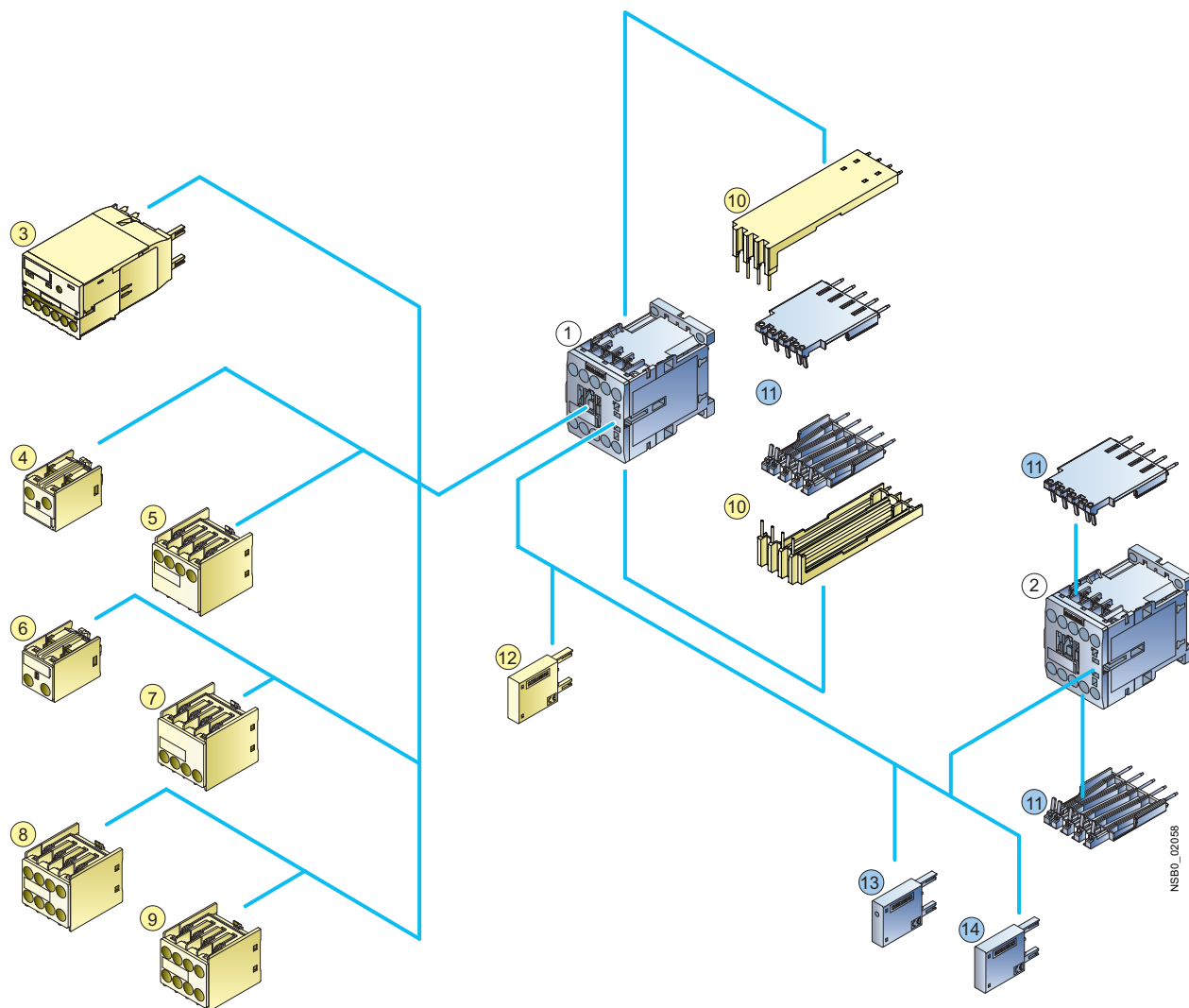


3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

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
- ④ 1-pole auxiliary switch block, cable entry from above
- ⑤ 2-pole auxiliary switch block, cable entry from above
- ⑥ 1-pole auxiliary switch block, cable entry from below
- ⑦ 2-pole auxiliary switch block, cable entry from below
- ⑧ 4-pole auxiliary switch block
(terminal designations according to EN 50011 or EN 50005)
- ⑨ 2-pole auxiliary switch block, solid-state compatible version
Terminal designations according to EN 50005
- ⑩ Solder pin adapter for contactor relays with 4-pole auxiliary switch block
- ⑪ Solder pin adapter for contactor relays and coupling relays
- ⑫ Additional load module for increasing the permissible residual current
- ⑬ Surge suppressor with LED
- ⑭ Surge suppressor without LED

NSBD_02058

3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

AC and DC operation

IEC 60947, EN 60947.

The 3RH2 contactor relays have screw, ring lug terminal or spring-type terminals. Four contacts are available in the basic unit.

The 3RH2 contactor relays are suitable for use in any climate. They are finger-safe according to EN 50274. The devices with ring lug terminal connection comply with degree of protection IP20 when fitted with the related terminal cover.

Contact reliability

High contact stability at low voltages and currents, suitable for solid-state circuits with currents ≥ 1 mA at a voltage of 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 assemblies 2 to 6 times, varistor +2 to 5 ms).

Auxiliary switch blocks

The 3RH2 contactor relays can be expanded by up to four contacts by the addition of snap-on auxiliary switch blocks.

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.

The contactor relays with 4 contacts according to EN 50011, with the identification number 40E, can be extended with 80E to 44E auxiliary switch blocks 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 (3RH29 11-1GA..) cannot be combined with contactor relays with identification numbers 31E and 22E; they are coded.

All contactor relays with 4 contacts according to EN 50011, 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.

Order No. scheme

Digit of the Order No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th h	13th	14th	15th	16th
	□□□	□	□	□	□	-	□	□	□	□	-	□	□	□
SIRIUS contactor relays	3 R H													
2nd generation	2													
Device type (e. g. 1 = 4-pole contactor relay, 3 = 8-pole contactor relay)	□													
Number of NO contacts (e. g. 2 = 2 NO)	□													
Number of NC contacts (e. g. 2 = 2 NC)	□													
Connection type (1 = screw, 2 = spring, 4 = ring lug)	□													
Operating range / solenoid coil circuit (e. g. A = AC standard / without)	□													
Rated control supply voltage (e. g. K6 = 110/120 V, 50/60 Hz)	□ □													
No significance	□													
Special version	□ □ □ □													
Example	3 R H 2 1 2 2 - 1 A K 6 0													

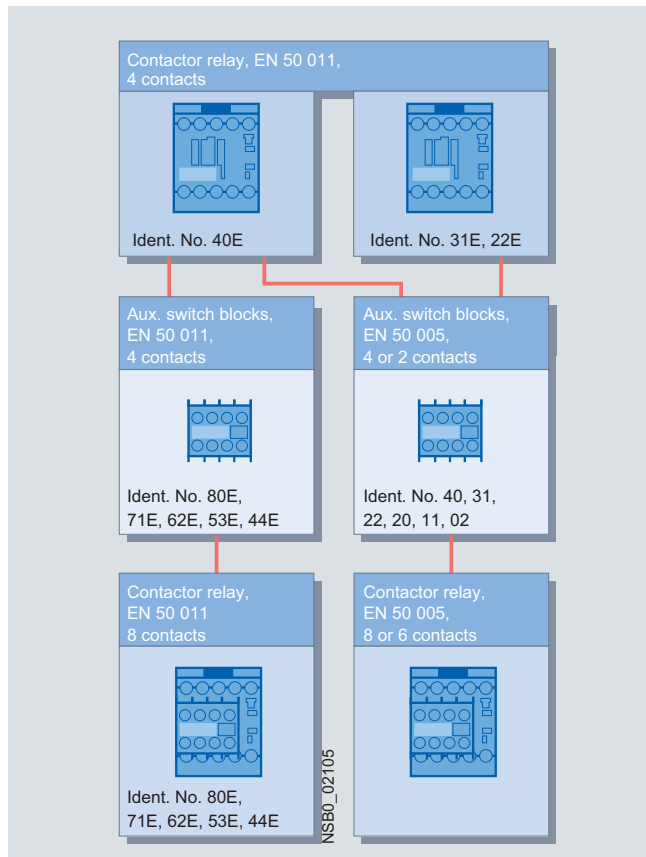
Note:

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

In addition, fully mounted 3RH22 8-pole contactor relays are available; the mounted 4-pole auxiliary switch block in the 2nd tier is not removable. The terminal designations are according to EN 50011.

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

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



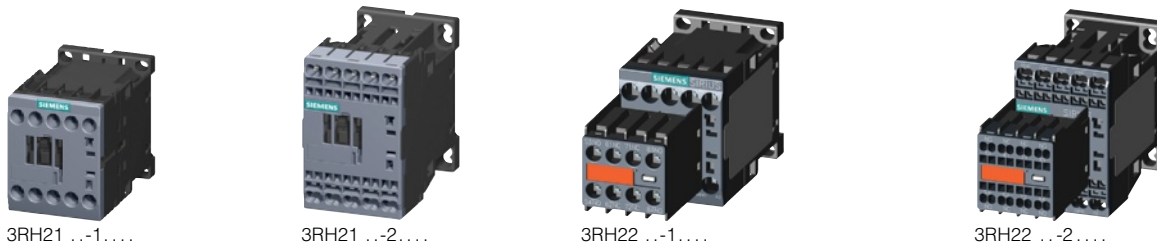
3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

Selection and ordering data

AC operation

Size S00

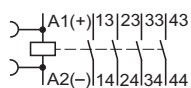


Rated operational current at 240 V	Contacts Ident. No.	Version	Rated control supply voltage U_s at 50/60 Hz ²⁾	Screw terminals ¹⁾	Weight approx.	Spring-type terminals	Weight approx.
				Order No.	kg	Order No.	kg

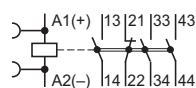
For screw and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

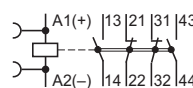
4 NO, identification number **40E**



3 NO + 1 E, identification number **31E**



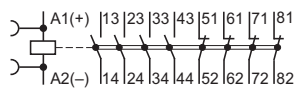
2 NO + 2 NE, identification number **22E**



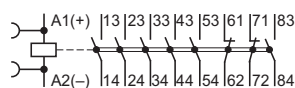
10	40E	4	--	24 110/120 220/240	3RH21 40-1AB00 3RH21 40-1AK60 3RH21 40-1AP60	0.220 0.220 0.220	3RH21 40-2AB00 3RH21 40-2AK60 3RH21 40-2AP60	0.240 0.240 0.240
	31E	3	1	24 110/120 220/240	3RH21 31-1AB00 3RH21 31-1AK60 3RH21 31-1AP60	0.220 0.220 0.220	3RH21 31-2AB00 3RH21 31-2AK60 3RH21 31-2AP60	0.240 0.240 0.240
	22E	2	2	24 110/120 220/240	3RH21 22-1AB00 3RH21 22-1AK60 3RH21 22-1AP60	0.220 0.220 0.220	3RH21 22-2AB00 3RH21 22-2AK60 3RH21 22-2AP60	0.240 0.240 0.240

• With permanently mounted auxiliary switch block

4 NO + 4 NC, identification number **44E**



6 NO + 2 NC, identification number **62E**



10³⁾	44E	4	4	110/120	3RH22 44-1AK60	0.270	3RH22 44-2AK60	0.300
	62E	6	2	110/120	3RH22 62-1AK60	0.270	3RH22 62-2AK60	0.300

For other voltages see page 3/62.

For accessories see pages 3/93 to 3/97.

1) The 3RH21 contactor relays are also available with ring lug terminal connection. Please insert the number "4" into the 8th position of the part number for versions with ring lug terminal connection.

2) 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 .

3) For AC-15/AC-14 the following applies: $I_e = 6$ A for mounted auxiliary contacts.

3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

DC operation - DC solenoid system

Size S00



3RH21 ...-1...

3RH21 ...-2...

3RH22 ...-1...

3RH22 ...-2...

Rated operational current I_{th} /AC-15/AC-14 at 240 V	Contacts		Rated control supply voltage U_s	Screw terminals ¹⁾	Weight approx.	Spring-type terminals	Weight approx.
	Ident. No.	Version					
				Order No.		Order No.	
A	NO	NC	V DC		kg		kg

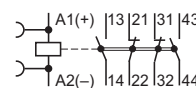
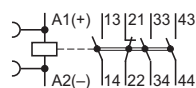
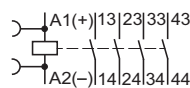
For screw and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

4 NO, identification number **40E**

3 NO + 1 E, identification number **31E**

2 NO + 2 NE, identification number **22E**

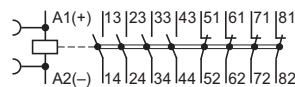


10	40E	4	--	24	3RH21 40-1BB40	0.280	3RH21 40-2BB40	0.300
				110	3RH21 40-1BF40	0.280	3RH21 40-2BF40	0.300
	31E	3	1	24	3RH21 31-1BB40	0.280	3RH21 31-2BB40	0.300
				110	3RH21 31-1BF40	0.280	3RH21 31-2BF40	0.300
	22E	2	2	24	3RH21 22-1BB40	0.280	3RH21 22-2BB40	0.300
				110	3RH21 22-1BF40	0.280	3RH21 22-2BF40	0.300

• With permanently mounted auxiliary switch block

4 NO + 4 NC, identification number **44E**

6 NO + 2 NC, identification number **62E**



10 ²⁾	44E	4	4	24	3RH22 44-1BB40	0.330	3RH22 44-2BB40	0.350
	62E	6	2	24 <td>3RH22 62-1BB40 <td>0.330 <td>3RH22 62-2BB40 <td>0.350</td> </td></td></td>	3RH22 62-1BB40 <td>0.330 <td>3RH22 62-2BB40 <td>0.350</td> </td></td>	0.330 <td>3RH22 62-2BB40 <td>0.350</td> </td>	3RH22 62-2BB40 <td>0.350</td>	0.350

For other voltages see page 3/62.

For accessories see pages 3/93 to 3/97.

1) The 3RH21 contactor relays are also available with ring lug terminal connection. Please insert the number "4" into the 8th position of the part number for versions with ring lug terminal connection.
2) For AC-15/AC-14 the following applies: $I_{th} = 6$ A for mounted auxiliary contacts.

3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

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

	Contactor type	3RH21
Rated control supply voltage U_s	Control supply voltage at	

AC operation

Solenoid coils for 50/60 Hz and 60 Hz

50/60 Hz ¹⁾	60 Hz	
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

Solenoid coils for USA and Canada²⁾

50 Hz	60 Hz	
110 V AC	120 V AC	K6
220 V AC	240 V AC	P6

Solenoid coils for Japan³⁾

50/60 Hz	60 Hz	
100 V AC	110 V AC	G6
200 V AC	220 V AC	N6
400 V AC	440 V AC	R6

DC operation

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 $1.1 \times U_s$
at 60 Hz: 0.85 to $1.1 \times U_s$.

2) Coil operating range
at 50 Hz: 0.85 to $1.1 \times U_s$
at 60 Hz: 0.8 to $1.1 \times U_s$.

3) Coil operating range
at 50/60 Hz: 0.85 to $1.1 \times U_s$
at 60 Hz: 0.8 to $1.1 \times U_s$.

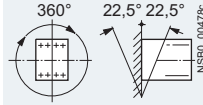
3RH2 contactor relays, 4- and 8-pole

More information

Contactor	Type	3RH2
	Size	S00
	Width	mm 45

Permissible mounting position

The contactors are designed for operation on a vertical mounting surface.



Upright mounting position



Special version required
(for coupling relays and contactor relays with extended operating range 3RH21 22-2K.40, please ask)

Positively-driven operation of contacts in contactor relays

3RH2:
Yes, in the basic unit and the auxiliary switch block as well as between the basic unit and the snap-on auxiliary switch block (removable) acc. to:
 • ZH 1/457
 • EN 60947-5-1, Appendix L

3RH22:
Yes, in the basic unit and the auxiliary switch block as well as between the basic unit and the snap-on auxiliary switch block (permanently mounted) acc. to:
 • ZH 1/457
 • EN 60947-5-1, Appendix L

Note:
3RH29 11-.NF. solid-state compatible auxiliary switch blocks have no positively-driven contacts.

Explanations:
There is positively-driven operation if it is ensured that the NC and NO contacts cannot be closed at the same time.

ZH1/457
Safety Rules for Controls on Power-Operated Metalworking Presses.

EN 60947-5-1, Appendix L
Low-Voltage Controlgear, Controls and Contact Blocks. Special requirements for positively-driven contacts

Contact reliability

Contact reliability at 17 V, 1 mA acc. to EN 60947-5-4

Frequency of contact faults $<10^{-8}$, i. e. <1 fault per 100 million operating cycles

Contact endurance for AC-15/AC-14 and DC-13 utilization categories

The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched randomly, i. e. not synchronized with the phase angle of the supply system.

If magnetic circuits other than the contactor coil systems or solenoid valves are present, e. g. magnetic brakes, protective measures for the load circuits are necessary, e.g. in the form of RC elements and free-wheel diodes.

The characteristic curves apply to:

- 3RH21/3RH22 contactor relays
- 3RH24 latched contactor relays
- 3RH29 11 auxiliary switch blocks¹⁾
- Auxiliary switch blocks for snapping onto the front, max. 4-pole and for mounting onto the side in size S00

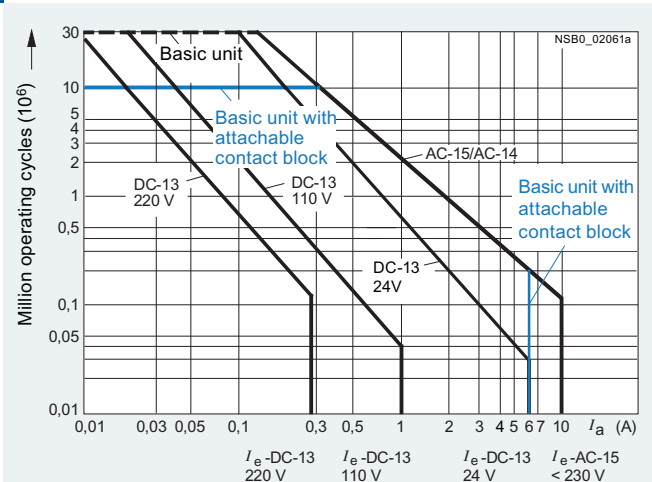


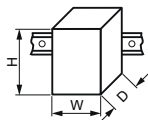
Diagram legend:
 I_a = Breaking current
 I_e = Rated operational current

¹⁾ $I_e = 6$ A at AC-14/AC-15.

3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

Type
Size
Dimensions (W x H x D) with screw terminals
• With mounted auxiliary switch block



	3RH21	3RH22	3RH24
	S00	S00	S00
mm	45 x 57.5 x 73	--	90 x 57.5 x 73
mm	45 x 57.5 x 116	45 x 57.5 x 116	--

General data

Mechanical endurance

• Basic units	Operat. cycles	30 million	5 million
• Basic unit with snap-on auxiliary switch block	Operat. cycles	10 million	
• Solid-state compatible auxiliary switch block	Operat. cycles	5 million	

Rated insulation voltage U_i (pollution degree 3)

V 690

Rated impulse withstand voltage U_{imp}

kV 6

Protective separation between the coil and the contacts in the basic unit acc. to EN 60947-1, Appendix N

V 400

Permissible ambient temperature

• During operation	°C	-25 ... +60
• During storage	°C	-55 ... +80

Degree of protection acc. to EN 60947-1, Appendix C

IP20, coil assembly IP40

Touch protection acc. to EN 50274

Finger-safe

Shock resistance

• Rectangular pulse	- AC operation	g/ms	7.3/5 and 4.7/10
	- DC operation	g/ms	>10/5 and >5/10
• Sine pulse	- AC operation	g/ms	11.4/5 and 7.3/10
	- DC operation	g/ms	>15/5 and >8/10

Short-circuit protection

(weld-free protection at $I_k \geq 1$ kA)

- Fuse links, operational class gG
 - DIAZED, Type 5SB
 - NEOZED, Type 5SE
- Or miniature circuit breakers with C characteristic (short-circuit current $I_k < 400$ A)

A 10
A 10
A 6

Conductor cross-sections

Auxiliary conductors and coil terminals

(1 or 2 conductors can be connected)

- Solid

mm²

Screw terminals

2 x (0.5 ... 1.5)¹⁾; 2 x (0.75 ... 2.5)¹⁾ according to IEC 60947; max. 2 x (0.5 ... 4)

- Finely stranded with end sleeve
- AWG cables, solid or stranded

mm²

2 x (0.5 ... 1.5)¹⁾; 2 x (0.75 ... 2.5)¹⁾

- Terminal screw
- Tightening torque

AWG

2 x (20 ... 16)¹⁾; 2 x (18 ... 14)¹⁾

M3 (for standard screwdriver size 2 and Pozidriv 2)

0.8 ... 1.2 (7 ... 10.3 lb.in)

Auxiliary conductors and coil terminals

(1 or 2 conductors can be connected)

- Operating devices
- Solid
- Finely stranded with end sleeve
- Finely stranded without end sleeve
- AWG cables, solid or stranded

mm
mm²
mm²
mm²
AWG

Spring-type terminals

3.0 x 0.5; 3.5 x 0.5
2 x (0.5 ... 4)
2 x (0.5 ... 2.5)
2 x (0.5 ... 2.5)
2 x (20 ... 12)

Auxiliary conductors for front and laterally mounted auxiliary switches

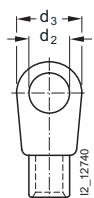
- Operating devices
- Solid
- Finely stranded with end sleeve
- Finely stranded without end sleeve
- AWG cables, solid or stranded

mm
mm²
mm²
mm²
AWG

3.0 x 0.5; 3.5 x 0.5
2 x (0.5 ... 2.5)
2 x (0.5 ... 1.5)
2 x (0.5 ... 1.5)
2 x (20 ... 14)

Auxiliary conductor and coil terminals

- Terminal screw
- Operating devices
- Tightening torque
- Usable ring terminal lugs
 - DIN 46234 without insulation sleeve
 - DIN 46225 without insulation sleeve
 - DIN 46237 with insulation sleeve
 - JIS C2805 Type R without insulation sleeve
 - JIS C2805 Type RAV with insulation sleeve
 - JIS C2805 Type RAP with insulation sleeve



mm
Nm
mm
mm
mm

Ring terminal lug connection

M3, Pozidriv size 2
Ø 5 ... 6
0.8 ... 1.2
 $d_2 = \text{min. } 3.2$
 $d_3 = \text{max. } 7.5$

For tool for opening the spring-type terminals see Accessories, page 3/104.

An insulation stop must be used for conductor cross-sections ≤ 1 mm² (see Accessories, page 3/104).

Note:
Maximum external diameter of the conductor insulation: 3.6 mm.

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in the range specified.

Contactors	Type	Size	Width	mm	3RH2. S00 45
Control					
Solenoid coil operating range					
• AC operation		At 50 Hz			0.8 ... 1.1 x U_s
		At 60 Hz			0.85 ... 1.1 x U_s
• DC operation		At +50 °C			0.8 ... 1.1 x U_s
		At +60 °C			0.85 ... 1.1 x U_s
Power consumption of the solenoid coils (when coil is cold and 1.0 x U_s)					
• AC operation, 50 Hz	- Closing		VA/p.f.		37/0.8
	- Closed		VA/p.f.		5.7/0.25
• AC operation, 60 Hz	- Closing		VA/p.f.		33/0.75
	- Closed		VA/p.f.		4.4/0.25
• DC operation	- Closing = Closed		W		4.0
Permissible residual current of the electronics (with 0 signal)					
	• For AC operation ¹⁾				< 4 mA x (230 V/ U_s)
	• For DC operation				< 10 mA x (24 V/ U_s)
Operating times²⁾ (Total break time = OFF-delay + Arcing time)					
<u>AC operation</u> Values apply with coil in cold state and at operating temperature for operating range					
• Closing					
- ON-delay of NO contact	0.8 ... 1.1 x U_s		ms		8 ... 33
	1.0 x U_s		ms		9 ... 22
	3RH24 minimum operating time		ms		≥ 35
- OFF-delay of NC contact	0.8 ... 1.1 x U_s		ms		6 ... 25
	1.0 x U_s		ms		6.5 ... 19
• Opening					
- OFF-delay of NO contact	0.8 ... 1.1 x U_s		ms		4 ... 15
	1.0 x U_s		ms		4.5 ... 15
	3RH24 minimum operating time		ms		≥ 30
- ON-delay of NC contact	0.8 ... 1.1 x U_s		ms		5 ... 15
	1.0 x U_s		ms		5 ... 15
<u>DC operation</u>					
• Closing					
- ON-delay of NO contact	0.8 ... 1.1 x U_s		ms		30 ... 100
	1.0 x U_s		ms		35 ... 50
	3RH24 minimum operating time		ms		≥ 100
- OFF-delay of NC contact	0.8 ... 1.1 x U_s		ms		25 ... 90
	1.0 x U_s		ms		30 ... 45
• Opening					
- OFF-delay of NO contact	0.8 ... 1.1 x U_s		ms		7 ... 13
	1.0 x U_s		ms		7 ... 12
	3RH24 minimum operating time		ms		≥ 30
- ON-delay of NC contact	0.8 ... 1.1 x U_s		ms		13 ... 19
	1.0 x U_s		ms		13 ... 18
• Arcing time			ms		10 ... 15
Dependence of the switching frequency z' on the operational current I' and operational voltage U' : $z' = z \cdot I_e / I' \cdot (U_e / U')^{1.5} \cdot 1/h$					

1) The 3RT29 16-1GA00 additional load module is recommended for higher residual currents (see page 3/101).

2) 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 assemblies 2 to 6 times, varistor +2 to 5 ms).

3RH Contactor Relays

3RH2 contactor relays, 4- and 8-pole

Contactor	Type	Size	Width	mm	3RH2. S00 45
Load side					
Rated operational currents I_e					
AC-12			A		10 ¹⁾
AC-15/AC-14		Up to 230 V	A		10 ¹⁾
For rated operational voltage U_s		400 V	A		3
		500 V	A		2
		690 V	A		1
DC-12					
For rated operational voltage U_s					
• 1 conducting path		24 V	A		6
		60 V	A		6
		110 V	A		3
		220 V	A		1
		440 V	A		0.3
		600 V	A		0.15
• 2 conducting paths in series		24 V	A		10
		60 V	A		10
		110 V	A		4
		220 V	A		2
		440 V	A		1.3
		600 V	A		0.65
• 3 conducting paths in series		24 V	A		10
		60 V	A		10
		110 V	A		10
		220 V	A		3.6
		440 V	A		2.5
		600 V	A		1.8
DC-13					
For rated operational voltage U_s					
• 1 conducting path		24 V	A		6
		60 V	A		2
		110 V	A		1
		220 V	A		0.3
		440 V	A		0.14
		600 V	A		0.1
• 2 conducting paths in series		24 V	A		10
		60 V	A		3.5
		110 V	A		1.3
		220 V	A		0.9
		440 V	A		0.2
		600 V	A		0.1
• 3 conducting paths in series		24 V	A		10
		60 V	A		4.7
		110 V	A		3
		220 V	A		1.2
		440 V	A		0.5
		600 V	A		0.26
Switching frequency z					
• In operating cycles/h during rated operation for utilization category	AC-12/DC-12		h ⁻¹		1000
	AC-15/AC-14		h ⁻¹		1000
	DC-13		h ⁻¹		1000
• No-load switching frequency			h ⁻¹		10000
Dependence of the switching frequency z' on the operational current I' and operational voltage U :					
$z' = z \cdot I_e / I' \cdot (U_e / U)^{1.5} \cdot 1/h$					
Ⓢ and Ⓞ rated data					
Basic units and auxiliary switch blocks					
• Rated control supply voltage		V AC			Max. 600
• Rated voltage		V AC			600
• Switching capacity					A 600, Q 600
• Uninterrupted current at 240 V AC		A			10

1) Attachable auxiliary switch: $I_e = 6A$ for AC-15/AC-14.

3RH24 latched control relays, 4-pole

Overview

AC and DC operation

IEC 60947, EN 60947.

The terminal designations comply with EN 50011.

The contactor coil and the coil of the release solenoid are both designed for uninterrupted duty.

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

RC elements, varistors diodes or diode assemblies can be fitted to both coils from the front for damping opening surges in the coil.

The control relay can also be switched on and released manually (for minimum actuating times, see Technical Specifications on page 3/65).

Selection and ordering data

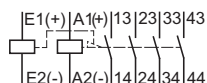
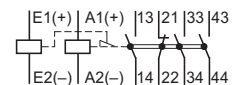
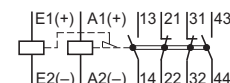


3RH24 ..-1....

Rated operational current I_N /AC-15/AC-14 at 240 V	Contacts Ident. No. acc. to EN 50011	Version	Rated control supply voltage U_s	Screw terminals	Weight approx.
				Order No.	
A		NO NC V			kg

**With screw terminals ·
For screw and snap-on mounting onto TH 35 standard mounting rail**

Terminal designations according to EN 50011

4 NO, identification
number **40E**3 NO + 1 E, identification number **31E**2 NO + 2 NE, identification number
22E

AC operation

10	40 E	4	--	AC 50/60 Hz ¹⁾		3RH24 40-1AB00 3RH24 40-1AK60 3RH24 40-1AP60	0.380 0.380 0.380
				24 110/120 220/240			
	31 E	3	1	24 110/120 220/240		3RH24 31-1AB00 3RH24 31-1AK60 3RH24 31-1AP60	0.380 0.380 0.380
	22 E	2	2	24 110/120 220/240		3RH24 22-1AB00 3RH24 22-1AK60 3RH24 22-1AP60	0.380 0.380 0.380

DC operation · DC solenoid system

10	40 E	4	--	DC		3RH24 40-1BB40 3RH24 40-1BF40 3RH24 40-1BG40	0.500 0.500 0.500
				24 110 125			
	31 E	3	1	24 110 125		3RH24 31-1BB40 3RH24 31-1BF40 3RH24 31-1BG40	0.500 0.500 0.500
	22 E	2	2	24 110 125		3RH24 22-1BB40 3RH24 22-1BF40 3RH24 22-1BG40	0.500 0.500 0.500

For other voltages see page 3/62.

For accessories see pages 3/93 to 3/97.

Note:

For ring lug terminal versions, replace the 8th digit with the number "4".

¹⁾ Coil operating range
at 50 Hz: 0.8 to 1.1 × U_s
at 60 Hz: 0.85 to 1.1 × U_s .

3RH Control, Coupling Relays

3RH21 coupling relays for switching auxiliary circuits, 4-pole



3RH21 ..-1.B40



3RH21 ..-2.B40

Rated operational current $I_{th}/AC-15/AC-14$ at 240 V	Auxiliary contacts		Screw terminals	Weight approx.	Spring-type terminals	Weight approx.
	Ident. No. acc. to EN 50011	Version				
A		NO		kg		kg
		NC				

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

Size S00

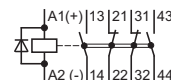
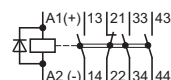
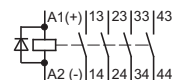
With integrated coil circuit (diode)

Terminal designations according to EN 50011 (no auxiliary switch blocks can be attached)

4 NO, identification number **40E**

3 NO + 1 NC, identification number **31E**

2 NO + 2 NC, identification number **22E**



Rated control supply voltage $U_s = 24$ V DC, operating range **0.7 to 1.25 x U_s**
Power consumption of the coils **2.8 W** at 24 V

10	40E	4	--	3RH21 40-1JB40	0.280	3RH21 40-2JB40	0.300
	31E	3	1	3RH21 31-1JB40	0.280	3RH21 31-2JB40	0.300
	22E	2	2	3RH21 22-1JB40	0.280	3RH21 22-2JB40	0.300

Rated control supply voltage $U_s = 24$ V DC, operating range **0.85 to 1.85 x U_s**
Power consumption of the coils **1.6 W** at 24 V

10	40E	4	--	3RH21 40-1VB40	0.280	3RH21 40-2VB40	0.300
	31E	3	1	3RH21 31-1VB40	0.280	3RH21 31-2VB40	0.300
	22E	2	2	3RH21 22-1VB40	0.280	3RH21 22-2VB40	0.300

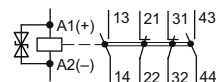
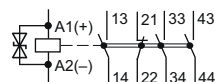
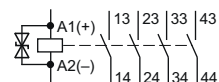
With integrated coil circuit (suppressor diode)

Terminal designations according to EN 50011 (no auxiliary switch blocks can be attached)

4 NO, identification number **40E**

3 NO + 1 NC, identification number **31E**

2 NO + 2 NC, identification number **22E**



Rated control supply voltage $U_s = 24$ V DC, operating range **0.7 to 1.25 x U_s**
Power consumption of the coils **2.8 W** at 24 V

10	40E	4	--	3RH21 40-1KB40	0.280	3RH21 40-2KB40	0.300
	31E	3	1	3RH21 31-1KB40	0.280	3RH21 31-2KB40	0.300
	22E	2	2	3RH21 22-1KB40	0.280	3RH21 22-2KB40	0.300

Rated control supply voltage $U_s = 24$ V DC, operating range **0.85 to 1.85 x U_s**
Power consumption of the coils **1.6 W** at 24 V

10	40E	4	--	3RH21 40-1SB40	0.280	3RH21 40-2SB40	0.300
	31E	3	1	3RH21 31-1SB40	0.280	3RH21 31-2SB40	0.300
	22E	2	2	3RH21 22-1SB40	0.280	3RH21 22-2SB40	0.300

Note:




For ring lug terminal versions, replace the 8th digit with the number "4".




3RH Control, Coupling Relays

3RH21 coupling relays for switching auxiliary circuits, 4-pole

More information

All technical specifications not mentioned in the table below are identical to those of the 3RH21 contactor relays (see page 3/63).
The size S00 coupling relays (3RH21) cannot be extended with auxiliary switch blocks.

Contactor type		3RH21 ...-HB40	3RH21 ...-JB40	3RH21 ...-KB40
Size		S00	S00	S00
Width	mm	45	45	45
Solenoid coil operating range		0.7 ... 1.25 x U_s		
Power consumption of the solenoid coil (for cold coil)				
Closing = Closed				
• At $U_s = 17$ V	W	1.4		
• At $U_s = 24$ V	W	2.8		
• At $U_s = 30$ V	W	4.4		
Permissible residual current of the electronics for 0 signal		< 10 mA x (24 V/ U_s)		
Overvoltage configuration of the solenoid coil		Without overvoltage damping 	With diode 	With suppressor diode 
Operating times				
• Closing at 17 V				
- ON-delay NO	ms	40 ... 130		
- OFF-delay NC	ms	30 ... 80		
• At 24 V				
- ON-delay NO	ms	35 ... 60		
- OFF-delay NC	ms	25 ... 40		
• At 30 V				
- ON-delay NO	ms	25 ... 50		
- OFF-delay NC	ms	15 ... 30		
• Closing at 17 ... 30 V				
- OFF-delay NO	ms	7 ... 20	38 ... 65	7 ... 20
- ON-delay NC	ms	20 ... 30	55 ... 75	20 ... 30
Upright mounting position		Request required		

Contactor type		3RH21 ...-MB40-0KT0	3RH21 ...-VB40	3RH21 ...-WB40
Size		S00	S00	S00
Width	mm	45	45	45
Solenoid coil operating range		0.85 ... 1.85 x U_s		
Power consumption of the solenoid coil (for cold coil)	W	1.6		
Closing = Closed at $U_s = 24$ V				
Permissible residual current of the electronics for 0 signal		< 8 mA x (24 V/ U_s)		
Overvoltage configuration of the solenoid coil		Diode, varistor or RC element, attachable 	Built-in diode 	Built-in suppressor diode 
Operating times of the coupling relays				
• Closing at 20.5 V				
- ON-delay NO	ms	30 ... 120		
- OFF-delay NC	ms	20 ... 110		
• At 24 V				
- ON-delay NO	ms	25 ... 90		
- OFF-delay NC	ms	15 ... 80		
• At 44 V				
- ON-delay NO	ms	15 ... 60		
- OFF-delay NC	ms	10 ... 50		
• Closing at 17 ... 30 V				
- OFF-delay NO	ms	5 ... 20	20 ... 80	5 ... 20
- ON-delay NC	ms	10 ... 30	30 ... 90	10 ... 30
Upright mounting position		Request required		