

# Controls – Contactors and Contactor Assemblies

## Introduction

### Overview

#### The advantages at a glance



**S00**  
3RH11



**S00**  
3RH12

Size  
Type

Order No.	Page
<b>3RH1 contactor relays</b>	
<b>4-pole</b>	• Screw terminals, spring-type terminals and ring terminal lug connections
3RH11	5/5, 5/6
<b>8-pole</b>	
3RH12	5/5, 5/6
<b>4-pole, latched</b>	
3RH14	5/10
<b>Coupling relays</b>	• Coils for control by PLC
3RH11	5/11
<b>Contact relays for railway applications</b>	• Coils with extended voltage range
3RH11	5/13
<b>Accessories for 3RH1 contactor relays</b>	
<b>Auxiliary switch blocks</b>	• On front
3RH19 11	5/7
• Lateral	
3RH19 11	Chapter 3
Timing relay blocks	• On front
3RT19 16	Chapter 3
<b>OFF-delay devices</b>	• for separate mounting
3RT19 16	5/9
<b>Surge suppressors</b>	• On front
3RT19 16	5/8
<b>Additional load module</b>	• On front
3RT19 16	5/8

#### Connection methods

The contactor relays are available with screw terminals (box terminals) or with spring-type terminals.



Screw terminals

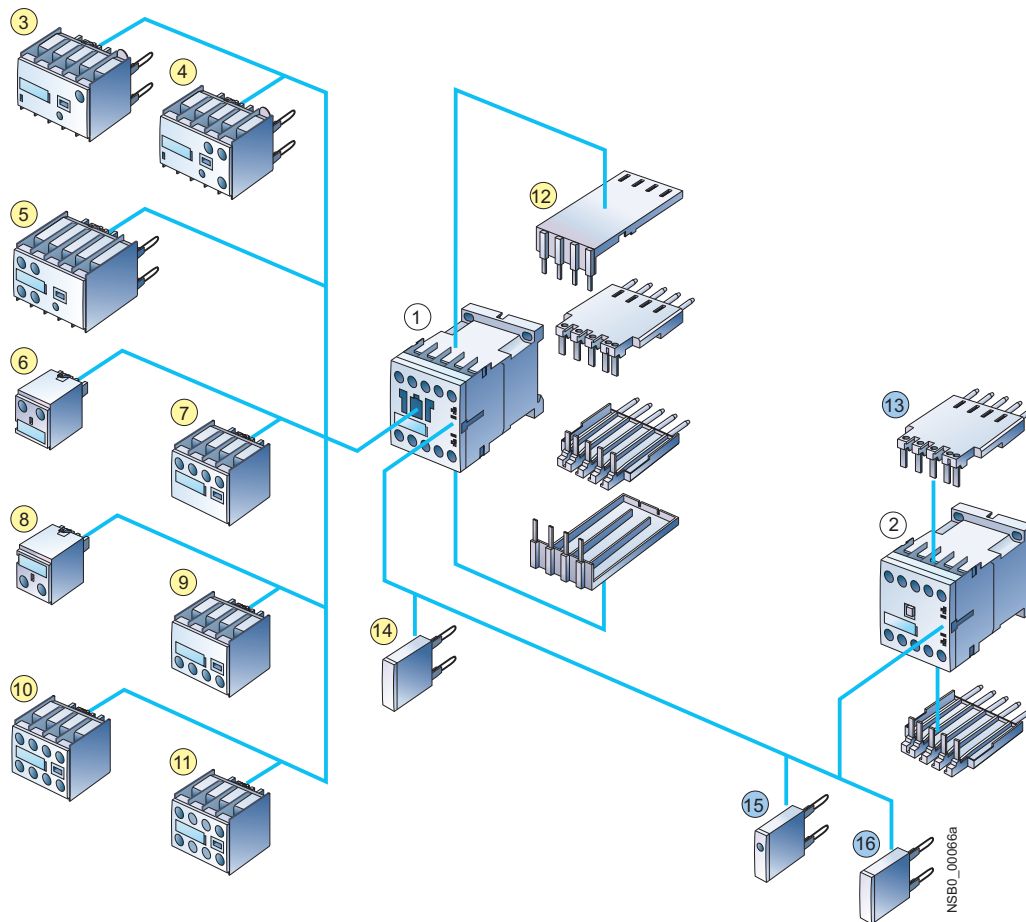


Spring-type terminals

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

### Overview

#### Contactor relays and coupling relays, size S00 with accessories



- ① Contactor relay
- ② Coupling relay for auxiliary circuits
- ③ Solid-state timing relay block, with ON-delay
- ④ Solid-state timing relay block, with OFF-delay
- ⑤ Auxiliary switch block, with solid-state time-delay (versions: ON or OFF-delay))
- ⑥ 1-pole auxiliary switch block, cable entry from above
- ⑦ 2-pole auxiliary switch block, cable entry from above
- ⑧ 1-pole auxiliary switch block, cable entry from below
- ⑨ 2-pole auxiliary switch block, cable entry from below
- ⑩ 4-pole auxiliary switch blocks (terminal designations according to EN 50011 or EN 50005)
- ⑪ 2-pole auxiliary switch block, standard version or solid-state compatible version (terminal designations according to EN 50005)
- ⑫ Solder pin adapter for contactor relays with 4-pole auxiliary switch block
- ⑬ Solder pin adapters for contactor relays and coupling relays
- ⑭ Additional load modules for increasing the permissible residual current
- ⑮ Surge suppressors with LED
- ⑯ Surge suppressors without LED

# Contactor Relays

## SIRIUS 3RH1 contactor relays, 4- and 8-pole

### Standards

IEC 60947-1, DIN EN 60947-1,  
IEC 60947-4-1, DIN EN 60947-4-1,  
IEC 60947-5-1, DIN EN 60947-5-1.

The 3RH1 contactor relays are suitable for use in any climate. They are finger-safe according to EN 50274.

The 3RH1 contactor relays have screw or spring-type terminals. The basic unit contains four contacts with terminal designations according to EN 50011.

### Contact reliability

High contact stability at low voltages and currents, suitable for solid-state circuits with currents  $\geq 1$  mA at a voltage of  $\geq 17$  V.

### Surge suppression

RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) can be plugged onto all contactor relays from the front for damping opening surges in the coil. The plug-in direction is determined by a coding device.

#### Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

### Accessories

The accessories for the 3RT1 contactors in size S00 can also be used for the 3RH1 contactor relays (see pages 5/8 and 5/9, and Chapter 3).

### Auxiliary switch blocks

The 3RH1 contactor relays can be expanded by up to four contacts by the addition of snap-on auxiliary switch blocks.

### Order No. scheme

Digit of the Order No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
<b>SIRIUS contactor relays</b>	<b>3 R H</b>															
<b>1. generation</b>				<b>1</b>												
<b>Device type (e.g. 1 = 4-pole contactor relay, 2 = 8-pole contactor relay)</b>				□												
<b>Number of NO contacts (e.g. 2 = 2 NO)</b>						□										
<b>Number of NC contacts (e.g. 2 = 2 NC)</b>							□									
<b>Connection type (1 = screw, 2 = spring)</b>								□								
<b>Operating range / solenoid coil circuit (e.g. A = AC standard / without)</b>									□							
<b>Rated control supply voltage (e.g. P0 = 230 V, 50 Hz)</b>										□	□					
<b>No significance (0)</b>												□				
<b>Special version</b>													□	□	□	□
<b>Example</b>	<b>3</b>	<b>R</b>	<b>H</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>1</b>	<b>A</b>	<b>P</b>	<b>0</b>	<b>0</b>			

#### Note:

The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers.

The auxiliary switch block can easily be snapped onto the front of the contactors. The auxiliary switch block has a centrally positioned release lever for disassembly.

### Auxiliary switches according to EN 50011

The 3RH11 contactor relays with 4 contacts with the identification number 40E according to EN 50011 can be extended with 3RH19 11-.GA .. auxiliary switch blocks (see Page 5/7) to obtain contactor relays with 8 contacts according to EN 50011. The identification numbers 80E to 44E on the auxiliary switch blocks apply to the complete contactors. These auxiliary switch blocks cannot be combined with contactor relays with identification numbers 31E or 22E; these are coded.

### Auxiliary switches according to EN 50005

All 3RH11 contactor relays with 4 contacts, identification numbers 40E to 22E, can be extended with auxiliary switch blocks 40 to 02 to obtain contactor relays with 6 or 8 contacts in accordance with EN 50005. The identification numbers on the auxiliary switch blocks apply only to the attached auxiliary switch blocks.

Of the auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted.

### 8-pole contactor relay 3RH12

In addition, fully mounted 3RH12 8-pole contactor relays are available; the mounted 4-pole auxiliary switch block is not removable. The terminal designations are in accordance with EN 50011 or IEC 60947-5-1.

These versions are built according to special Swiss regulations SUVA and are distinguished externally by a red labeling plate.

For your orders, please use the order numbers quote in the catalog in the Selection and ordering data.

### Selection and ordering data

#### AC operation

PU (UNIT, SET, M) = 1  
 PS\* = 1 unit  
 PG = 41A

#### Size S00



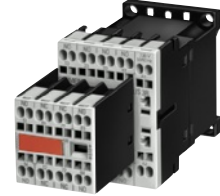
3RH11 ...-1B.40



3RH11 ...-2B.40



3RH12 ...-1B.40



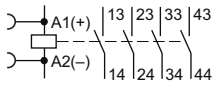
3RH12 ...-2B.40

Rated operational current $I_e$ /AC-15/AC-14 at <b>230 V</b>	Contacts Ident. No.	Version	Rated control supply voltage $U_s$ at 50/60 Hz <sup>1)</sup>	DT	Screw terminals	DT	Spring-type terminals	
		<div><div></div><div></div></div>			Order No.	Price € per PU	Order No.	Price € per PU
A		NO NC	V AC					

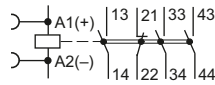
#### For screw and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

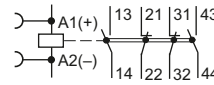
4 NO, Ident. No. **40E**



3 NO + 1 NC, Ident. No. **31E**



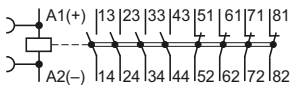
2 NO + 2 NC, Ident. No. **22E**



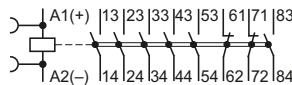
6	40E	4	--	24 110 230	▶ 3RH11 40-1AB00 ▶ 3RH11 40-1AF00 ▶ 3RH11 40-1AP00	▶ 3RH11 40-2AB00 ▶ 3RH11 40-2AF00 ▶ 3RH11 40-2AP00
	31E	3	1	24 110 230	▶ 3RH11 31-1AB00 ▶ 3RH11 31-1AF00 ▶ 3RH11 31-1AP00	▶ 3RH11 31-2AB00 ▶ 3RH11 31-2AF00 ▶ 3RH11 31-2AP00
	22E	2	2	24 110 230	▶ 3RH11 22-1AB00 ▶ 3RH11 22-1AF00 ▶ 3RH11 22-1AP00	▶ 3RH11 22-2AB00 ▶ 3RH11 22-2AF00 ▶ 3RH11 22-2AP00

#### • With permanently mounted auxiliary switch block for safety applications according to SUVA

4 NO + 4 NC, Ident. No. **44E**



6 NO + 2 NC, Ident. No. **62E**



6	44E	4	4	230	▶ 3RH12 44-1AP00	B	3RH12 44-2AP00
	62E	6	2	230	▶ 3RH12 62-1AP00	B	3RH12 62-2AP00

<sup>1)</sup> Coil operating range  
 at 50 Hz: 0.8 to 1.1 x  $U_s$   
 at 60 Hz: 0.85 to 1.1 x  $U_s$ .

Other voltages according to page 5/7 on request.

Accessories see pages 5/7 to 5/9 and  
 "Accessories for 3RT1 Contactors", Chapter 3.

# Contactor Relays

## SIRIUS 3RH1 contactor relays, 4- and 8-pole

### DC operation · DC solenoid system

PU (UNIT, SET, M) = 1  
PS\* = 1 unit  
PG = 41A

#### Size S00



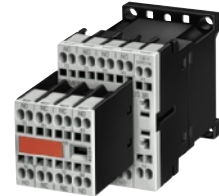
3RH11 ...-1B.40



3RH11 ...-2B.40



3RH12 ...-1B.40



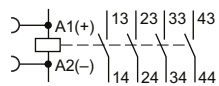
3RH12 ...-2B.40

Rated operational current $I_e$ /AC-15/AC-14 at <b>230 V</b>	Contacts		Rated control supply voltage $U_s$	DT	Screw terminals		DT	Spring-type terminals	
	Ident. No.	Version			Order No.	Price € per PU		Order No.	Price € per PU
A		<div><div></div><div></div></div> <div>NO</div>	<div><div></div><div></div></div> <div>NC</div>	V DC					

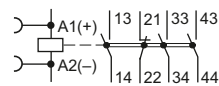
#### For screw and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

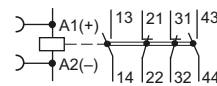
4 NO, Ident. No. **40E**



3 NO + 1 NC, Ident. No. **31E**



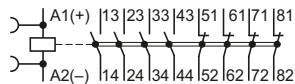
2 NO + 2 NC, Ident. No. **22E**



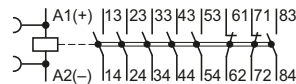
6	<b>40E</b>	4	--	24 220	▶ <b>3RH11 40-1BB40</b>	▶ <b>3RH11 40-2BB40</b>
	<b>31E</b>	3	1	24 220	▶ <b>3RH11 31-1BB40</b>	▶ <b>3RH11 31-2BB40</b>
	<b>22E</b>	2	2	24 220	▶ <b>3RH11 22-1BB40</b>	▶ <b>3RH11 22-2BB40</b>

#### • With permanently mounted auxiliary switch block for safety applications according to SUVA

4 NO + 4 NC, Ident. No. **44E**



6 NO + 2 NC, Ident. No. **62E**



6	<b>44E</b>	4	4	24	▶ <b>3RH12 44-1BB40</b>	A <b>3RH12 44-2BB40</b>
	<b>62E</b>	6	2	24	▶ <b>3RH12 62-1BB40</b>	A <b>3RH12 62-2BB40</b>

Other voltages [according to page 5/7](#) on request.

Accessories [see pages 5/7 to 5/9](#) and  
"Accessories for 3RT2 Contactors", Chapter 3.

### Options

**Rated control supply voltages**  
(the 10th and 11th position of the order number must be changed)

Contactor type		3RH11
Rated control supply voltage $U_s$	Control supply voltage at age $U_s$	
<b>AC operation</b>		
<b>Solenoid coils for 50/60 Hz and 60 Hz</b>		
<b>50/60 Hz<sup>1)</sup></b>	<b>60 Hz</b>	
24 V AC	--	B0
42 V AC	--	D0
48 V AC	--	H0
110 V AC	--	F0
220 V AC	--	N2
230 V AC	--	P0
400 V AC	--	V0
<b>Solenoid coils for USA and Canada<sup>2)</sup></b>		
<b>50 Hz</b>	<b>60 Hz</b>	
110 V AC	120 V AC	K6
220 V AC	240 V AC	P6
<b>Solenoid coils for Japan<sup>3)</sup></b>		
<b>50/60 Hz</b>	<b>60 Hz</b>	
100 V AC	110 V AC	G6
200 V AC	220 V AC	N6
400 V AC	440 V AC	R6

Contactor type		3RH11
Rated control supply voltage $U_s$	Control supply voltage at age $U_s$	
<b>DC operation</b>		
12 V DC		A4
24 V DC		B4
42 V DC		D4
48 V DC		W4
60 V DC		E4
110 V DC		F4
125 V DC		G4
220 V DC		M4
230 V DC		P4

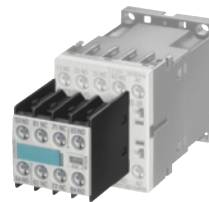
- 1) Coil operating range at 50 Hz: 0.8 to 1.1 x  $U_s$   
at 60 Hz: 0.85 to 1.1 x  $U_s$ .
- 2) Coil operating range at 50 Hz: 0.85 to 1.1 x  $U_s$   
at 60 Hz: 0.8 to 1.1 x  $U_s$ .
- 3) Coil operating range at 50/60 Hz: 0.85 to 1.1 x  $U_s$   
at 60 Hz: 0.8 to 1.1 x  $U_s$ .

### Accessories

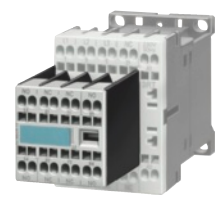
The auxiliary switch blocks according to EN 50011 listed here should preferably be used for 3RH1 contactor relays.

PU (UNIT, SET, M) = 1  
PS\* = 1 unit  
PG = 41B





Auxiliary switch blocks and solid-state compatible auxiliary switch blocks according to EN 50005 see "Accessories for 3RT1 Contactors", Chapter 3.



3RH19 11-1GA22



3RH19 11-2GA22

For contactor relays		Contactor relays with AS block		Auxiliary contacts		DT	Screw terminals			DT	Spring-type terminals		
		Ident. No.		Version									
							Order No.		Price € per PU		Order No.		Price € per PU
Type		NO		NC									

**Auxiliary switch blocks for snapping onto the front according to EN 50011**

**For assembling contactor relays with 8 contacts**

3RH11 40, 3RH14 40, Ident. No. 40E	<b>80E</b>	4	--	
	<b>71E</b>	3	1	
	<b>62E</b>	2	2	
	<b>53E</b>	1	3	
	<b>44E</b>	--	4 <sup>2)</sup>	

▶ <b>3RH19 11-1GA40</b>	▶ <b>3RH19 11-2GA40</b>
▶ <b>3RH19 11-1GA31</b>	▶ <b>3RH19 11-2GA31</b>
▶ <b>3RH19 11-1GA22</b>	▶ <b>3RH19 11-2GA22</b>
▶ <b>3RH19 11-1GA13</b>	▶ <b>3RH19 11-2GA13</b>
▶ <b>3RH19 11-1GA04</b>	▶ <b>3RH19 11-2GA04</b>

# Contactor Relays

## SIRIUS 3RH1 contactor relays, 4- and 8-pole

The following accessories are accessories for 3RT1 contactors in size S00 which are also entirely suitable for 3RH1 contactor relays

More accessories see "Accessories for 3RT1 Contactors", Chapter 3.

For contactors	Version	Rated control supply voltage $U_s^{1)}$		Power consumption of LED at $U_s$	DT	Order No. <sup>2)</sup>	Price € per PU	PU (UNIT, SET, M)	PS*	PG
Type		V AC	V DC							

### Surge suppressors with LED



3RT19 16-1L.00

#### For plugging onto the front side of the contactors with and without auxiliary switch blocks

3RH1.	<b>Varistor</b>	24 ... 48	12 ... 24	10 ... 120	▶	<b>3RT19 16-1JJ00</b>		1	1 unit	41B
		48 ... 127	24 ... 70	20 ... 470	▶	<b>3RT19 16-1JK00</b>		1	1 unit	41B
		127 ... 240	70 ... 150	50 ... 700	▶	<b>3RT19 16-1JL00</b>		1	1 unit	41B
		--	150 ... 250	160 ... 950	A	<b>3RT19 16-1JP00</b>		1	1 unit	41B
3RH1.	<b>Noise suppression diodes</b>	--	24 ... 70	20 ... 470	▶	<b>3RT19 16-1LM00</b>		1	1 unit	41B
		--	50 ... 150	50 ... 700	▶	<b>3RT19 16-1LN00</b>		1	1 unit	41B
		--	150 ... 250	160 ... 950	▶	<b>3RT19 16-1LP00</b>		1	1 unit	41B

<sup>1)</sup> Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

<sup>2)</sup> For packs of 10 or 5 units "-Z" and order code "X90" must be added to the Order No.

For contactors	Version	Rated control supply voltage $U_s^{1)}$		DT	Order No. <sup>2)</sup>	Price € per PU	PU (UNIT, SET, M)	PS*	PG
Type		V AC	V DC						

### Surge suppressors without LED



3RT19 16-1DG00

#### For plugging onto the front side of the contactors with and without auxiliary switch blocks

3RH1	<b>Varistor</b>	24 ... 48	24 ... 70	▶	<b>3RT19 16-1BB00</b>		1	1 unit	41B
		48 ... 127	70 ... 150	▶	<b>3RT19 16-1BC00</b>		1	1 unit	41B
		127 ... 240	150 ... 250	A	<b>3RT19 16-1BD00</b>		1	1 unit	41B
		240 ... 400	--	▶	<b>3RT19 16-1BE00</b>		1	1 unit	41B
		400 ... 600	--	A	<b>3RT19 16-1BF00</b>		1	1 unit	41B
3RH1	<b>RC elements</b>	24 ... 48	24 ... 70	▶	<b>3RT19 16-1CB00</b>		1	1 unit	41B
		48 ... 127	70 ... 150	▶	<b>3RT19 16-1CC00</b>		1	1 unit	41B
		127 ... 240	150 ... 250	▶	<b>3RT19 16-1CD00</b>		1	1 unit	41B
		240 ... 400	--	▶	<b>3RT19 16-1CE00</b>		1	1 unit	41B
		400 ... 600	--	▶	<b>3RT19 16-1CF00</b>		1	1 unit	41B
3RH1	<b>Noise suppression diodes</b>	--	12 ... 250	▶	<b>3RT19 16-1DG00</b>		1	1 unit	41B
3RH1	<b>Diode assemblies</b> (diode and Zener diode) for DC operation	--	12 ... 250	▶	<b>3RT19 16-1EH00</b>		1	1 unit	41B

<sup>1)</sup> Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

<sup>2)</sup> For packs of 10 or 5 units "-Z" and order code "X90" must be added to the Order No.

For contactors	Version	DT	Order No. <sup>1)</sup>	Price € per PU	PU (UNIT, SET, M)	PS*	PG
Type							

### Additional load module



3RT19 16-1GA00

3RH1.	For plugging onto the front side of the contactors with and without auxiliary switch blocks	▶	<b>3RT19 16-1GA00</b>		1	1 unit	41B
	For increasing the permissible residual current and for limiting the residual voltage. Ensures safe opening of contactors with direct control via 230 V AC semiconductor outputs of SIMATIC controllers. Also performs the function of an overvoltage damping circuit. Rated voltage: AC 50/60 Hz, 180 V to 255 V. Operating range: 0.8 to 1.1 x $U_s$						

<sup>1)</sup> For packs of 10 units, the Order No. must be supplemented with "-Z" and the order code "X90".