA19 31-1A	3RW30 35	3NA38 30	100	00	3RU11 36 ⁵⁾	–	3RT10 35
3RW30 36	3RV10 31	3RA19 31-1A	3RW30 36	3NA38 30	100	00	3RU11 36 ⁵⁾	–	3RT10 36
3RW30 44	3RV10 41	3RA19 41-1A	3RW30 44	3NA38 44	250	1	3RU11 46 ⁵⁾	–	3RT10 44
3RW30 45	3RV10 41	3RA19 41-1A	3RW30 45	3NA38 44	250	1	3RU11 46 ⁵⁾	–	3RT10 45
3RW30 46	3RV10 41	3RA19 41-1A	3RW30 46	3NA38 44	250	1	3RU11 46 ⁵⁾	–	3RT10 46

Fused version with SITOR fuses 3NE1
(Semiconductor and lead protection)

Soft starter	All-range fuse		
Order No.	Order No.	Rated current A	Size

Fused version with SITOR fuses 3NE8
(Semiconductor protection by fuse, lead and overload protection by circuit-breaker)

Soft starter	Semiconductor protection fuse ⁶⁾			Circuit-breaker ¹⁾	Link module ²⁾
Order No.	Order No.	Rated current A	Size	Order No.	Order No.

Type of coordination 2: $I_q = 50 \text{ kA at } 400 \text{ V} / 500 \text{ V}$

3RW30 14	3NE18 14-0 ⁷⁾	20	000
3RW30 16	3NE18 15-0 ⁷⁾	25	000
3RW30 24 / 3RW31 24	3NE18 15-0 ⁸⁾	25	000
3RW30 25 / 3RW31 25	3NE18 15-0 ⁸⁾	25	000
3RW30 26 / 3RW31 26	3NE18 02-0 ⁸⁾	40	000
3RW30 34	3NE18 18-0 ⁸⁾	63	000
3RW30 35	3NE18 20-0 ⁸⁾	80	000
3RW30 36	3NE18 20-0 ⁸⁾	80	000
3RW30 44	3NE18 20-0 ⁸⁾	80	000
3RW30 45	3NE10 21-0 ⁸⁾	100	00
3RW30 46	– ⁹⁾	–	–

Type of coordination 2: $I_q = 50 \text{ kA at } 400 \text{ V}$

3RW30 14	3NE80 03	35	00	3RV10 11	3RA19 11-1A
3RW30 16	3NE80 03	35	00	3RV10 11	3RA19 11-1A
3RW30 24 / 3RW31 24	3NE80 03	35	00	3RV10 21	3RA19 21-1A
3RW30 25 / 3RW31 25	3NE80 03	35	00	3RV10 21	3RA19 21-1A
3RW30 26 / 3RW31 26	– ¹⁰⁾	–	–	–	–
3RW30 34	3NE80 22	125	00	3RV10 31	3RA19 31-1A
3RW30 35	3NE80 24	160	00	3RV10 31	3RA19 31-1A
3RW30 36	3NE80 24	160	00	3RV10 31	3RA19 31-1A
3RW30 44	3NE80 24	160	00	3RV10 41	3RA19 41-1A
3RW30 45	3NE80 24	160	00	3RV10 41	3RA19 41-1A
3RW30 46	3NE80 24	160	00	3RV10 41	3RA19 41-1A

The coordination types are explained in detail on page 5/25.

- 1) The motor's rated current defines the selection of units.
- 2) Pay attention to quantity units.
- 3) 50 mm distance required at the top and bottom from earthed parts.
- 4) $I_q = 50 \text{ kA}$ up to max. 400 V.
- 5) $I_q = 50 \text{ kA}$ up to max. 500 V.

- 6) If the motor feeder is to be assembled in accordance with UL regulations, -1 must be added to the order number of the fuse (example: 3NE80 24-1)
- 7) Fuse coordination for up to max. 400 V.
- 8) Fuse coordination for up to max. 500 V.

- 9) Fuse coordination with all-range fuse not possible; it may be necessary to take recourse to pure semiconductor protection fuses plus circuit-breakers.
- 10) Fuse coordination with semiconductor protection fuses not possible; it may be necessary to take recourse to pure all-range fuses 3NE1...0 or the next highest soft starters.

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Description

Application

The SIRIUS solid-state soft starters are suitable for soft starting and stopping of three-phase asynchronous machines.

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

Service range

Pumps, compressors, conveyor belts.

Features

- Soft starting with voltage ramp; the adjustment range of the starting voltage U_s ranges from 40 % to 100 % and the ramp time t_r can be set from 0 s to 20 s.
- Soft running down with voltage ramp; the running down ramp time t_{off} can be varied in the range from 0 s to 20 s. At the same time, the switching-off voltage U_{off} is dependent on the chosen starting voltage U_s .
- Setting by means of three potentiometers
- Simple installation and commissioning
- Mains voltages at 50/60 Hz 200 V to 575 V
- Two control voltage outputs AC/DC 24 V and AC/DC 110 V to 230 V
- Wide temperature range from $-25\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$
- Integrated bypass contacts to minimize dissipated power.

Advice

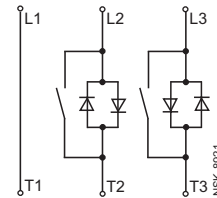
The 3RW solid-state soft starters are designed for simple starting conditions. In the event of deviating conditions or increased switching frequency, a larger unit must be selected. For an exact dimensioning, the special starting conditions must be observed.

If necessary, an overload relay for heavy-starting must be selected where long starting times are involved. PTC thermistor detectors are recommended. This must be also observed with smooth running down. In this case an additional current load is effective compared with a free running down.

No capacitive elements (e.g. correction equipment) may be contained in the motor feeder between SIRIUS soft starter 3RW3 and the motor.

All elements of the main circuit (e.g. fuses, switching devices and overload relays) should be dimensioned for direct starting, following the load short-circuit conditions. Fuses, switching devices and overload relays must be ordered separately.

Equivalent circuit diagram: Power electronics¹⁾

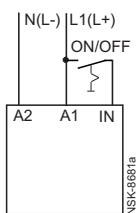


Soft starter in the Internet:
<http://www.ad.siemens.de/sanfstarter>

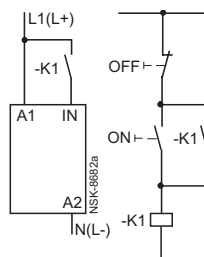
Connection examples

For control with switches or auxiliary contacts

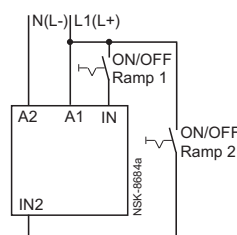
Control by switch



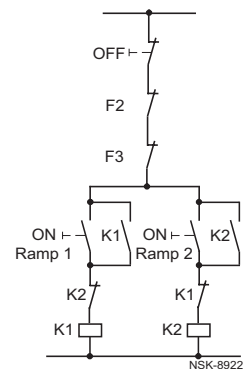
Control via auxiliary contacts



Control by switch in versions for pole-changing motors (for 3RW31 soft starters only)



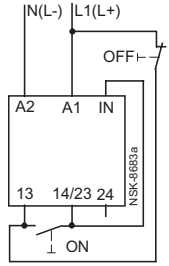
Control by contactor relays in versions for pole-changing motors (for 3RW31 soft starters only)



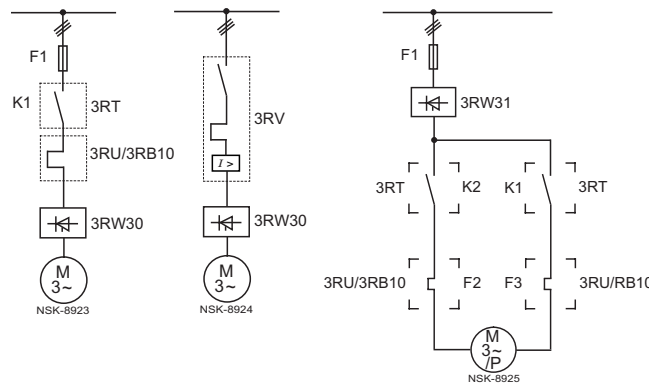
1) Equivalent circuit diagram applies only to 3RW30 1/2/3. In the case of 3RW30 4, the second phase is jumpered.



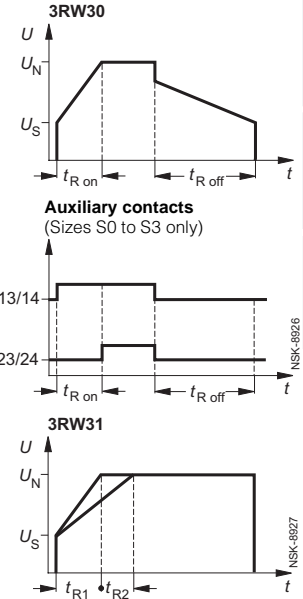
For control with pushbuttons



Main circuit¹⁾

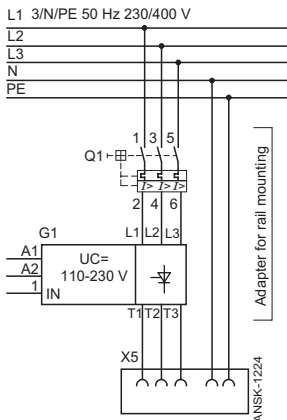


State diagrams



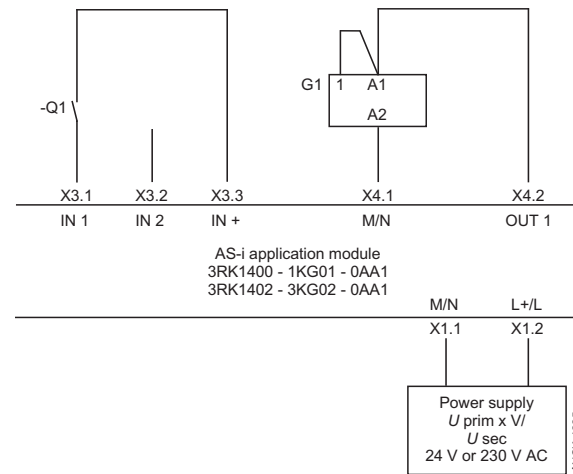
AS-Interface load feeder with SIRIUS soft starter

Main circuit



Q1 = Circuit-breaker
G1 = 3RW30 1. SIRIUS soft starter.
X5 = Power connector

Control circuit



Control with PLC

When a 3RW3 is operated with a triac or a thyristor output, the leakage current at the PLC output should be < 1 mA as otherwise the 3RW3 will interpret the resulting voltage drop at the input as an "On command". In the case of PLC outputs with a large leakage current, a remedy can be found in an RC network with > 100 nF and 220 Ω in series between "1N1" and terminal "A2" of the 3RW30 (order No.: 3TX7462-3T, see accessories).

1) As an alternative, the motor feeder can also be installed as a fuseless or as a fused version. See page 5/55 for details of fuse and switching device coordination.