

Contactors and Contactor Assemblies

Control Relays, Coupling Relays

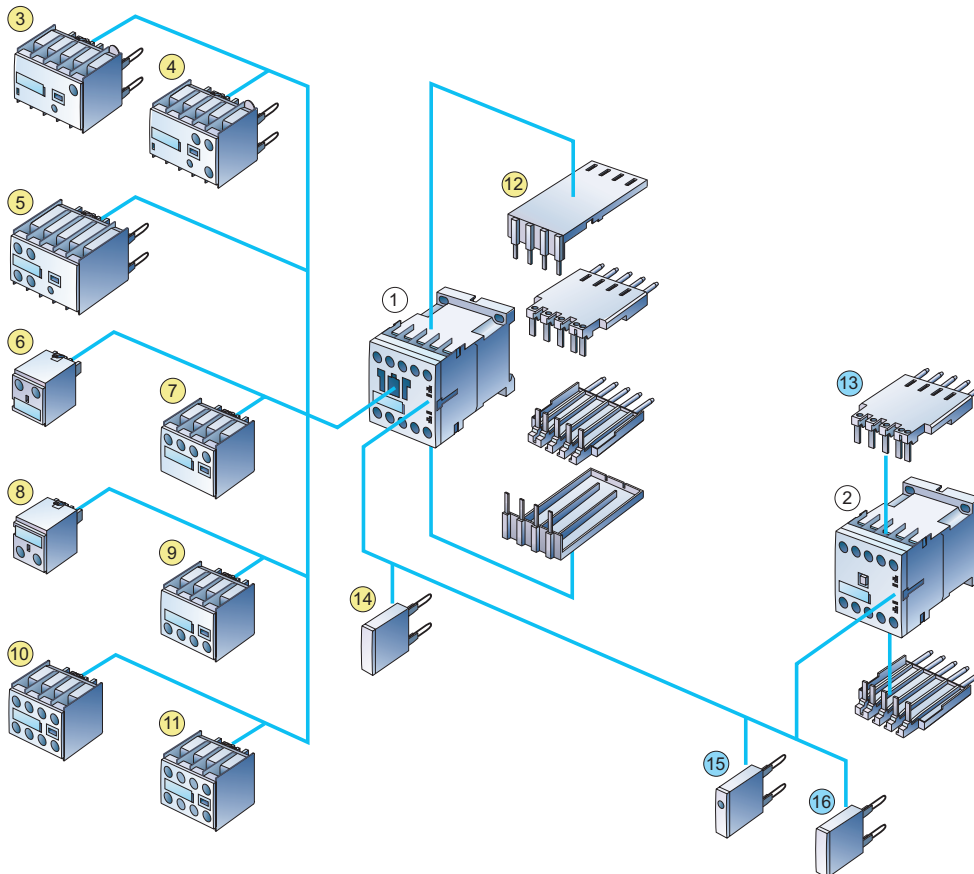
SIRIUS



3RH1, control relays, coupling relays

Overview

The new SIRIUS generation is a complete, modular system family, logically designed right down to the last detail, from the basic units to the accessories.



Control relays and coupling relays Size S00 with accessories

- ① Control relay, see 3/50
- ② Coupling relay for auxiliary circuits, see 3/53
- ③ Solid-state time-delay block, ON-delay, see 3/41
- ④ Solid-state time-delay block, OFF-delay, see 3/41
- ⑤ Auxiliary switch block, solid-state time delay, see 3/40
(variants: ON or OFF-delay)
- ⑥ Single-pole auxiliary switch block, cable entry from above, see 3/36
- ⑦ 2-pole auxiliary switch block, cable entry from above, see 3/36
- ⑧ Single-pole auxiliary switch block, cable entry from below, see 3/36
- ⑨ 2-pole auxiliary switch block, cable entry from below, see 3/36
- ⑩ 4-pole auxiliary switch block, see 3/36
(terminal designations acc. to EN 50 011 or EN 50 005)
- ⑪ 2-pole auxiliary switch block, standard design or solid-state compatible design, see page 3/36 (terminal designations acc. to EN 50 005)
- ⑫ Solder pin adapter for contactor relays with 4-pole auxiliary switch block, see 3/46
- ⑬ Solder pin adapter for contactor relays and coupling relays, see 3/46
- ⑭ Additional load module for increasing the permissible off-state current, see 3/44
- ⑮ Surge suppressor with LED, see 3/43
- ⑯ Surge suppressor without LED, see 3/42

- for control relays
- for control relays and coupling relays



Application

AC and DC operation

IEC 60 947, EN 60 947
(VDE 0660)

Design

The 3RH11 control relays are suitable for use in any climate. They are safe from touch to DIN VDE 0106 Part 100.

The 3RH11 control relays have screw or Cage Clamp connections. Four contacts are available in the basic unit.

Contact reliability

High contact stability at low voltages and currents, suitable for electronic circuits with currents ≥ 1 mA at a voltage of 17 V.

Auxiliary switch blocks

The 3RH11 control relays can be expanded by up to four contacts by the addition of mountable auxiliary switch blocks.

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

The control relays with 4 contacts in accordance with EN 50 011, with the identification number 40E, can be extended with 80E to 44E auxiliary switch blocks to obtain control relays with 8 contacts in accordance with EN 50 011. The identification numbers 80E to 44E on the auxiliary switch blocks apply to the complete relays (see illustration alongside).

These auxiliary switch blocks (3RH19 11-1GA ..) cannot be combined with control relays with identification numbers 31E and 22E; they are coded.

All control relays with 4 contacts in accordance with EN 50 011, identification numbers 40E to 22E, can be extended with auxiliary switch blocks 40 to 02 to obtain control relays with 6 or 8 contacts in accordance with EN 50 005. The identification numbers on the auxiliary switch blocks apply only to the attached auxiliary switch blocks.

Surge suppression

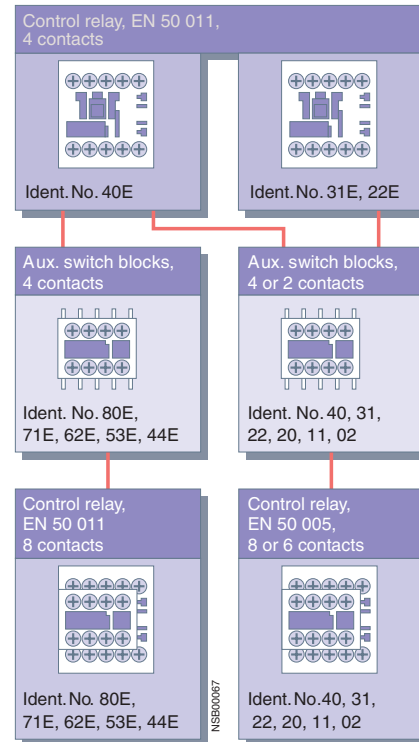
RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) can be plugged onto all control relays from the front for damping opening surges in the coil. The plug-in direction is determined by a coding device.

Note

The opening times of the NO contacts and the closing times of the NC contacts increase if the relay coils are protected against voltage peaks (suppression diode 6 to 10 times, diode assemblies 2 to 6 times, varistor +2 ms to 5 ms).

Overview

3RH1. contactor relays acc. to EN 50 011 and EN 50 005



3RH14 latched control relays, size S00

Application

AC and DC operation

IEC 60 947, EN 60 947
(VDE 0660)

The terminal designations comply with EN 50 011.

The relay coil and the coil of the release solenoid are both designed for continuous duty.

The number of auxiliary contacts can be extended by means of auxiliary switch blocks (up to 4 poles).

RC elements, varistors, diodes or diode assemblies can be plugged onto both coils

from the front for damping opening surges.

The control relay can also be switched on and released manually.
(For minimum actuating times, see page 3/138)

Contactors and Contactor Assemblies

Control Relays, Coupling Relays

SIRIUS



3RH11 control relays, size S00

Selection and ordering data AC and DC operation



3RH11...-1....



3RH11...-2....

Rated operational current NEMA A600 / Q600	Contacts		Rated control supply voltage U_s	Screw connection		Cage Clamp connection		Weight approx. kg	Pack. Units
	Ident. no.	Design		Order No.	Price	Order No.	Price		
		NO NC							

For screwing and snapping onto 35 mm standard mounting rail

AC operation

• Size S00

Terminal designations according to EN 50 011

40 E	4	–	24 V 50/60 Hz 120 V 60 Hz 240 V 60 Hz	3RH11 40-1AB00 3RH11 40-1AK60 3RH11 40-1AP60	3RH11 40-2AB00 3RH11 40-2AK60 3RH11 40-2AP60	0.19	1
31 E	3	1	24 V 50/60 Hz 120 V 60 Hz 240 V 60 Hz	3RH11 31-1AB00 3RH11 31-1AK60 3RH11 31-1AP60	3RH11 31-2AB00 3RH11 31-2AK60 3RH11 31-2AP60	0.19	1
22 E	2	2	24 V 50/60 Hz 120 V 60 Hz 240 V 60 Hz	3RH11 22-1AB00 3RH11 22-1AK60 3RH11 22-1AP60	3RH11 22-2AB00 3RH11 22-2AK60 3RH11 22-2AP60	0.19	1

DC operation · DC solenoid system

			DC				
40 E	4	–	24 V 48 V	3RH11 40-1BB40 3RH11 40-1BW40	3RH11 40-2BB40 3RH11 40-2BW40	0.25	1
31 E	3	1	24 V 48 V	3RH11 31-1BB40 3RH11 31-1BW40	3RH11 31-2BB40 3RH11 31-2BW40	0.25	1
22 E	2	2	24 V 48 V	3RH11 22-1BB40 3RH11 22-1BW40	3RH11 22-2BB40 3RH11 22-2BW40	0.25	1

With permanently mounted auxiliary switch block²⁾

44 E	4	4	24 V	3RH12 44-1BB40	3RH12 44-2BB40	0.29	1
62 E	6	2	24 V	3RH12 62-1BB40	3RH12 62-2BB40	0.29	1

For further voltages, see page 3/51.
For accessories, see page 3/36, 3/52.
For technical data, see page 3/128-130.
For overview, see page 3/48.
For position terminals, see page 3/145.
For dimension drawings, see page 3/178.

- 1) Coil voltage tolerance
at 50 Hz: $0.8 \dots 1.1 \times U_s$
at 60 Hz: $0.85 \dots 1.1 \times U_s$
- 2) Further designs/voltages on request.



Selection and ordering data

Rated operational current	Contacts	Rated control supply voltage	Order No.	Price	Weight approx.
NEMA A600 / Q600	Ident. no. acc. to EN 50 011 Design L NO NC		PG 101	1 unit	kg

With screw connections - for screwing and snapping onto 35 mm standard mounting rail

3RH14 22-1BB40



AC operation

			AC 50/60 Hz ¹⁾		
40 E	4	-	24 V, 50/60 Hz 120 V, 60 Hz 240 V, 60 Hz	3RH14 40-1AB00 3RH14 40-1AK60 3RH14 40-1AP60	0.38
31 E	3	1	24 V 50/60 Hz 42 V 60 Hz 120 V 60 Hz 240 V 60 Hz	3RH14 31-1AB00 3RH14 31-1AD00 3RH14 31-1AK60 3RH14 31-1AP60	0.38
22 E	2	2	24 V 50/60 Hz 42 V 60 Hz 120 V 60 Hz 240 V 60 Hz	3RH14 22-1AB00 3RH14 22-1AD00 3RH14 22-1AK60 3RH14 22-1AP60	0.38

DC operation - DC solenoid system

			DC		
40 E	4	-	24 V 110 V 48 V	3RH14 40-1BB40 3RH14 40-1BF40 3RH14 40-1BW40	0.5
31 E	3	1	24 V 110 V 48 V	3RH14 31-1BB40 3RH14 31-1BF40 3RH14 31-1BW40	0.5
22 E	2	2	24 V 110 V 48 V	3RH14 22-1BB40 3RH14 22-1BF40 3RH14 22-1BW40	0.5

Rated control supply voltage (change the 10th and 11th positions of the Order No.) • only for 3RH11 contactor relays

• AC operation

Coils for AC 50 and 60 Hz		
Rated control supply voltage U_s	AC V	Control supply voltage U_s
	AC V 50/60 Hz ¹⁾	AC V 60 Hz
		Supplement
	24	B0
	42	D0
	48	H0
	110	F0
	208	M2
	220	N2
	230	P0
	400	V0

• DC operation

Rated control supply voltage U_s	DC V	Supplement
	12	A4
	24	B4
	42	D4
	48	W4
	60	E4
	110	F4
	125	G4
	220	M4
	230	P4

No additional charge is made for all voltages

For Japan²⁾

100	110	G6
200	220	N6
400	440	R6

For USA and Canada³⁾

AC V 50 Hz	AC V 60 Hz	
110	120	K6
220	240	P6
-	277	V6
-	480	T6
-	600	T6

For accessories for 3RH14, see page 3/36, 3/52.
For technical data, see page 3/128-130.
For overview, see page 3/48.
For position of terminals, see page 3/145.
For dimension drawings, see page 3/178.

1) Coil voltage tolerance
at 50 Hz: $0.8 \dots 1.1 \times U_s$
at 60 Hz: $0.85 \dots 1.1 \times U_s$
2) Coil voltage tolerance
at 50/60 Hz: $0.85 \dots 1.1 \times U_s$
at 60 Hz: $0.8 \dots 1.1 \times U_s$

3) Coil voltage tolerance
at 50 Hz: $0.85 \dots 1.1 \times U_s$
at 60 Hz: $0.8 \dots 1.1 \times U_s$
4) UL ratings see page 17/18 in section 17.

Contactors and Contactor Assemblies

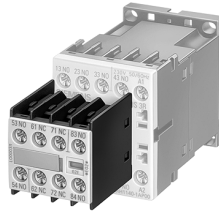
Control Relays, Coupling Relays

SIRIUS

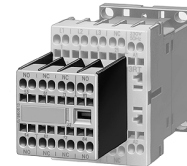


Accessories for 3RH11 and 3RH14 control relays, size S00



Selection and ordering data



3RH19 11-1GA..



3RH19 11-2GA..

For controls relays Type	Rated operational current NEMA A600 / Q600 2)	Contacts		Screw connection		Cage Clamp connection		Weight approx. kg
		Ident. no.	Design	Order No.	Price	Order No.	Price	
			 NO					
			 NC					

Snap-on auxiliary switch blocks acc. to EN 50 011

3RH11 40
3RH14 40 1)
(ident. no. 40E)

for making contactor relays with 8 contacts

Ident. no.	Design	NO	NC
80 E	4	–	–
71 E	3	1	–
62 E	2	2	–
53 E	1	3	–
44 E	–	4	–

3RH19 11-1GA40
3RH19 11-1GA31
3RH19 11-1GA22
3RH19 11-1GA13
3RH19 11-1GA04

3RH19 11-2GA40
3RH19 11-2GA31
3RH19 11-2GA22
3RH19 11-2GA13
3RH19 11-2GA04

0.045

For further accessories for control relays size S00, see accessories, 3/36, accessories for 3RT10 1 . contactors for switching motors, size S00.

1) Only 3RH19 11-1...

2) UL ratings on page 17/17 in section 17.



Application

DC operation

IEC 60 947 and EN 60 947
(VDE 0660)

The 3RH11 coupling relays for switching auxiliary circuits are tailored to the special requirements of working with electronic controls.

No auxiliary switch blocks can be snapped onto 3RH11 coupling relays.

Functions

Coupling relays have a low power consumption, an extended coil voltage tolerance and an integrated surge suppressor for damping opening surges (exceptions: 3RH11 ...-HB40 and 3RH11 ...-MB4-0KT0).

Selection and ordering data

DC operation



3RH11...-1.B40



3RH11...-2.B40

Surge suppressor	Rated operational current NEMA A600 / Q600	Contacts		Screw connection		Cage Clamp connection		Weight approx. kg
		Ident. no.	Design	Order No.	Price	Order No.	Price	
			 NO					
			 NC					

For screwing and snapping onto 35 mm standard mounting rail

• **Size S00**

Terminal designations according to EN 50 011

Rated control supply voltage $U_s = DC 24 V$, coil voltage tolerance **0.7 to 1.25 x U_s**
Power consumption of the coils **2.3 W** at 24 V (no auxiliary switch blocks can be mounted)

Diode, varistor or RC element can be mounted	40 E	4	–	3RH11 40-1HB40	3RH11 40-2HB40	0.25
	31 E	3	1	3RH11 31-1HB40	3RH11 31-2HB40	
	22 E	2	2	3RH11 22-1HB40	3RH11 22-2HB40	
Diode integrated	40 E	4	–	3RH11 40-1JB40	3RH11 40-2JB40	0.25
	31 E	3	1	3RH11 31-1JB40	3RH11 31-2JB40	
	22 E	2	2	3RH11 22-1JB40	3RH11 22-2JB40	
Varistor integrated	40 E	4	–	3RH11 40-1KB40	3RH11 40-2KB40	0.25
	31 E	3	1	3RH11 31-1KB40	3RH11 31-2KB40	
	22 E	2	2	3RH11 22-1KB40	3RH11 22-2KB40	

Rated control supply voltage $U_s = DC 24 V$, coil voltage tolerance **0.85 to 1.85 x U_s**
Power consumption of the coils **1.4 W** at 24 V (no auxiliary switch blocks can be mounted)

Diode, varistor or RC element can be mounted	40 E	4	–	3RH11 40-1MB40-0KT0	3RH11 40-2MB40-0KT0	0.25
	31 E	3	1	3RH11 31-1MB40-0KT0	3RH11 31-2MB40-0KT0	
	22 E	2	2	3RH11 22-1MB40-0KT0	3RH11 22-2MB40-0KT0	
Diode integrated	40 E	4	–	3RH11 40-1VB40	3RH11 40-2VB40	0.25
	31 E	3	1	3RH11 31-1VB40	3RH11 31-2VB40	
	22 E	2	2	3RH11 22-1VB40	3RH11 22-2VB40	
Varistor integrated	40 E	4	–	3RH11 40-1WB40	3RH11 40-2WB40	0.25
	31 E	3	1	3RH11 31-1WB40	3RH11 31-2WB40	
	22 E	2	2	3RH11 22-1WB40	3RH11 22-2WB40	

For accessories, see page 3/36, 3/52.

For technical data, see 3/131.

For position of terminals, see 3/145.

For dimension drawings, see 3/178.