



# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Selection and ordering data

Rated operational voltage $U_e$	At ambient temperature 40 °C					Order No.	Price	Weight approx.	Pack.		
	Rated operational current $I_e^{(1)}$	Rated outputs of three-phase motors at rated operational voltage $U_e$			1 unit					kg	unit
		230 V	400 V	500 V							
V	A	kW	kW	kW							
<b>Standard circuit</b>											
	200 to 400	57	15	30	–	<b>3RW34 54-0DC□4</b>		7.8	1		
		70	18.5	37	–	<b>3RW34 55-0DC□4</b>		8.1			
		110	22	45	–	<b>3RW34 57-0DC□4</b>					
		110	30	55	–	<b>3RW34 57-0DC□4</b>					
		135	37	75	–	<b>3RW34 58-0DC□4</b>		15.9			
		162	45	90	–	<b>3RW34 65-0DC□4</b>					
		195	55	110	–	<b>3RW34 66-0DC□4</b>					
		235	75	132	–	<b>3RW34 67-0DC□4</b>		32.2			
		352	90	160	–	<b>3RW34 72-0DC□4</b>					
		352	110	200	–	<b>3RW34 72-0DC□4</b>					
		500	160	250	–	<b>3RW34 83-0DC□4</b>		59.9			
		700	–	315	–	<b>3RW34 84-0DC□4</b>					
		700	–	355	–	<b>3RW34 84-0DC□4</b>					
		700	220	400	–	<b>3RW34 84-0DC□4</b>		83.0			
		1050	315	560	–	<b>3RW34 86-0DC□4</b>					
		1050	355	630	–	<b>3RW34 86-0DC□4</b>					
	230 to 575	57	–	–	37	<b>3RW34 54-0DC□5</b>		7.8	1		
	70	–	–	45	<b>3RW34 55-0DC□5</b>		8.1				
	110	–	–	55	<b>3RW34 57-0DC□5</b>						
	110	–	–	75	<b>3RW34 57-0DC□5</b>						
	135	–	–	90	<b>3RW34 58-0DC□5</b>		15.9				
	162	–	–	110	<b>3RW34 65-0DC□5</b>						
	195	–	–	132	<b>3RW34 66-0DC□5</b>						
	235	–	–	160	<b>3RW34 67-0DC□5</b>		32.2				
	352	–	–	200	<b>3RW34 72-0DC□5</b>						
	500	–	–	250	<b>3RW34 83-0DC□5</b>						
	500	–	–	355	<b>3RW34 83-0DC□5</b>		59.9				
	700	–	–	400	<b>3RW34 84-0DC□5</b>						
	700	–	–	450	<b>3RW34 84-0DC□5</b>						
	700	–	–	500	<b>3RW34 84-0DC□5</b>		83.0				
	1050	–	–	670	<b>3RW34 86-0DC□5</b>						
	1050	–	–	750	<b>3RW34 86-0DC□5</b>						
<b>Root 3 circuit</b>											
	200 to 400	110	22	45	–	<b>3RW34 54-0DC□4</b>		7.8	1		
		110	30	55	–	<b>3RW34 54-0DC□4</b>		8.1			
		135	37	75	–	<b>3RW34 55-0DC□4</b>					
		205	55	110	–	<b>3RW34 57-0DC□4</b>					
		235	75	132	–	<b>3RW34 58-0DC□4</b>		15.9			
		285	90	160	–	<b>3RW34 65-0DC□4</b>					
		352	110	200	–	<b>3RW34 66-0DC□4</b>					
		450	132	250	–	<b>3RW34 67-0DC□4</b>		32.2			
		608	160	355	–	<b>3RW34 72-0DC□4</b>					
		865	–	400	–	<b>3RW34 83-0DC□4</b>					
		865	250	500	–	<b>3RW34 83-0DC□4</b>		59.9			
		1216	315	560	–	<b>3RW34 84-0DC□4</b>					
		1216	375	630	–	<b>3RW34 84-0DC□4</b>					
		1216	400	710	–	<b>3RW34 84-0DC□4</b>		83.0			
		1720	450	850	–	<b>3RW34 86-0DC□4</b>					
		1720	530	1000	–	<b>3RW34 86-0DC□4</b>					
	230 to 575	110	–	–	55	<b>3RW34 54-0DC□5</b>		7.8	1		
	110	–	–	75	<b>3RW34 54-0DC□5</b>		8.1				
	135	–	–	90	<b>3RW34 55-0DC□5</b>						
	205	–	–	132	<b>3RW34 57-0DC□5</b>						
	235	–	–	160	<b>3RW34 58-0DC□5</b>		15.9				
	285	–	–	200	<b>3RW34 65-0DC□5</b>						
	352	–	–	200	<b>3RW34 66-0DC□5</b>						
	450	–	–	355	<b>3RW34 67-0DC□5</b>		32.2				
	608	–	–	400	<b>3RW34 72-0DC□5</b>						
	865	–	–	500	<b>3RW34 83-0DC□5</b>						
	865	–	–	630	<b>3RW34 83-0DC□5</b>		59.9				
	1216	–	–	670	<b>3RW34 84-0DC□5</b>						
	1216	–	–	750	<b>3RW34 84-0DC□5</b>						
	1216	–	–	850	<b>3RW34 84-0DC□5</b>		83.3				
	1720	–	–	1000	<b>3RW34 86-0DC□5</b>						
	1720	–	–	1200	<b>3RW34 86-0DC□5</b>						

Order No. suffix

Rated control supply voltage

DC 24 V

AC 230 V

2

4

The 3RW 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. Refer to the technical data for information on rated currents for ambient temperatures >40 °C.

Soft starter selection depends on the motor's rated current.

1) In the selection table, the unit rated operating current refers to the motor's rated operating current in the root 3 circuit. The actual current of the unit is approx. 58 % of this value.

# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Accessories

Design	Order No.	Price	Weight approx.	Pack.
		1 unit	kg	unit
<b>AS-Interface control module</b>				
Module The module can be installed later on every unit. Therefore, units can be controlled (starting and stopping) and the acknowledgements of the relay contacts can be realized via the AS-Interface bus.	<b>3RW39 00-0DC88</b>			1

### Spare Parts

For solid-state motor controllers	Maximum number required per device	Order No.	Price	Weight approx.	Pack.
Type			1 unit	kg	unit
<b>Control unit</b>					
3RW34 ...-0DC2 .	1	<b>3RW39 50-6DC28</b>			1
3RW34 ...-0DC4 .	1	<b>3RW39 50-6DC48</b>			1
<b>Fans</b>					
3RW34 5 ...-0DC2.	2	<b>3RW39 50-8DC28</b>			1
3RW34 5 ...-0DC4.	2	<b>3RW39 50-8DC48</b>			1
3RW34 6 ...-0DC2.	1	<b>3RW39 60-8DC28</b>			1
3RW34 6 ...-0DC4.	1	<b>3RW39 60-8DC48</b>			1
3RW34 72-0DC2.	2	<b>3RW39 70-8DC28</b>			1
3RW34 72-0DC4.	2	<b>3RW39 60-8DC48</b>			1
3RW34 8 ...-0DC2.	3	<b>3RW39 72-8DC28</b>			1
3RW34 8 ...-0DC4.	3	<b>3RW39 60-8DC48</b>			1
3RW34 86-0DC2.	3	<b>3RW39 73-8DC28</b>			1
3RW34 86-0DC4.	3	<b>3RW39 60-8DC48</b>			1

Please inquire about replacement thyristors.

# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Technical data

#### Control electronics

Type			3RW34 ...0DC2.	3RW34 ...0DC4.
Rated control supply voltage	V		DC 24 + 10 %/ – 15 %	AC 230 + 10 %/ – 15 %
Rated frequency	Hz		–	Operating range 45 to 66
Operating indications (continuous light)	LED1 LED2		Ready Starting terminated	
Fault/operating indications Flashing mode 1 (flashing frequency 2 to 3 Hz)	LED1 LED2		Missing phase Starting/running down	
Fault indications Flashing mode 2 (flashing frequency 2 to 3 Hz with 1 s Pause)	LED1 LED2		EEPROM parity error Thyristor fault	
Control input	Input 1	A1/A2	ON	
Relay outputs	Output 1 Output 2 Output 3	(13/14) (27/28) (37/38)	Status indication (NO) Starting end indication (NO) Grouped fault indication (parameterizable via SW1)	
Load ratings of the relay inputs and outputs (solid state)	230 V/AC-15 24 V/DC-13	A A	1.0 1.0	

#### Power electronics

Type			3RW34 ...0DC.4		3RW34 ...0DC.5		
Uninterrupted operation (% von $I_e$ )	%		115				
Starting current (% von $I_e$ )/ • max. starting time at 50 °C • max. starting time at 25 °C	% s s		600 10 15	500 20 30	450 30 45	300 120 180	200 480 720
Minimum load <sup>1)</sup> (% of $I_e$ )			4 %				
Permissible ambient temperature • in operation • when stored	°C °C		–25 to +60 –55 to +80				
Operating range Rated voltage	V		200 – 15 % to 400 + 10 %	230 – 15 % to 575 + 10 %			
Rated frequency	Hz		Operating range 45 to 66				
Permissible installation altitude			up to 3000 m above sea level; over 1000 m above sea level linear reduction of $I_e$ , thus at 2000 m above sea level $0.87 \times I_e$ and at 3000 m above sea level $0.77 \times I_e$				

Type			3RW34 54	3RW34 55	3RW34 57	3RW34 58	3RW34 65	3RW34 66
<b>Load ratings</b>								
Rated operational current $I_e$ <sup>2)</sup> at 40/50/60 °C, AC-53a	A		57/42/35	70/57/42	110/81/57	135/110/81	162/135/110	195/162/135
<b>Power loss</b> at rated operational current (40 °C) approx.	W		120	170	200	330	400	475
<b>Permissible starts per hour</b> intermittent duty S4, $T_a = 40$ °C ON-period 30 % and $300 \times I_e$ for 10 s	1/h		20					
<b>Conductor cross-sections</b>								
<b>Screw connection</b> (1 or 2 conductor connections possible) for screw driver Size 2 and Pozidriv 2		<b>Auxiliary conductor:</b> • solid • finely stranded with end sleeve • AWG conductor connections, solid or stranded	mm <sup>2</sup>	2 x (0.5 to 1.5); 2 x (0.75 to 2.5) according to IEC 60 947; max. 2 x (0.75 to 4)				
			mm <sup>2</sup>	2 x (0.5 to 1.5); 2 x (0.75 to 2.5)				
			AWG	2 x (18 to 14)				
		<b>Terminal screws</b>		M 3				
		<b>Tightening torque</b>	Nm	0.8 to 1.2 (7 to 10.3 lb.in)				
		<b>Main conductor:</b> • stranded	mm <sup>2</sup>	95		120	150	240
<b>Bridging contactor</b> (if required as a main contactor to AC-3)	to AC-1		3RT10 35 3RT10 36	3RT10 44 3RT10 45	3RT10 46 3TF50	3TK48 3TF51	3TK50 3TF52	3TK52 3TF54
<b>Rated control supply currents</b>								
Control inputs	DC 24 V	mA	approx. 110					
	AC 230 V	mA	approx. 110					
Fans	DC 24 V	mA	–	approx. 450			approx. 300	
	AC 230 V	mA	–	approx. 100			approx. 75	

1) The motor's rated current (specified on the motor's rating plate) should amount to at least 4 % of the SIKOSTART unit's rated current  $I_e$ .

2) The rated operational current in the standard circuit is specified.

# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Technical data

Power electronics			3RW34 67	3RW34 72	3RW34 83	3RW34 84	3RW34 86
<b>Type</b>							
<b>Load ratings</b>							
Rated operational current $I_e$	at 40/50/60 °C, AC-53a	A	235/195/162	352/285/235	500/450/352	700/603/500	1050/865/726
<b>Power loss</b>	at rated operational current (40 °C) approx.	W	575	850	1200	1700	2550
<b>Permissible starts per hour</b>	intermittent duty S4, $T_{lv} = 40$ °C ON-period = 30 % and $300 \times I_e$ for 10 s	1/h	20				
<b>Conductor cross-sections</b>							
<b>Screw connection</b> (1 or 2 conductor connections possible) for screw driver Size 2 and Pozidriv 2	<b>Auxiliary conductors:</b> • solid • finely stranded with end sleeve • AWG conductor connections, solid or stranded - Terminal screws - Tightening torque	mm <sup>2</sup>	2 x (0.5 to 1.5); 2 x (0.75 to 2.5) according to IEC 60 947; max. 2 x (0.75 to 4)				
		mm <sup>2</sup>	2 x (0.5 to 1.5); 2 x (0.75 to 2.5)				
		AWG	2 x (18 to 14)				
		Nm	M 3 0.8 to 1.2 (7 to 10.3 lb.in)				
		mm <sup>2</sup>	240				
	<b>Main conductor:</b> • stranded	mm	-				
	<b>Connecting bar</b>	mm	-			40 x 10	50 x 20
<b>Bridging contactor</b> (if required as a main contactor to AC-3)	to AC-1		3TK52 3TF55	3TK54 3TF56	3TF57 3TF68	3TF68 3TF68	3TF69 3TF69
<b>Rated control supply currents</b>							
Control inputs	DC 24 V	mA	approx. 110				
	AC 230 V	mA	approx. 110				
Fans	DC 24 V	mA	approx. 300	approx. 600	approx. 900		
	AC 230 V	mA	approx. 75	approx. 150	approx. 225		

General data		Standard	Parameters
<b>Noise immunity</b>			
<b>Electrostatic discharge (ESD)</b>		IEC 61 000-4-2, IEC 60 801-2: 1991 IEC 60 947-4-2	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
<b>Electric magnetic RF fields</b>		IEC 61 000-4-3 IEC 60 947-4-2	Frequency range: 80 MHz to 1000 MHz with 80% at 1 kHz Field strength 10 V/m
<b>Conducted low-frequency interference (harmonics)</b>		IEC 60 945: 1996 IEC 60 947-4-2	Frequency range: 50 Hz to 10 kHz
<b>RF voltages and RF currents on conductors</b>		IEC 61 000-4-6 IEC 60 947-4-2	Frequency range: 80 MHz to 1000 MHz with 80% at 1 kHz 10 V at 0.15 MHz to 80 MHz
<b>Burst</b>		IEC 61 000-4-4	Test severity: 2 kV or 1 kV
<b>Surge</b>		IEC 61 000-4-5	Test severity: 2 kV or 1 kV
<b>Emitted interference</b>			
<b>Radio interference field strength</b>		CISPR 11/09.1990 IEC 60 947-4-2	H field: 150 kHz to 30 MHz E field: 30 MHz to 1000 MHz Class B limit at 30 MHz to 1000 MHz
<b>Radio interference voltage</b>		CISPR 11/09.1990 IEC 60 947-4-2	Frequency range: 9 kHz to 30 MHz (0.15 MHz to 30 MHz): Unit Class A (industry) and unit Class B (public networks)

# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Technical data

#### Fuse coordination

##### Fuse design with SITOR fuses 3NE1 with full utilization<sup>1)</sup> of the soft starter (short-circuit and lead protection)

Soft starter				Soft starter			
Order No.	Order No.	Rated current A	Size	Order No.	Order No.	Rated current A	Size
<b>Type of coordination 2: I<sub>q</sub> = 50 kA at 400 V</b>				<b>Type of coordination 2: I<sub>q</sub> = 50 kA at 575 V</b>			
3RW34 54-ODC.4	2)	-	-	3RW34 54-ODC.4	2)	-	-
3RW34 55-ODC.4	3NE12 24-0	160	1	3RW34 55-ODC.4	3NE12 24-0	160	1
3RW34 57-ODC.4	3NE12 27-0	250	1	3RW34 57-ODC.4	3NE12 27-0	250	1
3RW34 58-ODC.4	3NE12 30-0	315	1	3RW34 58-ODC.4	3NE12 30-0	315	1
3RW34 65-ODC.4	3NE13 31-0 <sup>3)</sup>	350	2	3RW34 65-ODC.4	2 x 3NE12 25-0	2 x 200	1
3RW34 66-ODC.4	2 x 3NE12 25-0	2 x 200	1	3RW34 66-ODC.4	2)	-	-
3RW34 67-ODC.4	2 x 3NE13 27-0	2 x 250	1	3RW34 67-ODC.4	2)	-	-
3RW34 72-ODC.4	2 x 3NE13 31-0	2 x 350	2	3RW34 72-ODC.4	2)	-	-
3RW34 83-ODC.4	2 x 3NE13 34-0	2 x 500	2	3RW34 83-ODC.4	2 x 3NE13 34-0	630	2
3RW34 84-ODC.4	2)	-	-	3RW34 84-ODC.4	2)	-	-
3RW34 86-ODC.4	3 x 3NE14 37-1	3 x 710	3	3RW34 86-ODC.4	2)	-	-

##### Fuse design with SITOR fuses 3NE3 with full utilization<sup>1)</sup> of the soft starter (semiconductor protection)

Soft starter				Soft starter			
Order No.	Order No.	Rated current A	Size	Order No.	Order No.	Rated current A	Size
<b>Type of coordination 2: I<sub>q</sub> = 50 kA at 400 V</b>				<b>Type of coordination 2: I<sub>q</sub> = 50 kA at 575 V</b>			
3RW34 54-ODC.4	3NE32 25	250	1	3RW34 54-ODC.4	3NE32 25	200	1
3RW34 55-ODC.4	3NE32 33	450	1	3RW34 55-ODC.4	3NE32 32-0B	400	1
3RW34 57-ODC.4	3NE33 36	630	2	3RW34 57-ODC.4	3NE33 35	560	2
3RW34 58-ODC.4	3NE33 36	630	2	3RW34 58-ODC.4	3NE33 35	560	2
3RW34 65-ODC.4	3NE33 36	630	2	3RW34 65-ODC.4	3NE33 35	560	2
3RW34 66-ODC.4	3NE33 35	560	2	3RW34 66-ODC.4	3NE33 34-0B	500	2
3RW34 67-ODC.4	3NE33 37-8	710	2	3RW34 67-ODC.4	3NE33 36	630	2
3RW34 72-ODC.4	3NE33 40-8	900	2	3RW34 72-ODC.4	3NE33 38-8	800	2
3RW34 83-ODC.4	2 x 3NE33 38-8	2 x 800	2	3RW34 83-ODC.4	2 x 3NE33 38-8	2 x 800	2
3RW34 84-ODC.4	2 x 3NE33 38-8	2 x 800	2	3RW34 84-ODC.4	2 x 3NE33 38-8	2 x 800	2
3RW34 86-ODC.4	2 x 3NE33 40-8	2 x 900	2	3RW34 86-ODC.4	2 x 3NE33 40-8	2 x 900	2

##### Fuse design with SITOR fuses 3NE1 with reduced utilization<sup>4)</sup> of the soft starter (semiconductor and lead protection)

Soft starter				Soft starter			
Order No.	Order No.	Rated current A	Size	Order No.	Order No.	Rated current A	Size
<b>Type of coordination 2: I<sub>q</sub> = 50 kA at 400 V</b>				<b>Type of coordination 2: I<sub>q</sub> = 50 kA at 575 V</b>			
3RW34 54-ODC.4	3NE10 21-0	100	00	3RW34 54-ODC.4	3NE18 20-0	80	000
3RW34 55-ODC.4	3NE12 25-0	200	1	3RW34 55-ODC.4	3NE12 25-0	200	1
3RW34 57-ODC.4	3NE12 30-0	315	1	3RW34 57-ODC.4	3NE12 30-0	315	1
3RW34 58-ODC.4	3NE13 31-0	350	2	3RW34 58-ODC.4	3NE12 30-0	315	1
3RW34 65-ODC.4	3NE13 31-0	350	2	3RW34 65-ODC.4	3NE12 30-0	315	1
3RW34 66-ODC.4	3NE13 31-0	350	2	3RW34 66-ODC.4	3NE12 30-0	315	1
3RW34 67-ODC.4	3NE13 31-0	450	2	3RW34 67-ODC.4	3NE13 32-0	400	2
3RW34 72-ODC.4	3NE14 35-0	560	3	3RW34 72-ODC.4	3NE13 34-0	500	2
3RW34 83-ODC.4	3NE14 38-1	800	3	3RW34 83-ODC.4	3NE14 36-0	630	3
3RW34 84-ODC.4	3NE14 38-1	800	3	3RW34 84-ODC.4	2 x 3NE13 34-0	2 x 500	2
3RW34 86-ODC.4	2 x 3NE14 38-1	2 x 800	3	3RW34 86-ODC.4	2 x 3NE14 36-0	2 x 630	3

The fuse designs are non-aging.

The types of coordination are described on page 5/25.

1) e.g. 3 x I<sub>e</sub> for 120 s.

2) Fusing with all-range fuse 3NE1...-0 with full utilization of the 3RW34 not possible.

3) As an alternative, fusing with 2 x 3NE1225-0, 2 x 200 A, size 1, is possible.

4) e.g. 3 x I<sub>e</sub> for 5 s.

# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Description

#### Application

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

#### Service range

Pumps, compressors, fans, conveyor belts.

#### Features

- Soft starting with voltage ramp; the adjustment range of the starting voltage  $U_s$  ranges from 30 % to 80 % and the ramp time  $t_{ri}$  can be set from 0.5 s to 60 s.
- Soft running down with voltage ramp; the running down ramp time  $t_{rff}$  can be varied in the range from 0.5 s to 60 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 mounting and commissioning
- Automatic operation possible
- System voltages 50/60 Hz 200 V to 575 V
- Two control voltage outputs DC 24 V and AC 230 V
- Wide temperature range from  $-25\text{ }^\circ\text{C}$  to  $+60\text{ }^\circ\text{C}$
- Optional AS-Interface control.

#### Advice

The 3RW solid-state motor controllers are designed for normal starting. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger unit. 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 also applies to soft running down. In this case an additional current load is effective compared with a free running down.

No capacitive elements may be contained in the motor feeder between SIKOSTART and the motor (e. g. correction equipment).

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.

#### Circuit concept

The SIKOSTART 3RW34 can be operated in two different types of circuit.

- **Standard circuit** means that the switching devices for disconnecting and protecting the motor are simply connected.

in series with the soft starter. The motor is connected to the soft starter with three leads.

#### • Root 3 switching

The wiring is similar to that of star-delta starters. The phases of the soft starter are connected in series with the individual motor windings. The soft starter then only has to carry the phase current, amounting to about 58 % of the motor's rated current (conductor current).

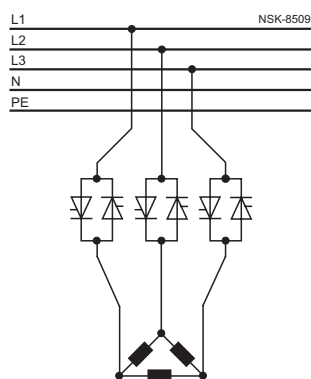
#### Which circuit?

Using the standard circuit involves the lowest wiring complexity, which is twice as high when using the root 3 variant. The standard circuit must be given preference when connections between the soft starter and the motor are short.

Thanks to the possibility of switching between the standard and root 3 modes, the most favorable solution can always be chosen.

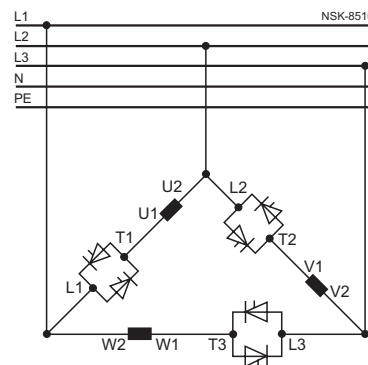
### The circuit types contrasted

#### Standard circuit



Rated current  $I_e$  corresponds to the rated motor current  $I_n$   
3 leads to the motor

#### Root 3 circuit



Rated current  $I_e$  corresponds to approximately 58 % of the rated motor current  $I_n$   
6 leads to the motor (as in the case of star-delta starters)

### Settings

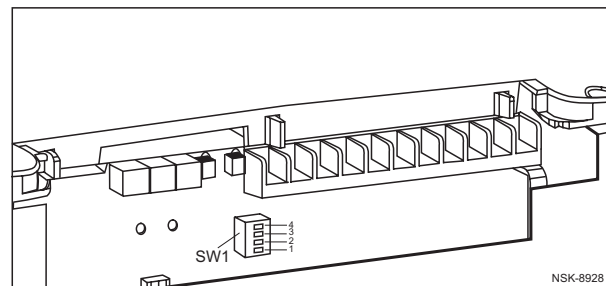
#### DIP switches (SW1):

This switch is located on the main logic module. It serves to adapt the software of the motor control device to the application.

- SW1-1:** Produces a switch-off delay on the motor control device. This switch-off delay is needed when using a parallel contactor (bypass contactor). It first of all enables deactivation of the contactor, after which the motor control device switches 1.5 s later. This prevents damage of the thyristors by voltage spikes, which occur when the bypass contactor interrupts the motor current.
- SW1-2:** Sets a switch-on delay signal for the motor control device. This function makes it possible for an isolating contactor to first switch on at a current of 0 and for the motor control device to then switch 1.5 s later, thus increasing the useful life of the isolating contactor's contacts.
- SW1-3:** Sets the motor control device's software for operation with thyristors in the supply lead or within the delta circuit. Note: if the motor control device is set to operation within the delta

circuit, the fault contact must be set as a normally closed contact and connected to a fault contactor, or as a normally open contact and connected to the voltage release on the circuit-breaker.

- SW1-4:** Sets the fault contact as a normally open or normally closed contact. This contact can be used to control a fault contactors, a voltage release or a fault alarm.



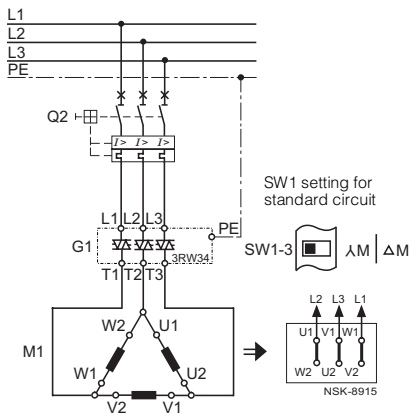
# Solid-State Motor Controllers

## SIKOSTART 3RW34

### Connection example

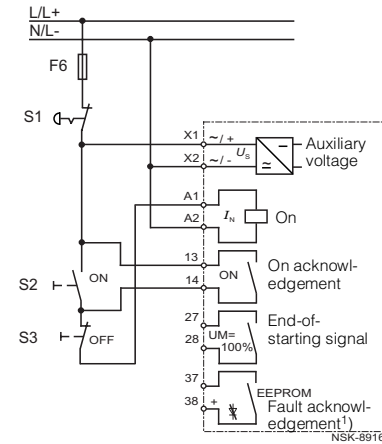
#### Main circuit

Possibility 1: standard circuit



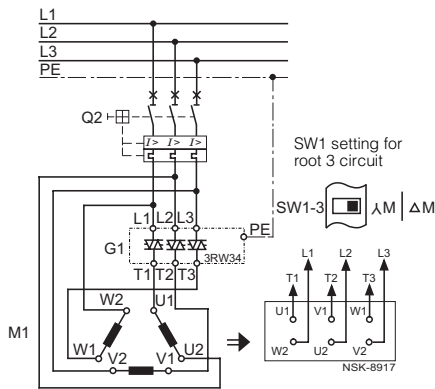
#### Control circuit

Possibility 1: control by pushbutton



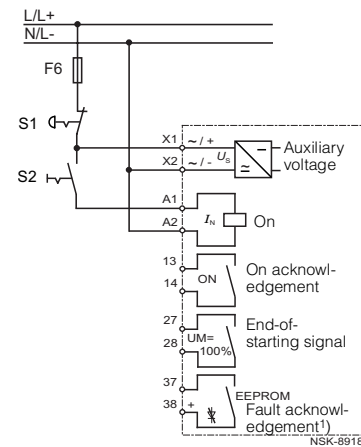
#### Main circuit

Possibility 2: root 3 circuit



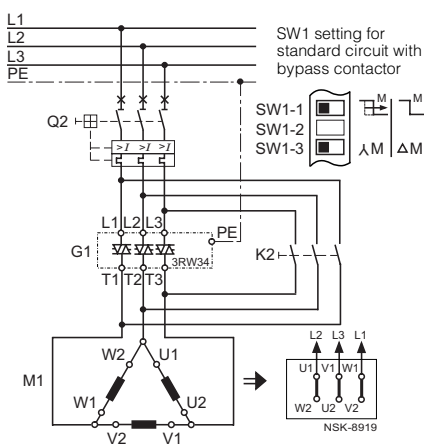
#### Control circuit

Possibility 2: control by switch



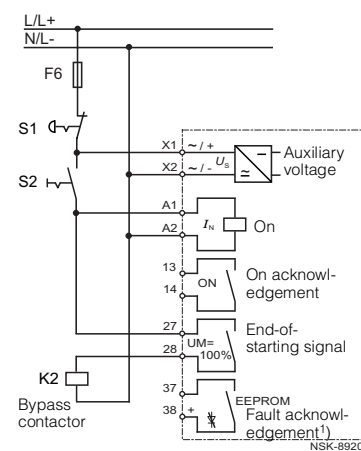
#### Main circuit

Possibility 3: standard circuit with bypass contactor



#### Control circuit

Possibility 3: control by switch plus bypass contactor



The circuits suggested here are only examples. Different versions, for example the use of an overload relay + contactor instead of the circuit-breaker or other motor circuit variants (Y instead of Δ etc.) are possible. See page 5/62 for details of fuse coordination. [The outputs of the 3RW34 are solid-state \(semiconductor\) outputs.](#)

1) By way of SW1-4, the fault contact can be switched over between normally closed and normally open.