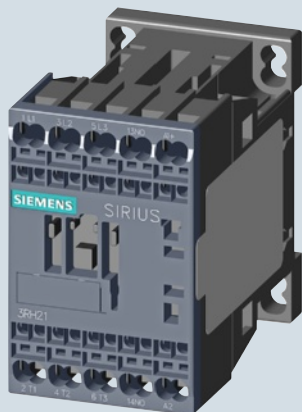


Switching Devices – Contactors and Contactor Assemblies – Contactor Relays and Relays

5



Price groups

PG 41A, 41B, 41H, 4N1

5/2 Introduction

Contactor relays

5/4 SIRIUS 3RH2 contactor relays, 4- and 8-pole

5/15 SIRIUS 3RH24 latched contactor relays, 4-pole

5/16 3TH4 contactor relays, 8- and 10-pole

5/24 3TH2 contactor relays, 4- and 8-pole

Coupling contactors

5/32 SIRIUS 3RH21 coupling contactors for switching auxiliary circuits, 4-pole

Contactors with extended operating range $0.7 \dots 1.25 \times U_s$ for railway applications

5/35 SIRIUS 3RH21 contactor relays

5/37 3TH4 contactor relays

Coupling relays

3TX7 coupling relays, narrow design

5/39 Relay couplers

5/44 Relay couplers with plug-in design

5/47 Semiconductor couplers

SIRIUS 3RS18 coupling relays with industrial enclosure

5/51 Relay couplers

Coupling relays with LZS/LZX plug-in relays

5/53 Plug-in relay couplers

Power relays/Miniature contactors

Ch.4 3TG10 contactors, 4-pole, 4 kW

Notes:

3RH1 contactor relays can be found

- in the Catalog Add-On IC 10 AO · 2014 in the DVD box IC 01
- in the Catalog Add-On IC 10 AO · 2014 at the Information and Download Center
- in the interactive catalog CA 01
- in the Industry Mall

Conversion tool

e.g. from 3RH11 to 3RH21 see

www.siemens.com/sirius/conversion-tool

Switching Devices – Contactors and Contactor Assemblies

Contactor Relays and Relays

Introduction

Overview

The advantages at a glance



Size
Type

S00
3RH21

S00
3RH22

3TH42

3TH43

3TH2

Article No.

Page

3RH2 contactor relays

4-pole • Screw terminals, spring-type terminals and ring terminal lug connections

3RH21 5/10, 5/11

8-pole

3RH22 5/10, 5/11

4-pole, latched

3RH24 5/15

Coupling contactors • Coils for control by PLC

3RH21 5/32

Contactor relays for railway applications • Coils with extended voltage range

3RH21 5/35

3TH4 contactor relays

8-pole • Screw terminals

3TH42 5/20

10-pole

3TH43 5/21

Contactor relays for railway applications • Coils with extended voltage range

3TH42 5/37

3TH2 contactor relays

4-pole • Screw terminals, flat connectors and solder pin connections

3TH20 5/28

8-pole • Screw terminals

3TH22 5/28

4-pole, latched • Screw terminals

3TH27 5/28

Accessories for 3RH2 contactor relays

Auxiliary switch blocks • On front
• Lateral
• Delayed, on front

3RH2911 5/12
3RH2911 Chapter 3
3RA28 Chapter 3

Timing relay blocks • On front

3RA281. Chapter 3

Surge suppressors • On front

3RT2916 5/13

Additional load module • On front

3RT2916 5/13

Note:

Safety characteristics for contactors [see Chapter 16](#),
"Appendix" → "Standards and Approvals" → "Overview".

Switching Devices – Contactors and Contactor Assemblies

Contactor Relays and Relays

Introduction

The advantages at a glance



Type

3TX7002

3TX7014

3RS18

LZS/LZX

3TG10

		Article No.	Page
Coupling links, narrow design			
Relay couplers	- Width 11.5 mm (1 NO), 17.5 mm (1 CO) or 22.5 mm (2 NO, 2 CO) - Width 6.2 mm (1 NO, 1 CO) or 12.5 mm (1 CO) - Output coupling links - Input coupling links with hard gold-plating	3TX7002, 3TX7003, 3TX7004, 3TX7005	5/39
Plug-in base couplers, complete with relay	- Width 6.2 mm (1 NO, 1 CO) - Relays, replaceable	3TX7014-1..00; 3TX7015-1..00	5/44
Plug-in base couplers, complete with relay and hard gold-plating	Width 6.2 mm (1 CO)	3TX7014-1..02; 3TX7015-1..02	5/44
Semiconductor couplers	Output 1 semiconductor, triac or transistor, width 6.2, 11.5 and 12.5 mm	3TX7002, 3TX7004, 3TX7005	5/47
Coupling relays in industrial enclosure			
Relay couplers	- Protective separation up to 300 V between contacts and relay circuits 1, 2 or 3 changeover contacts - Hard gold-plated contacts in combination and wide voltage range versions	3RS18	5/51
Coupling relays with plug-in relays			
Plug-in relay couplers with 2, 3 and 4 changeover contacts	- Switching capacity 12 A/10 A/6 A - Width 27 mm - Base with or without logical separation	LZS/LZX:PT	5/53
Plug-in relay couplers with 3 changeover contacts and circular base	- Switching capacity 10 A 11-pole circular base - Width 38 mm	LZS/LZX:MT	5/59
Plug-in relay couplers with 1 or 2 changeover contacts	- Switching capacity 16 A/8 A - Width 15.5 mm - Base with or without logical separation	LZS/LZX:RT	5/60
Miniature contactors (power relays)			
With screw and flat connectors	- Switching capacity 20 A (AC-1) or 8.4 A (AC-2, AC-3) 4-pole, hum-free - Width 36 mm	3TG10	Ch. 4

Connection methods

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

Devices of the 3TH2 series are also available for connection with flat connectors and solder pin connectors.

The plug-in bases for LZS/LZX coupling relays are also available with plug-in terminals.

As an option the devices of the 3RH2 series are also available for connection with ring terminal lugs, particularly versions for North America and Japan.



Screw terminals



Spring-type terminals



Flat connectors



Solder pin connections



Plug-in terminals



Ring terminal lug connections

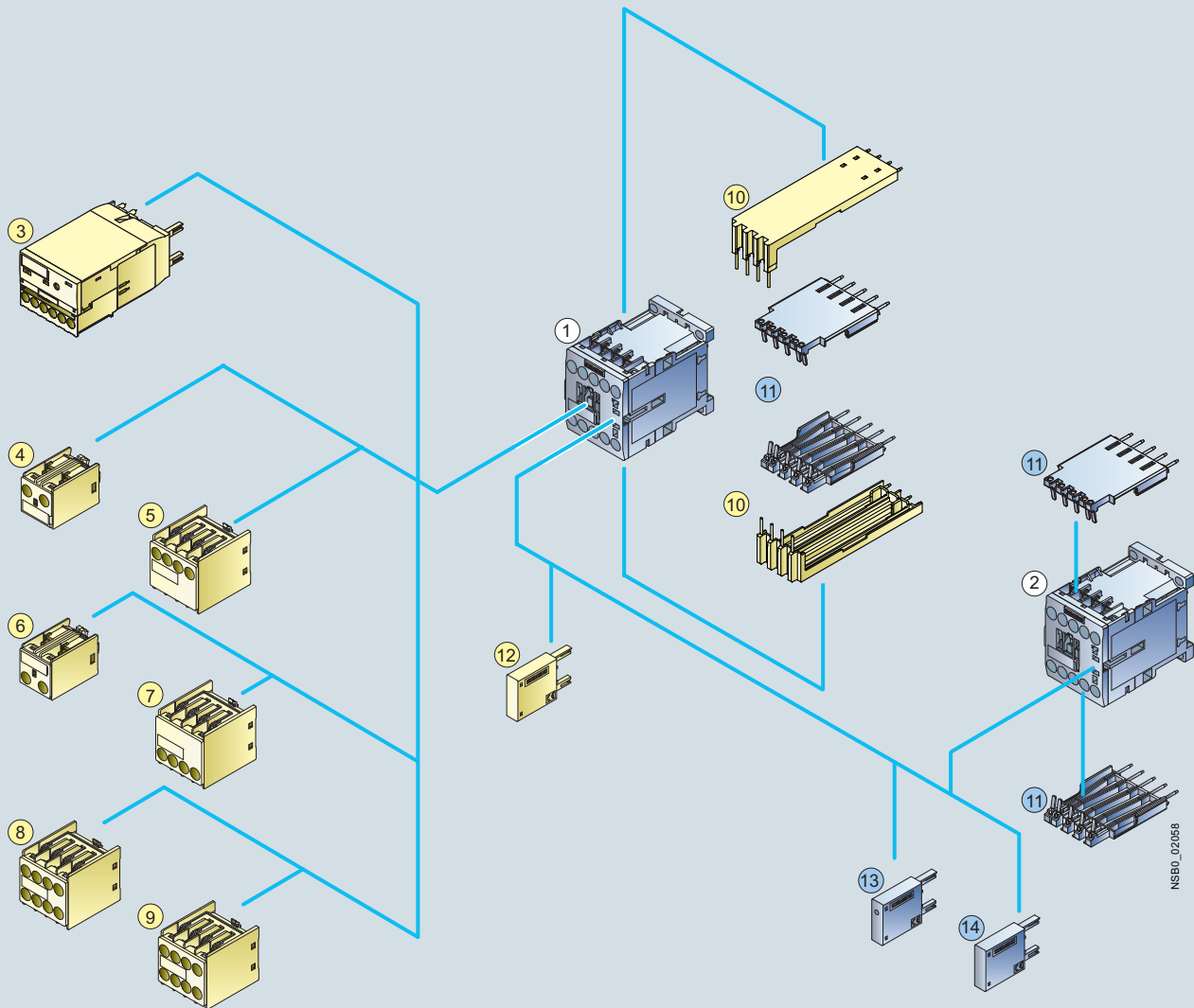
The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Contactor Relays

SIRIUS 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 the top
- ⑤ 2-pole auxiliary switch block, cable entry from the top
- ⑥ 1-pole auxiliary switch block, cable entry from the bottom
- ⑦ 2-pole auxiliary switch block, cable entry from the bottom
- 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 and coupling relays
- ⑫ Additional load module for increasing the permissible residual current
- ⑬ Surge suppressor with LED
- ⑭ Surge suppressor without LED

NSB0_02058

SIRIUS 3RH2 contactor relays, 4- and 8-pole

Standards

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

The 3RH2 contactor relays have screw, ring terminal lug or spring-type terminals. The basic unit contains four contacts with terminal designations according to EN 50011.

The 3RH2 contactor relays are suitable for use in any climate. They are finger-safe according to EN 50274. The devices with ring terminal lug 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 3RH2 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 3RT2 contactors in size S00 can also be used for the 3RH2 contactor relays (see pages 5/13 and 5/14 and also Chapter 3).

Auxiliary switch blocks

The 3RH21 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 contactor relays. The auxiliary switch block has a centrally positioned release lever for disassembly.

Auxiliary switches according to EN 50011

The 3RH2911–.GA .. auxiliary switch blocks are available for terminal designations according to EN 50011 or IEC 60947-5-1 (see page 5/12). They are coded, and therefore cannot be combined with contactor relays with identification numbers 31E or 22E.

In addition, fully mounted 3RH22 8-pole contactor relays are available; the mounted 4-pole auxiliary switch block is not removable. These versions are built according to special Swiss regulations SUVA and are distinguished externally by a red labeling plate.

Auxiliary switches according to EN 50005

All contactor relays with the identification numbers 40E, 31E and 22E can be extended with auxiliary switch blocks to obtain contactor relays with 5 to 8 contacts. The permissible combinations and the resulting identification numbers can be found in the selection tables in Chapter 3, pages 3/48 to 3/52.

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

Manuals

For more information, see

- System manual "SIRIUS Innovations – System Overview", <http://support.automation.siemens.com/WW/view/en/60311318>
- Manual "SIRIUS Innovations – SIRIUS 3RT2 Contactors/ Contactor Assemblies", <http://support.automation.siemens.com/WW/view/en/60306557>

Article No. scheme

Digit of the article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
	□ □ □	□	□	□	□	–	□	□	□	□	–	□	□	□
SIRIUS contactor relays	3 R H													
2nd generation	2													
Device type (e.g. 1 = 4-pole contactor relay, 2 = 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)	□													
Operating range / solenoid coil circuit (e.g. A = AC standard / without)	□													
Rated control supply voltage (e.g. P0 = 230 V, 50 Hz)	□ □													
No significance	□													
Special version	□ □ □ □													
Example	3 R H 2 1 2 2 – 1 A P 0 0													

Note:

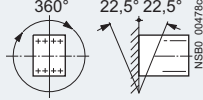
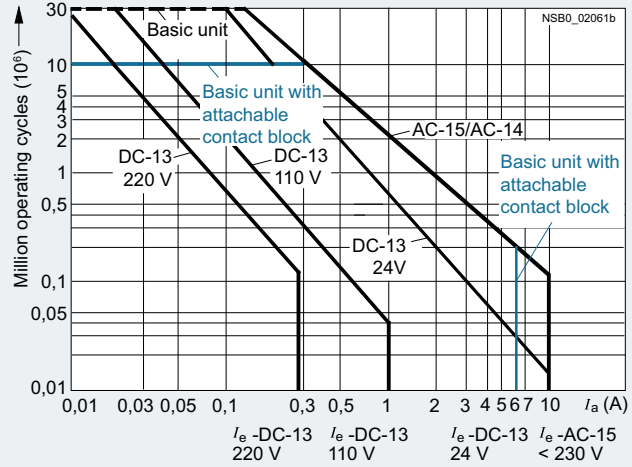
The article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Contactor Relays

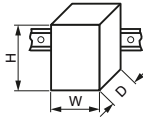
SIRIUS 3RH2 contactor relays, 4- and 8-pole

Technical specifications

Contactor relays	Type	3RH2
	Size	S00
Permissible mounting position		
The contactor relays are designed for operation on a vertical mounting surface.		
Upright mounting position		 Special version required (3RH2122-2K.40 coupling relays and contactor relays with extended operating range on request)
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 front-mounted auxiliary switch block (removable) according to: • ZH 1/457 • IEC 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) according to: • ZH 1/457 • IEC 60947-5-1, Appendix L Note: 3RH2911-.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. IEC 60947-5-1, Appendix L Low-voltage switchgear and controlgear, Special requirements for positively-driven contacts
Contact reliability		
Contact reliability at 17 V, 1 mA acc. to IEC 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 relays¹⁾ • 3RH24 latched contactor relays • 3RH2911 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⁾ 3RH22, 3RH2911: $I_e = 6$ A for AC-15/AC-14 and DC-13.

SIRIUS 3RH2 contactor relays, 4- and 8-pole

Type				
Size				
Dimensions (W x H x D) with screw terminals		mm	3RH21 S00 45 x 57.5 x 73	3RH22 S00 --
• With mounted auxiliary switch block		mm	45 x 57.5 x 116	45 x 57.5 x 116
General technical specifications				
Mechanical endurance				
• Basic units	Operating cycles		30 million	5 million
• Basic unit with snap-on auxiliary switch block	Operating cycles		10 million	5 million
• Solid-state compatible auxiliary switch block	Operating 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 IEC 60947-1, Appendix N	V		400	
Permissible ambient temperature				
• During operation	°C		-25 ... +60	
• During storage	°C		-55 ... +80	
Degree of protection acc. to IEC 60947-1, Appendix C			IP20	
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				
• Short-circuit test with fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_K = 1$ kA acc. to IEC 60947-5-1	A		10	
• Test with miniature circuit breaker with C characteristic with short-circuit current $I_K = 400$ A acc. to IEC 60947-5-1	A		6	
Conductor cross-sections				
Auxiliary conductors and coil terminals (1 or 2 conductors can be connected)			 Screw terminals	
• Solid or stranded	mm ²		2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾ , max. 2 x 4	
• Finely stranded with end sleeve	mm ²		2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾	
• AWG cables, solid or stranded	AWG		2 x (20 ... 16) ¹⁾ , 2 x (18 ... 14) ¹⁾	
• Terminal screw			M3 (for Pozidriv size 2, Ø 5 ... 6 mm)	
- Tightening torque	Nm		0.8 ... 1.2 (7 ... 10.3 lb.in)	
Auxiliary conductor and coil terminals²⁾ (1 or 2 conductors can be connected)			 Spring-type terminals	
• Operating devices ³⁾	mm		3.0 x 0.5; 3.5 x 0.5	
• Solid or stranded	mm ²		2 x (0.5 ... 4)	
• Finely stranded with end sleeve	mm ²		2 x (0.5 ... 2.5)	
• Finely stranded without end sleeve	mm ²		2 x (0.5 ... 2.5)	
• AWG cables, solid or stranded	AWG		2 x (20 ... 12)	
Auxiliary conductors for front and laterally mounted auxiliary switches²⁾				
Operating devices ³⁾	mm		3.0 x 0.5; 3.5 x 0.5	
• Solid or stranded	mm ²		2 x (0.5 ... 2.5)	
• Finely stranded with end sleeve	mm ²		2 x (0.5 ... 1.5)	
• Finely stranded without end sleeve	mm ²		2 x (0.5 ... 2.5)	
• AWG cables, solid or stranded	AWG		2 x (20 ... 14)	
Auxiliary conductor and coil terminals			 Ring terminal lug connections	
• Terminal screw	mm		M3, Pozidriv size 2	
• Operating devices	Nm		Ø 5 ... 6	
• Tightening torque	mm		0.8 ... 1.2	
• Usable ring terminal lugs	mm		$d_2 = \text{min. } 3.2$	
- DIN 46234 without insulation sleeve	mm		$d_3 = \text{max. } 7.5$	
- 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				

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

²⁾ Max. external diameter of the conductor insulation: 3.6 mm. An insulation stop must be used for spring-type terminals with conductor cross-sections ≤ 1 mm²; see "Accessories", page 5/14.

³⁾ Tool for opening the spring-type terminals; see "Accessories", page 5/14.

Contactor Relays

SIRIUS 3RH2 contactor relays, 4- and 8-pole

Contactor relays	Type	Size	3RH2. S00
Control circuit			
Solenoid coil operating range			
• AC operation	At 50 Hz At 60 Hz		0.8 ... 1.1 x U_s 0.85 ... 1.1 x U_s
• DC operation	At 50 °C At +60 °C		0.8 ... 1.1 x U_s 0.85 ... 1.1 x U_s
Power consumption of the solenoid coils (for cold coil 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) Values apply with coil in cold state and at operating temperature for operating range			
<u>AC operation</u>			
• Closing			
- ON-delay of NO contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s 3RH24 minimum operating time	ms ms ms	8 ... 33 9 ... 22 ≥ 35
- OFF-delay of NC contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s	ms ms	6 ... 25 6.5 ... 19
• Opening			
- OFF-delay of NO contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s 3RH24 minimum operating time	ms ms ms	4 ... 15 4.5 ... 15 ≥ 30
- ON-delay of NC contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s	ms ms	5 ... 15 5 ... 15
<u>DC operation</u>			
• Closing			
- ON-delay of NO contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s 3RH24 minimum operating time	ms ms ms	30 ... 100 35 ... 50 ≥ 100
- OFF-delay of NC contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s	ms ms	25 ... 90 30 ... 45
• Opening			
- OFF-delay of NO contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s 3RH24 minimum operating time	ms ms ms	7 ... 13 7 ... 12 ≥ 30
- ON-delay of NC contact	With 0.8 ... 1.1 x U_s With 1.0 x U_s	ms ms	13 ... 19 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 3RT2916-1GA00 additional load module is recommended for higher residual currents; (see page 5/13).

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

Contactor relays	Type	3RH2.
	Size	S00
Load side		
Load rating with AC		
Rated operational currents I_e		
AC-12	A	10
AC-15/AC-14 for rated operational voltage U_s	Up to 230 V A	10 ¹⁾
	400 V A	3
	500 V A	2
	690 V A	1
Load rating with DC		
Rated operational currents I_e		
DC-12 for rated operational voltage U_s		
• 1 conducting path	24 V A	10
	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	10 ¹⁾
	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		
Switching frequency z in operating cycles/hour		
• For rated operation	AC-12/DC-12	h ⁻¹
For utilization category	AC-15/AC-14	h ⁻¹
	DC-13	h ⁻¹
• No-load switching frequency		h ⁻¹
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) 3RH22, 3RH29: $I_e = 6$ A for AC-15/AC-14 and DC-13.

Contactor Relays

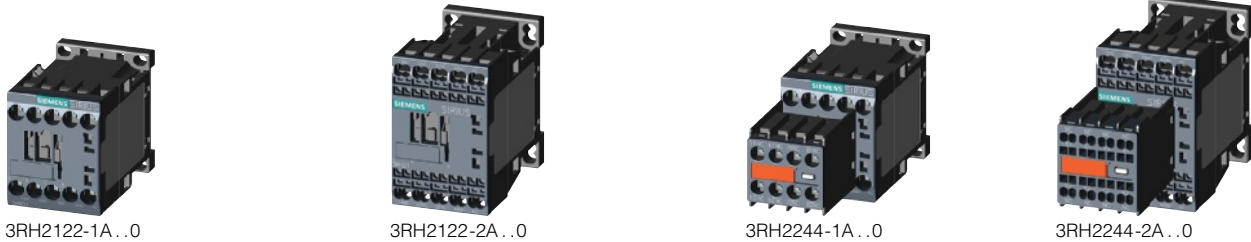
SIRIUS 3RH2 contactor relays, 4- and 8-pole

Selection and ordering data

AC operation

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

Size S00

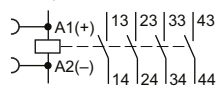


3RH2122-1A...0			3RH2122-2A...0		3RH2244-1A...0		3RH2244-2A...0		
Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts Ident. No.	Version	Rated control supply voltage U_s at 50/60 Hz ²⁾	DT	Screw terminals ¹⁾		DT	Spring-type terminals	
A		 NO	 NC	V AC	Article No.	Price per PU	Article No.	Price per PU	

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

Terminal designations according to EN 50011

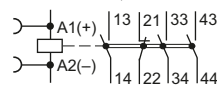
4 NO, Ident. No. 40E



10

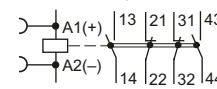
40E	4	--	24 110 230
31E	3	1	24 110 230
22E	2	2	24 110 230

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



3RH2140-1AB00	B	3RH2140-2AB00
3RH2140-1AF00	B	3RH2140-2AF00
3RH2140-1AP00	B	3RH2140-2AP00
3RH2131-1AB00	B	3RH2131-2AB00
3RH2131-1AF00	B	3RH2131-2AF00
3RH2131-1AP00	B	3RH2131-2AP00
3RH2122-1AB00	B	3RH2122-2AB00
3RH2122-1AF00	B	3RH2122-2AF00
3RH2122-1AP00	B	3RH2122-2AP00

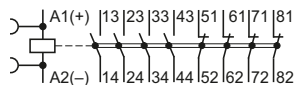
2 NO + 2 NC, Ident. No. 22E



3RH2140-2AB00	B	3RH2140-2AF00
3RH2140-2AP00	B	3RH2140-2AP00
3RH2131-2AB00	B	3RH2131-2AF00
3RH2131-2AF00	B	3RH2131-2AP00
3RH2122-2AB00	B	3RH2122-2AF00
3RH2122-2AF00	B	3RH2122-2AP00

• With permanently mounted auxiliary switch block

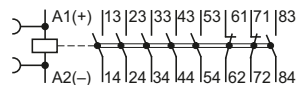
4 NO + 4 NC, Ident. No. 44E



6

44E	4	4	230
62E	6	2	230

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



3RH2244-1AP00	A	3RH2244-2AP00
3RH2262-1AP00	A	3RH2262-2AP00

¹⁾ The 3RH21/3RH22 contactor relays are also available with ring terminal lug connection. Please contact your local Siemens representative for information about the special contactor versions with ring terminal lug 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 .

Other voltages according to page 5/12 on request.

Accessories see pages 5/12 to 5/14 and
 "Accessories for 3RT2 Contactors", Chapter 3.

SIRIUS 3RH2 contactor relays, 4- and 8-pole

DC operation

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

Size S00



3RH2122-1B..0



3RH2122-2B..0



3RH2244-1B..0



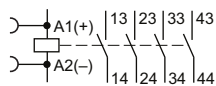
3RH2244-2B..0

Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts		Rated control supply voltage U_s	DT	Screw terminals ¹⁾		DT	Spring-type terminals	
	Ident. No.	Version			Article No.	Price per PU		Article No.	Price per PU
A		NO NC	V DC						

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

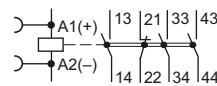
Terminal designations according to EN 50011

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

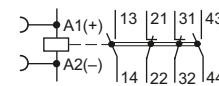


10

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



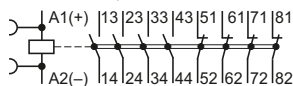
2 NO + 2 NC, Ident. No. **22E**



	40E	4	--	24 220	▶	3RH2140-1BB40	▶	3RH2140-2BB40
					▶	3RH2140-1BM40	B	3RH2140-2BM40
	31E	3	1	24 220	▶	3RH2131-1BB40	▶	3RH2131-2BB40
					A	3RH2131-1BM40	B	3RH2131-2BM40
	22E	2	2	24 220	▶	3RH2122-1BB40	▶	3RH2122-2BB40
					▶	3RH2122-1BM40	B	3RH2122-2BM40

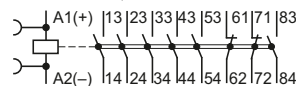
• With permanently mounted auxiliary switch block

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



6

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



	44E	4	4	24	▶	3RH2244-1BB40	▶	3RH2244-2BB40
	62E	6	2	24	▶	3RH2262-1BB40	▶	3RH2262-2BB40

¹⁾ The 3RH21/3RH22 contactor relays are also available with ring terminal lug connection. Please contact your local Siemens representative for information about the special contactor versions with ring terminal lug connection.

Other voltages according to page 5/12 on request.

Accessories see pages 5/12 to 5/14 and
"Accessories for 3RT2 Contactors", Chapter 3.

Contactor Relays

SIRIUS 3RH2 contactor relays, 4- and 8-pole

Options

Rated control supply voltages (change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s	Control supply voltage at	Contactor type	3RH21, 3RH22
AC operation			
Solenoid coils for 50/60 Hz and 60 Hz			
50/60 Hz¹⁾	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	

Rated control supply voltage U_s	Control supply voltage at	Contactor type	3RH21, 3RH22
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 $1.1 \times U_s$.

Accessories

The auxiliary switch blocks according to EN 50011 listed here should preferably be used for 3RH2 contactor relays.

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

For auxiliary switch blocks and solid-state compatible auxiliary switch blocks according to EN 50005 see "Accessories for 3RT2 Contactors", Chapter 3.



3RH2911-1GA22



3RH2911-2GA22

For contactor relays			DT	Screw terminals		DT	Spring-type terminals	
Contactor relays with AS block								
Ident. No.								
Version								
Type								
NO								
NC								

Auxiliary switch blocks for snapping onto the front acc. to EN 50011

Blocks for the assembly of contactor relays with 8 contacts¹⁾

3RH2140,
3RH2440,
Ident. No. 40E

80E

4

--

53 63 73 83

54 64 74 84

71E

3

1

53 61 73 83

54 62 74 84

62E

2

2

53 61 71 83

54 62 72 84

53E

1

3

53 61 71 81

54 62 72 82

44E

--

4

51 61 71 81

52 62 72 82

▶ **3RH2911-1GA40**

▶ **3RH2911-2GA40**

▶ **3RH2911-1GA31**

▶ **3RH2911-2GA31**

▶ **3RH2911-1GA22**

▶ **3RH2911-2GA22**

▶ **3RH2911-1GA13**

▶ **3RH2911-2GA13**

▶ **3RH2911-1GA04**

▶ **3RH2911-2GA04**

¹⁾ The 3RH2911-..GA... auxiliary switches are also available with ring terminal lug connection. The 8th digit of the Article No. must be changed from a "1" to a "4", e.g. 3RH2911-1GA22 → 3RH2911-4GA22.

SIRIUS 3RH2 contactor relays, 4- and 8-pole

The following accessory parts are accessories for 3RT2 contactors in size S00, which are also suitable for 3RH2 contactor relays.

More accessory parts see "Accessories for 3RT2 Contactors in Size S00", Chapter 3.

For contactors	Version	Rated control supply voltage U_s ¹⁾		DT	Article No. ²⁾	Price per PU	PU (UNIT, SET, M)	PS*	PG
		AC operation	DC operation						
Type		V AC	V DC						
Surge suppressors without LED (also for spring-type terminals)									
	For plugging onto the front side of the contactors (with and without auxiliary switch block)								
	3RH2.	Varistor							
		24 ... 48	24 ... 70	▶	3RT2916-1BB00		1	1 unit	41B
		48 ... 127	70 ... 150	▶	3RT2916-1BC00		1	1 unit	41B
		127 ... 240	150 ... 250	▶	3RT2916-1BD00		1	1 unit	41B
		240 ... 400	--	▶	3RT2916-1BE00		1	1 unit	41B
		400 ... 600	--	A	3RT2916-1BF00		1	1 unit	41B
	3RH2.	RC elements							
		24 ... 48	24 ... 70	▶	3RT2916-1CB00		1	1 unit	41B
		48 ... 127	70 ... 150	▶	3RT2916-1CC00		1	1 unit	41B
		127 ... 240	150 ... 250	▶	3RT2916-1CD00		1	1 unit	41B
		240 ... 400	--	A	3RT2916-1CE00		1	1 unit	41B
		400 ... 600	--	A	3RT2916-1CF00		1	1 unit	41B
3RH2.	Noise suppression diode		12 ... 250	▶	3RT2916-1DG00		1	1 unit	41B
3RH2.	Diode assemblies (diode and Zener diode) for DC operation		12 ... 250	▶	3RT2916-1EH00		1	1 unit	41B

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

2) For packs of 10 or 5 units, "-Z" and order code "X90" must be added to the Article No.

For contactors	Version	Rated control supply voltage U_s ¹⁾		Power consumption P of the LED at U_s	DT	Article No. ²⁾	Price per PU	PU (UNIT, SET, M)	PS*	PG	
		AC operation	DC operation								
Type		V AC	V DC	mW							
Surge suppressors with LED (also for spring-type terminals)											
	For plugging onto the front side of the contactors (with and without auxiliary switch block)										
	3RH2.	Varistor	24 ... 48	12 ... 24	10 ... 120	▶	3RT2916-1JJ00		1	1 unit	41B
			48 ... 127	24 ... 70	20 ... 470	▶	3RT2916-1JK00		1	1 unit	41B
			127 ... 240	70 ... 150	50 ... 700	▶	3RT2916-1JL00		1	1 unit	41B
			--	150 ... 250	160 ... 950	A	3RT2916-1JP00		1	1 unit	41B
	3RH2.	Noise suppression diode	--	24 ... 70	20 ... 470	▶	3RT2916-1LM00		1	1 unit	41B
			--	50 ... 150	50 ... 700	A	3RT2916-1LN00		1	1 unit	41B
			--	150 ... 250	160 ... 950	▶	3RT2916-1LP00		1	1 unit	41B

3RT2916-1J.00

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

2) For packs of 10 or 5 units, "-Z" and order code "X90" must be added to the Article No.

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							
Additional load modules							
	3RH2.	For plugging onto the front side of the contactors with or without auxiliary switch blocks¹⁾		▶	3RT2916-1GA00	1	1 unit 41B
		For increasing the permissible residual current and for limiting the residual voltage. It ensures the safe opening of contactors with direct control via 230 V AC semiconductor outputs on SIMATIC controllers. It acts simultaneously as a surge suppressor. Rated voltage: AC 50/60 Hz, 180 to 255 V. Operating range: 0.8 to 1.1 x U_s					

1) For packs of 10 units, "-Z" and order code "X90" must be added to the Article No.

Contactor Relays

SIRIUS 3RH2 contactor relays, 4- and 8-pole

For contactors	Rated control supply voltage U_s	Time setting range t	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG
Type	V	s		Article No.	Price per PU		

OFF-delay devices



3RT2916-2B.01

For contactor relays with DC operation

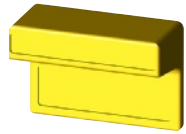
Non-adjustable delay time

3RH2...-1BF40	110 AC/DC	S00: > 0.1 S0: > 0.08	B	3RT2916-2BK01	1	1 unit	41B
3RH2...-1BM40	220/230 AC/DC	S00: > 0.5 S0: > 0.3	B	3RT2916-2BL01	1	1 unit	41B
3RH2...-1BB40	24 DC	S00: > 0.2 S0: > 0.1	A	3RT2916-2BE01	1	1 unit	41B

For technical specifications, see "Accessories for 3RT20 Contactors", Chapter 3.

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							

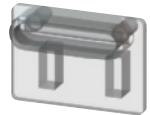
Control kit



3RT2916-4MC00

3RH2.	For manual operation of the contactor contacts for start-up and service	A	3RT2916-4MC00	1	5 units	41B
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Sealable covers



3RT2916-4MA10

3RH2. ¹⁾	Sealable covers for preventing manual operation Not suitable for coupling relays	A	3RT2916-4MA10	1	5 units	41B
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¹⁾ Exception: contactors and contactor relays auxiliary switch block mounted onto the front.

Version	DT	Spring-type terminals 	PU (UNIT, SET, M)	PS*	PG
		Article No.	Price per PU		

Insulation stop for securely holding back the conductor insulation on conductors up to 1 mm²



3RT2916-4JA02

Insulation stop strip can be inserted in cable entry of the spring-type terminal (2 strips per contactor required)

- For basic units S00 (3RT201. or 3RH2.), removable individually

B	3RT2916-4JA02	1	20 units	41B
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Tools for opening spring-type terminals



3RA2908-1A

Screwdrivers
for all SIRIUS devices with spring-type terminals
Length: approx. 200 mm,
3.0 mm x 0.5 mm,
titanium gray/black, partially insulated

A	3RA2908-1A	1	1 unit	41B
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SIRIUS 3RH24 latched contactor relays, 4-pole

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-5-1, EN 60947-5-1

The terminal designations comply with EN 50011.

Auxiliary switches

The number of auxiliary contacts can be extended by means of auxiliary switch blocks on the front (up to four contacts).

Control circuit

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

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

The contactor relay can also be switched on and released manually. Minimum actuating times, see "Technical Specifications", page 5/8.

Selection and ordering data

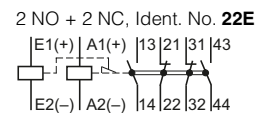
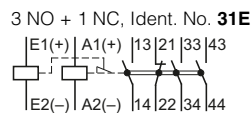
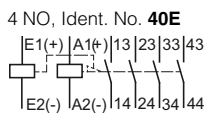


3RH2422-1A...0

Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts Ident. No. acc. to EN 50011	Version	Rated control supply voltage U_s	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
					Article No.	Price per PU		
A		NO NC V						

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

Terminal designations according to EN 50011



AC operation

				AC 50/60 Hz ¹⁾				
10	40 E	4	--	24	B	3RH2440-1AB00	1	1 unit 41A
				110	B	3RH2440-1AF00	1	1 unit 41A
				230	B	3RH2440-1AP00	1	1 unit 41A
	31 E	3	1	24	B	3RH2431-1AB00	1	1 unit 41A
				110	B	3RH2431-1AF00	1	1 unit 41A
				230	B	3RH2431-1AP00	1	1 unit 41A
	22 E	2	2	24	B	3RH2422-1AB00	1	1 unit 41A
				110	B	3RH2422-1AF00	1	1 unit 41A
				230	B	3RH2422-1AP00	1	1 unit 41A

DC operation

				DC				
10	40 E	4	--	24	B	3RH2440-1BB40	1	1 unit 41A
				110	B	3RH2440-1BF40	1	1 unit 41A
				220	B	3RH2440-1BM40	1	1 unit 41A
	31 E	3	1	24	B	3RH2431-1BB40	1	1 unit 41A
				110	B	3RH2431-1BF40	1	1 unit 41A
				220	B	3RH2431-1BM40	1	1 unit 41A
	22 E	2	2	24	B	3RH2422-1BB40	1	1 unit 41A
				110	B	3RH2422-1BF40	1	1 unit 41A
				220	B	3RH2422-1BM40	1	1 unit 41A

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

Accessories see pages 5/12 and 5/13.

Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-5-1, EN 60947-5-1

The 3TH42 and 3TH43 contactor relays are suitable for use in any climate. They are finger-safe according to EN 50274.

Terminal designations according to EN 50011

In terms of their terminal designations, identification numbers and identification letters, the 3TH42 and 3TH43 contactor relays conform to the standard EN 50011 for Specific Contactor Relays.

Contact reliability

High contact stability at low voltages and currents thanks to the use of moving double-break contacts, suitable for solid-state circuits with currents ≥ 1 mA at a voltage of ≥ 17 V.

Surge suppression

The 3TH42 and 3TH43 contactor relays can be equipped with RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) for damping opening surges. The surge suppressors can be mounted directly on the coil (see "Accessories", page 5/22).

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).

Technical specifications

Contactor relays

Type

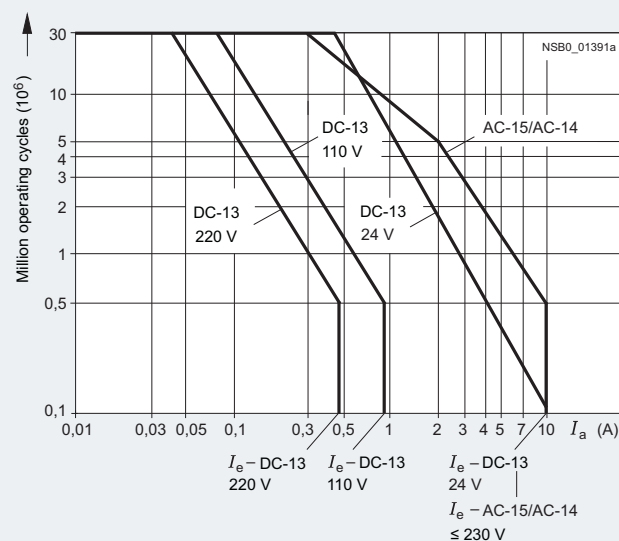
3TH42, 3TH43

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

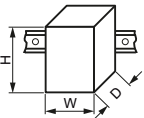
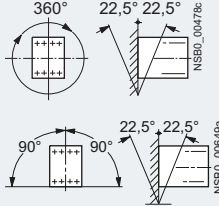
The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

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.

RC elements or freewheel diodes are suitable as protective measures for the circuits.



3TH4 contactor relays, 8- and 10-pole

Type			
Dimensions (W x H x D)	mm		
• AC operation	mm		
• DC operation			
General technical specifications			
Permissible mounting position			
The contactor relays are designed for operation on a vertical mounting surface.			
• AC operation			
			
• DC operation			
Upright mounting position			
AC and DC operation			
			
Special version required			
Mechanical endurance	Basic units	Operating cycles	30 million
Rated insulation voltage U_i (pollution degree 3)		V	690
Rated impulse withstand voltage U_{imp}		kV	8
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N		V	Up to 500
Permissible ambient temperature			
• During operation	°C		-25 ... +55
• During storage	°C		-55 ... +80
Degree of protection acc. to IEC 60947-1, Appendix C			IP20
Shock resistance			
• Rectangular pulse			
- AC operation	g/ms		7.7/5 and 4.4/10
- DC operation	g/ms		9.3/5 and 5.4/10
• Sine pulse			
- AC operation	g/ms		12/5 and 6.8/10
- DC operation	g/ms		14.7/5 and 8.5/10
Short-circuit protection			
Short-circuit test			
• with fuse links of operational class gG with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1			
- LV HRC, type 3NA	A		16
- DIAZED, type 5SB	A		16
- NEOZED Type 5SE, quick	A		20
• with miniature circuit breaker with short-circuit current $I_k = 400$ A acc. to IEC 60947-5-1			
- C Characteristic	A		16
- B Characteristic	A		16
Ⓢ and Ⓞ rated data			
Basic units			
Rated control supply voltage U_s			Max. 600 V AC, 230 V DC (acc. to UL 240 V DC)
Rated voltage			600 V AC, 600 V DC
Switching capacity			A 600, P 600
Conductor cross-sections			
 Screw terminals			
• Solid or stranded	mm ²		2 x (0.5 ... 1) ¹⁾ ; 2 x (1 ... 2.5) ¹⁾ ; 1 x 4
• Finely stranded with end sleeve	mm ²		2 x (0.75 ... 2.5)
• Terminal screw			M3.5

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

Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Contactor relays	Type	3TH42, 3TH43
Control circuit		
Solenoid coil operating range		
AC operation		0.8 ... 1.1 x U_s ¹⁾
DC operation (except 24 V)		0.8 ... 1.1 x U_s
• At 24 V DC		0.8 ... 1.2 x U_s
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)		
• AC operation, 50 Hz, standard version		
- Closing	VA/p.f.	68/0.82
- Closed	VA/p.f.	10/0.29
• AC operation, 50/60 Hz, standard version		
- Closing, 50 Hz	VA/p.f.	77/0.81
- Closed, 50 Hz	VA/p.f.	11/0.28
- Closing, 60 Hz	VA/p.f.	71/0.75
- Closed, 60 Hz	VA/p.f.	9/0.27
• AC operation, 50 Hz, USA/Canada		
- Closing	VA/p.f.	68/0.82
- Closed	VA/p.f.	10/0.29
• AC operation, 60 Hz, USA/Canada		
- Closing	VA/p.f.	75/0.76
- Closed	VA/p.f.	9,4/0.29 ... 0.3
• AC operation, 50 Hz, standard version		
- Closing	VA/p.f.	80/0.8
- Closed	VA/p.f.	10,7/0.29
• AC operation, 60 Hz, standard version		
- Closing	VA/p.f.	75 ... 90/0.73
- Closed	VA/p.f.	8,5 ... 10,7/0.29 ... 0.3
• DC operation up to 250 V	W	6.2
Closing = Closed		
Permissible residual current of the electronics (with 0 signal)		
• For AC operation		≤ 8 mA x (220 V/ U_s)
• For DC operation		≤ 1.25 mA x (220 V/ U_s)
Operating times ²⁾		
Total break time = OFF-delay + arcing time (the values apply up to and including 20 % undervoltage, 10 % overvoltage, and with the coil in the cold state and at operating temperature)		
<u>AC operation</u>		
• Closing		
- ON-delay NO	ms	8 ... 35
- OFF-delay NC	ms	6 ... 20
• Opening		
- OFF-delay NO	ms	4 ... 18
- ON-delay NC	ms	5 ... 30
• Arcing time	ms	10
<u>DC operation</u>		
• Closing		
- ON-delay NO	ms	20 ... 170
- OFF-delay NC	ms	18 ... 110
• Opening		
- OFF-delay NO	ms	10 ... 25
- ON-delay NC	ms	15 ... 30
Arcing time	ms	10
Operating times ²⁾ at 1.0 x U_s		
<u>AC operation</u>		
• Closing		
- ON-delay NO	ms	10 ... 25
- OFF-delay NC	ms	7 ... 20
• Opening		
- OFF-delay NO	ms	5 ... 18
- ON-delay NC	ms	7 ... 20
<u>DC operation</u>		
• Closing		
- ON-delay NO	ms	30 ... 70
- OFF-delay NC	ms	28 ... 65
• Opening		
- OFF-delay NO	ms	10 ... 20
- ON-delay NC	ms	15 ... 25

¹⁾ Coils for USA, Canada and Japan: 0.85 ... 1.1 U_s at 60 Hz.

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 9 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

3TH4 contactor relays, 8- and 10-pole

Contactor relays	Type	3TH42, 3TH43
Load side		
Load rating with AC		
Rated operational currents I_e		
AC-12	A	16
AC-15/AC-14 for rated operational voltage U_e		
	230 V A	10
	400 V A	6
	500 V A	4
	690 V A	2
Rated power of three-phase motors		
Acc. to utilization categories AC-2 and AC-3, 50 Hz		
	230/220 V kW	2.4
	400/380 V kW	4
	500 V kW	4
	690/660 V kW	4
Load rating with DC		
Rated operational currents I_e		
DC-12, for rated operational voltage U_e		
• 1 conducting path		
	Up to 48 V A	10
	110 V A	2.1
	220 V A	0.8
	440 V A	0.6
• 2 conducting paths in series		
	Up to 48 V A	10
	110 V A	10
	220 V A	1.6
	440 V A	0.8
• 3 conducting paths in series		
	Up to 48 V A	10
	110 V A	10
	220 V A	10
	440 V A	1.3
DC-13, for rated operational voltage U_e		
• 1 conducting path		
	Up to 24 V A	10
	48 V A	5
	110 V A	1
	220 V A	0.45
	440 V A	0.25
	600 V A	0.2
• 2 conducting paths in series		
	Up to 24 V A	10
	48 V A	10
	110 V A	2.5
	220 V A	0.75
	440 V A	0.5
	600 V A	0.4
• 3 conducting paths in series		
	Up to 24 V A	10
	48 V A	10
	110 V A	10
	220 V A	2
	440 V A	0.9
	600 V A	0.8
Switching frequency		
Switching frequency $z^{1)}$ in operating cycles/hour		
For rated operation	AC-12/DC-12 h ⁻¹	1 000
For utilization category	AC-2 h ⁻¹	500
	AC-3 h ⁻¹	1 000
	AC-15/AC-14 h ⁻¹	3 600
	DC-13 h ⁻¹	3 600
	No-load switching frequency h ⁻¹	10 000

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' : $z' = z \cdot I_e/I' \cdot (U_e/U')^{1.5} \cdot 1/h$.

Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Selection and ordering data

8-pole contactor relays

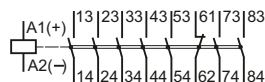
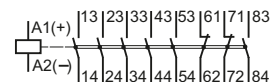
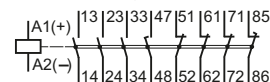


3TH4244-0B..

Contacts	Rated operational current I_e /AC-15/AC-14 at				Contacts	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	230/ 220 V	400/ 380 V	500 V	690/ 660 V	Ident. No. acc. to EN 50011					
					Version		Article No.	Price per PU		
					NO NC NO NC					
Number	A	A	A	A						

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

Terminal designations according to EN 50011

8 NO, Ident. No. **80E**7 NO + 1 NC, Ident. No. **71E**6 NO + 2 NC, Ident. No. **62E**5 NO + 3 NC, Ident. No. **53E**4 NO + 4 NC, Ident. No. **44E**3 NO + 3 NC and 1 NO + 1 NC make-before-break,
Ident. No. **44E, U**

AC operation, rated control supply voltage $U_s = 50 \text{ Hz } 230/220 \text{ V AC}^{1)}$

8	10	6	4	2																
					80 E	8	--	--	--	▶	3TH4280-0AP0	1	1 unit	41A						
					71 E	7	1	--	--	▶	3TH4271-0AP0	1	1 unit	41A						
					62 E	6	2	--	--	▶	3TH4262-0AP0	1	1 unit	41A						
					53 E	5	3	--	--	▶	3TH4253-0AP0	1	1 unit	41A						
					44 E	4	4	--	--	▶	3TH4244-0AP0	1	1 unit	41A						
					44 E, U	3	3	1	1	▶	3TH4293-0AP0	1	1 unit	41A						

DC operation, rated control supply voltage $U_s = 24 \text{ V DC}$

8	10	6	4	2																
					80 E	8	--	--	--	▶	3TH4280-0BB4	1	1 unit	41A						
					71 E	7	1	--	--	▶	3TH4271-0BB4	1	1 unit	41A						
					62 E	6	2	--	--	▶	3TH4262-0BB4	1	1 unit	41A						
					53 E	5	3	--	--	▶	3TH4253-0BB4	1	1 unit	41A						
					44 E	4	4	--	--	▶	3TH4244-0BB4	1	1 unit	41A						
					44 E, U	3	3	1	1	▶	3TH4293-0BB4	1	1 unit	41A						

¹⁾ Operating range at 220 V: 0.85 to 1.1 × U_s ;
lower operating range limit according to IEC 60947.

Note:

The solenoid coils of the 3TH42 contactor relays are available in various voltages as spare parts (on request).

- AC operation: 3TY7403-0A..
- DC operation: 3TY4803-0B..

The contacts cannot be replaced on 3TH42 contactor relays.

Other voltages [according to page 5/22](#) on request.

Accessories [see pages 5/22 and 5/23](#).

3TH4 contactor relays, 8- and 10-pole

10-pole contactor relays



3TH4355-0A..



3TH4355-0B..

Contacts	Rated operational current I_e /AC-15/AC-14 at				Contacts		DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	230 V	400 V	500 V	690 V	Ident. No. acc. to EN 50011	Version					
								Article No.	Price per PU		
Number	A	A	A	A							

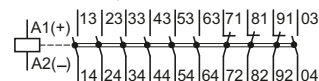
For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

10 NO, Ident. No. **100E**



7 NO + 3 NC, Ident. No. **73E**



6 NO + 2 NC and 1 NO + 1 NC
make-before-break, Ident. No. **63E, 11U**



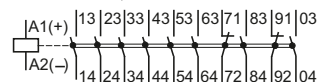
9 NO + 1 NC, Ident. No. **91E**



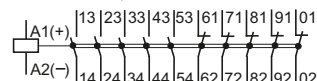
6 NO + 4 NC, Ident. No. **64E**



8 NO + 2 NC, Ident. No. **82E**



5 NO + 5 NC, Ident. No. **55E**



4 NO + 4 NC and 1 NO + 1 NC make-before-break,
Ident. No. **44E, 11U**



AC operation, rated control supply voltage $U_s = 50 \text{ Hz } 230/220 \text{ V AC}^{(1)}$

10	10	6	4	2	100 E	10	--	--	--	▶	3TH4310-0AP0	1	1 unit	41A
					91 E	9	1	--	--	▶	3TH4391-0AP0	1	1 unit	41A
					82 E	8	2	--	--	▶	3TH4382-0AP0	1	1 unit	41A
					73 E	7	3	--	--	▶	3TH4373-0AP0	1	1 unit	41A
					73 E, U	6	2	1	1	▶	3TH4346-0AP0	1	1 unit	41A
					64 E	6	4	--	--	▶	3TH4364-0AP0	1	1 unit	41A
					55 E	5	5	--	--	▶	3TH4355-0AP0	1	1 unit	41A
					55 E, U	4	4	1	1	▶	3TH4394-0AP0	1	1 unit	41A

DC operation, rated control supply voltage $U_s = 24 \text{ V DC}^{(1)}$

10	10	6	4	2	100 E	10	--	--	--	▶	3TH4310-0BB4	1	1 unit	41A
					91 E	9	1	--	--	▶	3TH4391-0BB4	1	1 unit	41A
					82 E	8	2	--	--	▶	3TH4382-0BB4	1	1 unit	41A
					73 E	7	3	--	--	▶	3TH4373-0BB4	1	1 unit	41A
					73 E, U	6	2	1	1	▶	3TH4346-0BB4	1	1 unit	41A
					64 E	6	4	--	--	▶	3TH4364-0BB4	1	1 unit	41A
					55 E	5	5	--	--	▶	3TH4355-0BB4	1	1 unit	41A
					55 E, U	4	4	1	1	▶	3TH4394-0BB4	1	1 unit	41A

¹⁾ Operating range at 220 V: 0.85 to 1.1 × U_s .
lower operating range limit according to IEC 60947.

Note:

The solenoid coils of the 3TH43 contactor relays are available in various voltages as spare parts (on request).

- AC operation: 3TY7403-0A..
- DC operation: 3TY4803-0B..

The contacts cannot be replaced on 3TH43 contactor relays.

Other voltages [according to page 5/22](#) on request.

Accessories [see pages 5/22 and 5/23](#).

Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Options

Rated control supply voltages
(change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s	Contactor type	3TH42/3TH43
Control supply voltage at		
AC operation		
Solenoid coils for AC 50 Hz		
50 Hz	60 Hz	
24 V AC	29 V AC	B0
36 V AC	42 V AC	G0
42 V AC	50 V AC	D0
48 V AC	58 V AC	H0
60 V AC	72 V AC	E0
110 V AC	132 V AC	F0
125/127 V AC	150/152 V AC	L0
230/220 V AC	276 V AC	P0 ¹⁾
240 V AC	288 V AC	U0
400/380 V AC	480/460 V AC	V0 ¹⁾
415 V AC	500 V AC	R0
500 V AC	600 V AC	S0
For Japan		
100 V AC	100-110 V AC	G6 ²⁾
200 V AC	200-220 V AC	N6 ²⁾
For USA and Canada		
110 V AC	120 V AC	K6 ²⁾
220 V AC	240 V AC	P6 ²⁾

¹⁾ Operating range at 220 V or 380 V: 0.85 to 1.1 x U_s .

²⁾ Operating range at 60 Hz: 0.85 to 1.1 x U_s .

Rated control supply voltage U_s	Contactor type	3TH42/3TH43
Control supply voltage at		
Solenoid coils for AC 50 and 60 Hz		
50/60 Hz		
24 V AC		C2
42 V AC		D2
110 V AC		G2
115 V AC		J2
120 V AC		K2
220 V AC		N2
230 V AC		L2
240 V AC		P2
440 V AC		R2
DC operation		
12 V DC		A4
24 V DC		B4
30 V DC		C4
36 V DC		V4
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
240 V DC		Q4

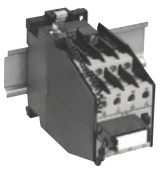
Accessories

Version	Rated control supply voltage U_s		DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	AC V	DC V						
Surge suppressors¹⁾ for 3TH4 contactor relays								
	Noise suppression diodes with line spacer, for mounting onto the coil terminal	--	24 ... 250	A	3TX7402-3A	1	1 unit	41B
	Diode assemblies (diode and Zener diode) with line spacer, DC operation, for mounting onto the coil terminal	--	24 ... 250	A	3TX7402-3D	1	1 unit	41B
	Varistors²⁾ with line spacer, for mounting onto the coil terminal	24 ... 48 48 ... 127 127 ... 240 240 ... 400 400 ... 600	24 ... 70 70 ... 150 150 ... 250 -- --	A A A C C	3TX7402-3G 3TX7402-3H 3TX7402-3J 3TX7402-3K 3TX7402-3L	1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B 41B
	RC elements with line spacer, for mounting onto the coil terminal	24 ... 48 48 ... 127 127 ... 240 240 ... 400 400 ... 600	24 ... 70 70 ... 150 150 ... 250 -- --	A A A B C	3TX7402-3R 3TX7402-3S 3TX7402-3T 3TX7402-3U 3TX7402-3V	1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41B 41B 41B 41B 41B
	Covers for switch position indicator	--	--	X	3TX4210-0P	1	1 unit	41B

¹⁾ 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).

²⁾ Includes the peak value of the alternating voltage on the DC side.

3TH4 contactor relays, 8- and 10-pole

For contactors	Version	Rated control supply voltage U_s AC 50/60 Hz	Time setting range (minimum times)	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG
Type		V	s		Article No.	Price per PU		
ON-delay devices								
	3TH42, 3TH43	NTC thermistors	220 ... 230	0.1	B	3TX4180-0A	1	1 unit 41B
		Time tolerance +100 %, -50 %						

3TX4180-0A

Coupling links for control by PLC for 3TH4 contactor relays									
	3TH42, 3TH43	Operating range: 17 to 30 V DC Power consumption: 0.5 W at 24 V DC							
		For mounting directly onto contactor coil without surge suppressor	A	3TX4090-0C	1	1 unit	41B		
		For mounting directly onto contactor coil with surge suppressor	A	3TX4090-0D	1	1 unit	41B		

3TX4090
mounted to contactor

For contactors	Rated control supply voltage U_s	OFF-delay (minimum times)	DT	Screw terminals 	PU (UNIT, SET, M)	PS*	PG
Type	50/60 Hz AC V	DC V	s	Article No.	Price per PU		
OFF-delay devices for contactors with DC operation							
	Bridging of voltage interruptions up to 1.2 sec						
	3TH42...-0BF4 3TH43...-0BF4	110	--	0.15 or 0.3	A	3TX4701-0AN1	1 1 unit 41B
	3TH42...-0BM4 3TH43...-0BM4	220	--	0.6 or 1.2	A	3TX4701-0AN1	1 1 unit 41B
	3TH42...-0BP4 3TH43...-0BP4	230	--	0.6 or 1.2	A	3TX4701-0AN1	1 1 unit 41B
	3TH42...-0BB4 3TH43...-0BB4	--	24	0.4 or 0.8	B	3TX4701-0BB4	1 1 unit 41B

3TX4701-0AN1

Contactor Relays

3TH2 contactor relays, 4- and 8-pole

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-5-1, EN 60947-5-1

The 3TH2 contactor relays are suitable for use in any climate. Contactor relays with screw terminal are finger-safe according to EN 50274.

The terminal designations are according to EN 50011.

Connections

The 3TH20 contactor relays with 4 auxiliary contacts are available with SIGUT screw terminals, 6.3 mm x 0.8 mm flat connectors, and solder pin connections.

The contactor relays with 6.3 mm x 0.8 mm flat connectors can be used in the plug-in base with solder pin connections for printed circuit boards. The contactor relays are coded, and the plug-in base is codable in order to ensure non-interchangeability.

The 3TH22 contactor relays with 8 integrated contacts are available with screw terminals. The terminal designations are according to EN 50011.

Contact reliability

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

3TH27 latched contactor relays

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

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

The contactor relay can also be switched on and released manually.

Accessories

Auxiliary switch blocks

The contactor relays with 4 contacts with screw terminals can be expanded by up to 4 contacts by adding snap-on auxiliary switch blocks (see "Accessories", page 5/30).

A cover (with unit labeling plate) must be removed from the front of the contactor relay for this purpose. The auxiliary switch block is then easy to mount. The auxiliary switch blocks can be removed again by unlocking them with a laterally arranged orange slide.

The contactor relays with screw terminals with 4 contacts according to EN 50011 with the identification number 40E can be expanded with 80E, 71E, 62E, 53E or 44E auxiliary switch blocks to a total of 8 contacts according to EN 50011. The identification numbers 80E, 71E, 62E, 53E or 44E on the coded auxiliary switch blocks apply to the complete contactors. These auxiliary switch blocks cannot be combined with contactor relays with identification number 31E and 33E.

All contactor relays with screw terminals with 4 contacts according to EN 50011, identification number 40E, 31E or 22E, can be expanded with auxiliary switch blocks with identification number 40, 31, 22, 20, 11 or 02 to a total of 6 or 8 contacts according to EN 50005. 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 for short break times) can be plugged onto all contactors and auxiliary switch blocks with screw terminals from the front in order to dampen opening surges in the coil (see "Accessories", page 5/31).

The unit labeling plate must be removed for this purpose. It can be snapped onto the attached surge suppressor.

Additional load module

The 3TX4490-1J additional load module (see "Accessories", page 5/31) can be used by programmable logic controllers to increase permissible residual current, and to limit residual voltage in semiconductor outputs.

This module ensures the safe shut-down of 3TH2 contactor relays and 3TF2 contactors with direct control via 230 V AC semiconductor outputs. It is accommodated in the same enclosure as the 3TX4490-3. surge suppressors and can be plugged into the contactor.

Technical specifications

Contactor relays

Type

3TH2

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

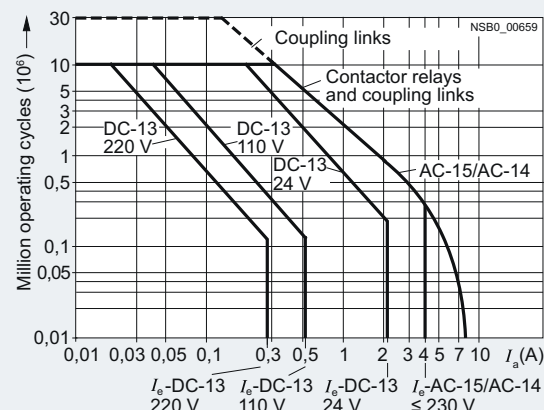
The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

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. RC elements or freewheel diodes are suitable as protective measures for the circuits.

Legend for the diagram:

I_e = Rated operational current

I_a = Breaking current



Positively-driven operation of contacts in contactor relays

3TH20:

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
- IEC 60947-5-1, Appendix L

3TH22:

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) according to:

- ZH 1/457
- IEC 60947-5-1, Appendix L
- SUVA

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 control units on power-operated presses in the metal-working industry.

IEC 60947-5-1, Appendix L

Low-Voltage Switchgear and Controlgear, Control Circuit Devices and Switching Elements.

Special requirements for positively-driven contacts

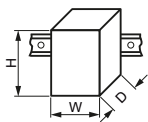
SUVA

Accident prevention regulations of the "Schweizer Unfallverhütungsanstalt" (Swiss Institute for Accident Insurance)

Type

Dimensions (W x H x D)

- With 3TX4 490 surge suppressor



mm
mm

Contactor relays

3TH20...-....

45 x 48 x 63

45 x 48 x 88

3TH22...-....

45 x 48 x 91

45 x 48 x 116

Auxiliary switch block

3TX4...-..

45 x 33 x 28

--

General technical specifications

Permissible mounting position

AC and DC operation

Any

Mechanical endurance

- AC operation
- DC operation

Operating cycles

10 million
30 million

Rated insulation voltage U_i (pollution degree 3)

- Screw terminals
- Flat connectors 6.3 mm x 0.8 mm
- Solder pin connections

V
V
V

690
500
500

500
--
--

500
--
--

Rated impulse withstand voltage U_{imp} (pollution degree 3)

- Screw terminals
- Flat connectors 6.3 mm x 0.8 mm
- Solder pin connections

kV
kV
kV

6
6
6

6
--
--

6
--
--

Protective separation between coil and contacts (according to IEC 60947-1, Appendix N)

V

Up to 300

Permissible ambient temperature¹⁾

- During operation
- During storage

°C
°C

-25 ... +55
-55 ... +80

Degree of protection acc. to IEC 60947-1 Appendix C

- Connection range for screw terminals

IP00/open
IP20

Touch protection acc. to EN 50274

Finger-safe for screw terminals

Shock resistance

- Rectangular pulse
- Sine pulse

- AC operation
- DC operation
- AC operation
- DC operation

g/ms
g/ms
g/ms
g/ms

7/5 and 4/10
10/5 and 6/10
9/5 and 6/10
13/5 and 8/10

Conductor cross-sections

2)

¹⁾ Applies to 50/60 Hz coil:
Operating range at 60 Hz: $0.85 \dots 1.1 \times U_N$;
at 50 Hz, $1.1 \times U_N$, side-by-side mounting and 100 % ON-period,
the maximum ambient temperature is +40 °C.

²⁾ Conductor cross-sections, see page 5/26.

Contactor Relays

3TH2 contactor relays, 4- and 8-pole

Contactor relays		Type	3TH2
Short-circuit protection			
Short-circuit test			
with fuse links of operational class gG			
with short-circuit current $I_k = 1 \text{ kA}$ acc. to IEC 60947-5-1			
LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE	A	6	
Conductor cross-sections			
Main and auxiliary conductors			 Screw terminals
• Solid or stranded	mm ²	2 x (0.5 ... 2.5)	
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 1.5)	
• Terminal screw		M3	
			 Flat connectors
• Finely stranded	mm ²	0.5 ... 1	
When using a plug-in sleeve	mm ²	1 ... 2.5	
			 Solder pin connections (only for printed circuit boards)
• Solder pin cross-section	(does not apply to plug-in bases)	mm ²	0.8 x 1.2
Control circuit			
Solenoid coil operating range ¹⁾			0.8 ... 1.1 x U_s
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)			
• AC operation, 50 Hz	Closing	VA	15
	P.f.		0.41
	Closed	VA	6.8
	P.f.		0.42
• AC operation, 60 Hz	Closing	VA	14.4
	P.f.		0.36
	Closed	VA	6.1
	P.f.		0.46
• AC operation, 50/60 Hz ¹⁾	Closing	VA	16.5/13.2
	P.f.		0.43/0.38
	Closed	VA	8.0/5.4
	P.f.		0.48/0.42
• DC operation	Closing = Closed	W	3
Permissible residual current of the electronics (with 0 signal)			
	AC operation	mA	$\leq 3 \times (220 \text{ V}/U_s)$
	DC operation	mA	$\leq 1 \times (220 \text{ V}/U_s)$
Operating times for 0.8 ... 1.1 x U_s ²⁾			
Total break time = Opening delay + Arcing time			
Values apply with coil in cold state and at operating temperature for operating range			
• AC operation			
- Closing	ON-delay NO	ms	5 ... 20
	OFF-delay NC	ms	4 ... 12
- Opening	OFF-delay NO	ms	3 ... 24
	ON-delay NC	ms	3 ... 20
• DC operation			
- Closing	ON-delay NO	ms	16 ... 140
	OFF-delay NC	ms	13 ... 40
- Opening	OFF-delay NO	ms	3 ... 6
	ON-delay NC	ms	4 ... 10
• Arcing time		ms	10
Operating times for 1.0 x U_s ²⁾			
• AC operation			
- Closing	ON-delay NO	ms	6 ... 17
	OFF-delay NC	ms	5 ... 12
- Opening	OFF-delay NO	ms	3 ... 24
	ON-delay NC	ms	5 ... 20
• DC operation			
- Closing	ON-delay NO	ms	18 ... 42
	OFF-delay NC	ms	15 ... 26
- Opening	OFF-delay NO	ms	3 ... 5
	ON-delay NC	ms	4 ... 10

¹⁾ Applies to 50/60 Hz coil
Operating range at 60 Hz: 0.85 ... 1.1 x U_s ;
at 50 Hz, 1.1 x U_s , side-by-side mounting and 100 % ON-period,
the maximum ambient temperature is +40 °C.

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

3TH2 contactor relays, 4- and 8-pole

Contactor relays	Type	3TH2
Load side		
Load rating with AC		
Utilization category AC-12		
Rated operational current I_e (at 60 °C)	A	10
Utilization categories AC-15 and AC-14		
Rated operational current I_e		
For rated operational voltage U_e		
	230/220 V A	4
	400/380 V A	3
	500 V A	2
	690/660 V A	1
Rated power of three-phase motors		
Acc. to utilization category	110 V kW	0.2
AC-2 and AC-3	230/220 V kW	0.55
	400/380 V kW	1.1
	500 V kW	1.5
	690/660 V kW	1.5
Load rating with DC		
Utilization category DC-12		
Rated operational current I_e	A	10
For rated operational voltage U_e		
• 1 conducting path ¹⁾	Up to 24 V A	4
	60 V A	2
	110 V A	1.1
	240/220 V A	0.5
• 2 conducting paths in series	Up to 24 V A	10
	60 V A	10
	110 V A	4
	240/220 V A	2
• 3 conducting paths in series	Up to 24 V A	10
	60 V A	10
	110 V A	6
	240/220 V A	2.5
Utilization category DC-13		
Rated operational current I_e		
For rated operational voltage U_e		
• 1 conducting path	Up to 24 V A	2.1
	60 V A	0.9
	110 V A	0.52
	240/220 V A	0.27
• 2 conducting paths in series	Up to 24 V A	10
	60 V A	3.5
	110 V A	1.3
	240/220 V A	0.9
• 3 conducting paths in series	Up to 24 V A	10
	60 V A	4.7
	110 V A	3
	240/220 V A	1.2
Switching frequency		
Switching frequency z in operating cycles/hour		
Rated operation for utilization category		
Dependence of the switching frequency z' on the operational current I' and operational voltage U'		
$z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$		
	AC-12/DC-12 h ⁻¹	1 000
	AC-2 h ⁻¹	500
	AC-3 h ⁻¹	1 000
	AC-15/AC-14 h ⁻¹	1 200
	DC-13 h ⁻¹	1 200
No-load switching frequency	h ⁻¹	1 0000

¹⁾ Contact endurance 0.1×10^6 operating cycles.

Contactor Relays

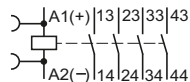
3TH2 contactor relays, 4- and 8-pole

Selection and ordering data

Contacts				Rated operational current I_e /AC-15/AC-14 at		Contacts		DT	Screw terminals		PU (UNIT, SET, M)	PS*	PG
		230/ 220 V	400/ 380 V	500 V	690/ 660 V	Ident. No. acc. to EN 50011	Version	Article No.		Price per PU			
Number		A	A	A	A	NO NC							

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

Terminal designations according to EN 50011

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

AC operation

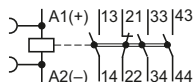
4 4 3 2 1

40E 31E 22E

DC operation

4 4 3 2 1

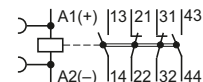
40E 31E 22E

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

4 -- A

31E 1 A

22E 2 A

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

1 1 unit

1 1 unit

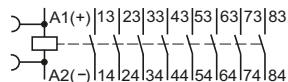
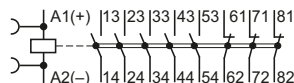
1 1 unit



3TH20...0A...

With permanently mounted auxiliary switch blocks - For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

8 NO, Ident. No. **80E**5 NO + 3 NC, Ident. No. **53E**

AC operation

8 4 3 2 --

80E 71E 62E

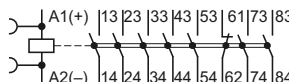
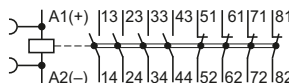
53E 44E

DC operation

8 4 3 2 --

80E 71E 62E

53E 44E

7 NO + 1 NC, Ident. No. **71E**4 NO + 4 NC, Ident. No. **44E**

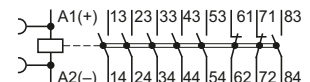
8 0 C

71E 1 C

62E 2 C

53E 3 C

44E 4 C

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

1 1 unit

1 1 unit

1 1 unit

1 1 unit

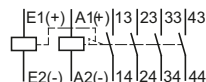
1 1 unit



3TH22...0A...

Latched contactor relays - For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Terminal designations according to EN 50011

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

AC operation

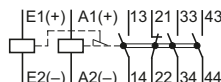
4 4 3 2 1

40E 31E 22E

DC operation

4 4 3 2 1

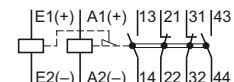
40E 31E 22E

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

4 -- C

31E 1 C

22E 2 C

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

1 1 unit

1 1 unit

1 1 unit



3TH27...

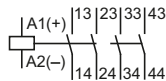
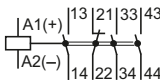
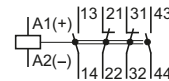
Accessories see pages 5/30 and 5/31.

3TH2 contactor relays, 4- and 8-pole

Contacts	Rated operational current I_e /AC-15/AC-14 at				Contacts	DT	Flat connectors	PU (UNIT, SET, M)	PS*	PG
	230/ 220 V	400/ 380 V	500 V	690/ 660 V	Ident. No. acc. to EN 50011					
					Version		Article No.	Price per PU		
					 					
Number	A	A	A	A						

Contactor relays with 6.3 mm x 0.8 mm flat connectors

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**

AC operation

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

4	4	3	2	--	40E	4	--	C	3TH2040-3AP0	1	1 unit	41A
					31E	3	1	D	3TH2031-3AP0	1	1 unit	41A
					22E	2	2	C	3TH2022-3AP0	1	1 unit	41A

For screw fixing (diagonal)

4	4	3	2	--	40E	4	--	C	3TH2040-7AP0	1	1 unit	41A
					31E	3	1	C	3TH2031-7AP0	1	1 unit	41A
					22E	2	2	C	3TH2022-7AP0	1	1 unit	41A

DC operation

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

4	4	3	2	--	40E	4	--	C	3TH2040-3BB4	1	1 unit	41A
					31E	3	1	C	3TH2031-3BB4	1	1 unit	41A
					22E	2	2	D	3TH2022-3BB4	1	1 unit	41A

For screw fixing (diagonal)

4	4	3	2	--	40E	4	--	D	3TH2040-7BB4	1	1 unit	41A
					31E	3	1	C	3TH2031-7BB4	1	1 unit	41A
					22E	2	2	C	3TH2022-7BB4	1	1 unit	41A



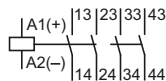
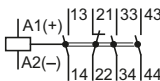
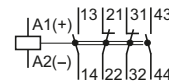
3TH20...-3...



3TH20...-7...

Contactor relays with solder pin connections for printed circuit boards

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**

AC operation

For screw fixing (diagonal)

4	4	3	2	--	40E	4	--	C	3TH2040-6AP0	1	1 unit	41A
					31E	3	1	C	3TH2031-6AP0	1	1 unit	41A
					22E	2	2	D	3TH2022-6AP0	1	1 unit	41A

DC operation

For screw fixing (diagonal)

4	4	3	2	--	40E	4	--	C	3TH2040-6BB4	1	1 unit	41A
					31E	3	1	C	3TH2031-6BB4	1	1 unit	41A
					22E	2	2	D	3TH2022-6BB4	1	1 unit	41A



3TH20...-6...

Accessories see pages 5/30 and 5/31.

Options

Rated control supply voltages (change of 10th and 11th digit of the Article No.)

Contactor type	3TH20...-0...	3TH20...-3..., 3TH20...-6..., 3TH20...-7..., 3TH22, 3TH27
Rated control supply voltage U_s		

AC operation

Solenoid coils for AC 50 and 60 Hz

50 Hz

 24 V AC
 110 V AC
 230/220 V AC

60 Hz

 29 V AC
 132 V AC
 276 V AC

 B0
 F0
 P0¹⁾

 --
 --
 P0¹⁾

Contactor type	3TH20...-0...	3TH20...-3..., 3TH20...-6..., 3TH20...-7..., 3TH22, 3TH27
Rated control supply voltage U_s		

DC operation

 24 V DC
 110 V DC
 220 V DC

 B4
 F4
 M4

 B4
 --
 --
¹⁾ Operating range at 220 V or 380 V:0.85 to 1.15 x U_s ; lower operating range limit according to IEC 60947.

Please inquire about further voltages.

Contactor Relays

3TH2 contactor relays, 4- and 8-pole

Accessories

Rated operational current I_e /AC-15/AC-14 at	Contacts	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
230/ 220 V	400/ 500 V 380 V	Ident. No. Version	Article No. Price per PU			
A	A A A	NO NC NO NC				

Snap-on auxiliary switch blocks for 3TH20 contactor relays



3TX4440-0A

For expansion to 8 contacts according to EN 50011
Only for 3TH2040-0... (with 4 NO, Ident. No. 40E)

4	3	2	80E	4	--	--	--	▶	3TX4440-0A	1	1 unit	41A
			71E	3	1	--	--	▶	3TX4431-0A	1	1 unit	41A
			62E	2	2	--	--	▶	3TX4422-0A	1	1 unit	41A
			53E	1	3	--	--	▶	3TX4413-0A	1	1 unit	41A
			44E	--	4	--	--	▶	3TX4404-0A	1	1 unit	41A

For expansion to 6 or 8 contacts according to EN 50005

4	3	2	40E	4	--	--	--	▶	3TX4440-2A	1	1 unit	41A
			31E	3	1	--	--	▶	3TX4431-2A	1	1 unit	41A
			22E	2	2	--	--	▶	3TX4422-2A	1	1 unit	41A
			22; 2U	--	--	2	2	B	3TX4422-2G	1	1 unit	41A
4	3	2	20E	2	--	--	--	▶	3TX4420-2A	1	1 unit	41A
			11E	1	1	--	--	▶	3TX4411-2A	1	1 unit	41A
			02E	--	2	--	--	▶	3TX4402-2A	1	1 unit	41A
			11; U	--	--	1	1	D	3TX4411-2G	1	1 unit	41A

For contactors	Rated control supply voltage U_s	OFF-delay (minimum times)	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
Type	50/60 Hz AC V	DC V	s	Article No. Price per PU			

OFF-delay devices for contactors with DC operation

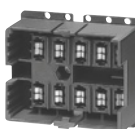
Bridging of voltage interruptions up to 0.8 sec

3TH2...-0BB4	--	24	0.25 or 0.5	A	3TX4490-1H	1	1 unit	41B
3TH2...-0BF4	110	--	0.1 or 0.2	A	3TX4490-1A	1	1 unit	41B
3TH2...-0BM4, 3TH2...-0BP4	220/230	--	0.4 or 0.8	A	3TX4490-1A	1	1 unit	41B



3TX4490-1A

3TH2 contactor relays, 4- and 8-pole

For contactors		Rated control supply voltage U_s		Power consumption of LED at U_s	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type	V AC	V DC	mW							
Surge suppressors ¹⁾ for plugging onto contactors with and without auxiliary switch blocks										
Version without LED										
RC elements										
 3TX4490-3A	3TH2...-0...	24 ... 48	24 ... 70	--	B	3TX4490-3R		1	1 unit	41B
		48 ... 127	70 ... 150	--	B	3TX4490-3S		1	1 unit	41B
		127 ... 240	150 ... 250	--	B	3TX4490-3T		1	1 unit	41B
		240 ... 400	--	--	B	3TX4490-3U		1	1 unit	41B
		400 ... 600	--	--	B	3TX4490-3V		1	1 unit	41B
Varistors										
	3TH2...-0...	≤ 48	24 ... 70	--	►	3TX4490-3G		1	1 unit	41B
		48 ... 127	70 ... 150	--	B	3TX4490-3H		1	1 unit	41B
		127 ... 240	150 ... 250	--	B	3TX4490-3J		1	1 unit	41B
		240 ... 400	--	--	B	3TX4490-3K		1	10 units	41B
		400 ... 600	--	--	B	3TX4490-3L		1	10 units	41B
Noise suppression diodes										
	3TH2...-0...	--	12 ... 250	--	►	3TX4490-3A		1	1 unit	41B
Diode assemblies (diode and Zener diode) For DC operation and short break times										
	3TH2...-0...	--	24 ... 250	--	B	3TX4490-3B		1	1 unit	41B
Version with LED										
Varistors										
 3TX4490-4G	3TH2...-0...	24 ... 48	12 ... 24	10 ... 120	B	3TX4490-4G		1	1 unit	41B
		48 ... 127	24 ... 70	20 ... 470	B	3TX4490-4H		1	1 unit	41B
		127 ... 240	70 ... 150	50 ... 700	B	3TX4490-4J		1	1 unit	41B
		--	150 ... 250	160 ... 950	D	3TX4490-4K		1	1 unit	41B
Noise suppression diodes										
	3TH2...-0...	--	24 ... 70	20 ... 470	B	3TX4490-4A		1	1 unit	41B
		--	70 ... 150	50 ... 700	B	3TX4490-4B		1	1 unit	41B
		--	150 ... 250	160 ... 950	B	3TX4490-4C		1	1 unit	41B
Additional load modules for 3TH2 contactor relays for plugging onto contactors with and without auxiliary switch blocks										
 3TX4490-1J	For increasing the permissible residual current and for limiting the residual voltage of SIMATIC semiconductor outputs									
	3TH2...-0A...	230/220, 50 Hz	--	--	D	3TX4490-1J		1	1 unit	41B
		230, 60 Hz	--	--						
		230, 50/60 Hz	--	--						
		Operating range 0.8 ... 1.1 × U_s								
Plug-in bases with solder pin connections for printed circuit boards, width 45 mm										
 3TX4491-2A	For 3TH2 contactor relays; with flat connectors 1 x 6.3 mm ... 0.8 mm Rated insulation voltage U_i : 400 V (at pollution degree 3); rated impulse withstand voltage U_{imp} : 6 kV; rated operational current I_e : 6 A; Ⓢ and Ⓡ rated data: max. 300 V, 6 A									
	3TH20...-3..., 3TH20...-7...				D	3TX4491-2A		1	5 units	41A
Release tools										
	3TH20...-7...	For releasing contactors from 3TX4491-2A plug-in bases			D	3TX4491-2K		1	1 unit	41A

¹⁾ 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).

Contactor Relays

Coupling Contactors

SIRIUS 3RH21 coupling contactors for switching auxiliary circuits, 4-pole

Overview

DC operation

IEC 60947-1, EN 60947-1,
IEC 60947-5-1, EN 60947-5-1

The 3RH21 coupling contactors for switching auxiliary circuits are tailored to the special requirements of working with electronic controls.

The 3RH21 coupling contactors cannot be extended with auxiliary switch blocks.

Coupling contactors have a low power consumption and an extended solenoid coil operating range.

Depending on the version, solenoid coils are supplied either without overvoltage damping (versions 3RH21 ...-HB40 or 3RH21 ...-MB40-0KT0) or with a diode or suppressor diode connected as standard.

Technical specifications

All technical specifications not mentioned in the table below are identical to those of the 3RH21 contactor contactors (see page 5/6).

Contactor type Size	3RH21...-HB40 S00	3RH21...-JB40 S00	3RH21...-KB40 S00
Control circuit			
Solenoid coil operating range	0.7 ... 1.25 x U_s		
Power consumption of the solenoid coil (for cold coil) Closing = Closed			
• At $U_s = 17\text{ V}$ W	1.4		
• At $U_s = 24\text{ V}$ W	2.8		
• At $U_s = 30\text{ V}$ 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	No 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	7 ... 20
- ON-delay NC	ms	20 ... 30	20 ... 30
Upright mounting position	On request		

Contactor type Size	3RH21...-MB40-0KT0 S00	3RH21...-VB40 S00	3RH21...-WB40 S00
Control circuit			
Solenoid coil operating range	0.85 ... 1.85 x U_s		
Power consumption of the solenoid coil (for cold coil) Closing = Closed at $U_s = 24\text{ V}$	W	1.6	
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 

Contactor Relays

Coupling Contactors

**SIRIUS 3RH21 coupling contactors
for switching auxiliary circuits, 4-pole**

Contactor type	3RH21...-MB40-0KT0	3RH21...-VB40	3RH21...-WB40
Size	S00	S00	S00
Control circuit			
Operating times			
• 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	5 ... 20
- ON-delay NC	ms	10 ... 30	10 ... 30
Upright mounting position	On request		

Selection and ordering data

DC operation

Low power consumption

Extended operating range of the solenoid coil

Integrated coil circuit

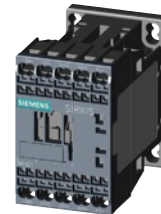
PU (UNIT, SET, M) = 1

PS* = 1 unit

PG = 41A



3RH21...-1.B40



3RH21...-2.B40

Rated operational current I_e /AC-15/ AC-14 at 230 V	Auxiliary contacts		DT	Screw terminals		DT	Spring-type terminals	
	Ident. No. acc. to EN 50011	Version		Article No.	Price per PU		Article No.	Price per PU
		NO NC						

A

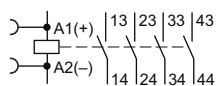
For screw fixing and snap-on mounting onto
TH 35 standard mounting rail

Size S00

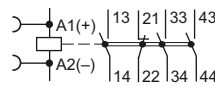
Diode, varistor or RC element, attachable

Terminal designations according to EN 50011 (auxiliary switch blocks cannot be mounted)

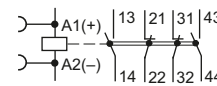
4 NO, Ident. No. **40E**



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



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



Rated control supply voltage $U_s = 24$ V DC,
operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

10	40E	4	--	B	3RH2140-1HB40	B	3RH2140-2HB40
	31E	3	1	B	3RH2131-1HB40	B	3RH2131-2HB40
	22E	2	2	B	3RH2122-1HB40	B	3RH2122-2HB40

Rated control supply voltage $U_s = 24$ V DC,
operating range **0.85 to 1.85 x U_s**

Power consumption of the solenoid coils **1.6 W** at 24 V

10	40E	4	--	B	3RH2140-1MB40-0KT0	B	3RH2140-2MB40-0KT0
	31E	3	1	B	3RH2131-1MB40-0KT0	B	3RH2131-2MB40-0KT0
	22E	2	2	B	3RH2122-1MB40-0KT0	B	3RH2122-2MB40-0KT0

For surge suppressors, see page 5/13.

Contactor Relays

Coupling Contactors

SIRIUS 3RH21 coupling contactors for switching auxiliary circuits, 4-pole

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



3RH21...-1.B40



3RH21...-2.B40

Rated operational current I_e /AC-15/ AC-14 at 230 V	Auxiliary contacts	DT		Screw terminals		DT	Spring-type terminals	
	Ident. No. acc. to EN 50011	Version		Article No.	Price per PU		Article No.	Price per PU
		NO NC						

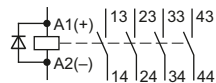
A
 For screw fixing and snap-on mounting onto
 TH 35 standard mounting rail

Size S00

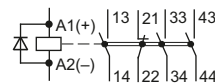
With integrated coil circuit (diode)

Terminal designations according to EN 50011 (auxiliary switch blocks cannot be mounted)

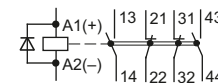
4 NO, Ident. No. **40E**



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



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



Rated control supply voltage $U_s = 24$ V DC,
 operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

10	40E	4	--	B	3RH2140-1JB40	B	3RH2140-2JB40
	31E	3	1	▶	3RH2131-1JB40	▶	3RH2131-2JB40
	22E	2	2	▶	3RH2122-1JB40	B	3RH2122-2JB40

Rated control supply voltage $U_s = 24$ V DC,
 operating range **0.85 to 1.85 x U_s**

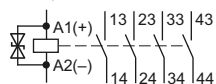
Power consumption of the solenoid coils **1.6 W** at 24 V

10	40E	4	--	B	3RH2140-1VB40	B	3RH2140-2VB40
	31E	3	1	B	3RH2131-1VB40	B	3RH2131-2VB40
	22E	2	2	B	3RH2122-1VB40	B	3RH2122-2VB40

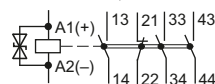
With integrated coil circuit (suppressor diode)

Terminal designations according to EN 50011 (auxiliary switch blocks cannot be mounted)

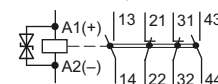
4 NO, Ident. No. **40E**



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



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



Rated control supply voltage $U_s = 24$ V DC,
 operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

10	40E	4	--	B	3RH2140-1KB40	B	3RH2140-2KB40
	31E	3	1	▶	3RH2131-1KB40	▶	3RH2131-2KB40
	22E	2	2	▶	3RH2122-1KB40	▶	3RH2122-2KB40

Rated control supply voltage $U_s = 24$ V DC,
 operating range **0.85 to 1.85 x U_s**

Power consumption of the solenoid coils **1.6 W** at 24 V

10	40E	4	--	B	3RH2140-1SB40	B	3RH2140-2SB40
	31E	3	1	B	3RH2131-1SB40	B	3RH2131-2SB40
	22E	2	2	B	3RH2122-1SB40	B	3RH2122-2SB40

Contactors with Extended Operating Range 0.7 ... 1.25 x U_s for Railway Applications

SIRIUS 3RH21 contactor relays

Overview

DC operation

IEC 60947-4-1, EN 60947-4-1

The contactor relays are finger-safe according to EN 50274. The size S00 contactor relays have spring-type connections for all terminals.

Ambient temperature

The permissible ambient temperature for operation of the contactor relays (across the full solenoid coil operating range) is -40 to +70 °C.

Uninterrupted duty at temperatures > +60 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to 1.25 x U_s and are fitted as standard with surge suppressors. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. railway applications under extreme climatic conditions, rolling mills, etc.

Also for control supply voltages with battery buffering to extend the operating time in the event of battery charge failure.

Contactor relays with conventional coil

Control and auxiliary circuits

These contactor relays have an extended operating range from 0.7 to 1.25 x U_s ; the solenoid coils are fitted as standard with a suppressor diode. An additional series resistor is not required.

Note:

An additional auxiliary switch block cannot be mounted.

Side-by-side mounting

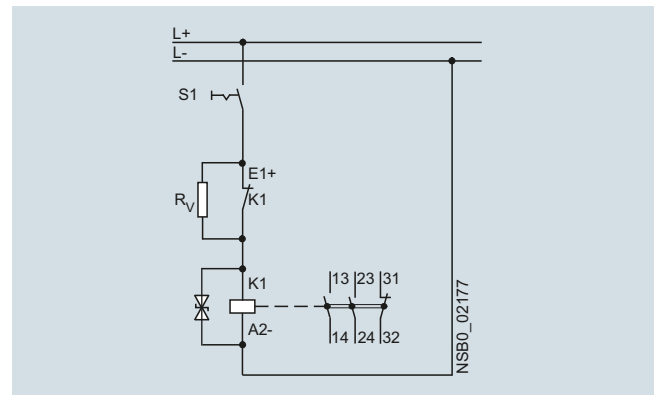
A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C ≤ 70 °C.

Contactor relays with series resistor

Control and auxiliary circuits

The DC solenoid systems of the contactor relays are modified (to holding excitation) by means of a series resistor.

The size S00 contactor relays are supplied prewired with a plug-on module containing the series resistor. A surge suppressor (a suppressor diode or varistor as preferred) is integrated.



Circuit diagram (version with suppressor diode)

A 4-pole auxiliary switch block (according to EN 50005) can be fitted additionally.

Side-by-side mounting

Side-by-side-side mounting is permissible at ambient temperatures up to 70 °C.

Technical specifications

Contactor relays	Type	3RH21..
General technical specifications		
Upright mounting position		
• Contactors with series resistor		Special version (on request)
• Contactors with conventional coil		Special version (on request)
Ambient temperature		
• During operation	°C	-40 ... +70 ¹⁾
• During storage	°C	-55 ... +80
Control circuit		
Solenoid coil operating range	DC	0.7 ... 1.25 x U_s
Power consumption of the solenoid coils		
• Contactors with series resistor	- Closing	W 13
	- Closed	W 4
• Contactors with conventional coil	- Closing	W 2.8
	- Closed	W 2.8

All details and technical specifications not mentioned here are identical to those of the standard versions; see page 5/4.

¹⁾ 3RH21...-K contactor relays without the suffix -OLA0 are coupling contactor relays that are certified for the temperature range -25 °C to +60 °C. For railway applications, an additional certification approves these contactors with a minimum distance of 10 mm for the extended temperature range -40 °C to +70 °C.

Contactor Relays

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

SIRIUS 3RH21 contactor relays

Selection and ordering data

DC operation

Spring-type terminals

For screw and snap-on mounting onto standard mounting rails

Solenoid coil with surge suppression



3RH2122-2K.40



3RH2122-2K.40-0LA0

Rated operational current $I_{\text{e}}/\text{AC-15}/\text{AC-14}$ $T_{\text{U}}: 70^\circ\text{C at}$				Contacts		Rated control supply voltage U_s	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
230 V	400 V	500 V	690 V	Version							
A	A	A	A	NO	NC	V DC		Article No.	Price per PU		

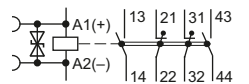
3RH21 contactor relays

Size S00

With conventional coil, fitted with suppressor diode

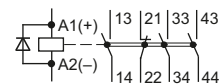
Terminal designations according to EN 50011

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



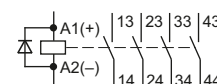
10 3 2 1

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



2¹⁾ 24
110
3 1¹⁾ 24
4 0¹⁾ 24

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

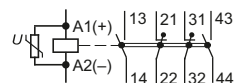


▶	3RH2122-2KB40	1	1 unit	41A
A	3RH2122-2KF40	1	1 unit	41A
▶	3RH2131-2KB40	1	1 unit	41A
B	3RH2140-2KB40	1	1 unit	41A

With conventional coil, fitted with varistor

Terminal designations according to EN 50011

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



10 3 2 1

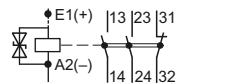
2¹⁾ 24
110

B	3RH2122-2LB40	1	1 unit	41A
B	3RH2122-2LF40	1	1 unit	41A

With series resistor, fitted with suppressor diode

Terminal designations according to EN 50011

2 NO + 1 NC, Ident. No. **21X**



10 3 2 1

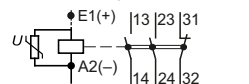
2²⁾ 24
110

B	3RH2122-2KB40-0LA0	1	1 unit	41A
B	3RH2122-2KF40-0LA0	1	1 unit	41A

With series resistor, fitted with varistor

Terminal designations according to EN 50011

2 NO + 1 NC, Ident. No. **21X**



10 3 2 1

2²⁾ 24
110

B	3RH2122-2LB40-0LA0	1	1 unit	41A
B	3RH2122-2LF40-0LA0	1	1 unit	41A

¹⁾ It is not possible to mount an auxiliary switch block.

²⁾ 4-pole auxiliary switch block according to EN 50005 can be mounted.

Contactors with Extended Operating Range 0.7 ... 1.25 x U_s for Railway Applications

3TH4 contactor relays

Overview

Standards

IEC 60947-4-1, EN 60947-4-1

The contactor relays are finger-safe according to EN 50274. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full solenoid coil operating range) is -50 to +70 °C. Uninterrupted duty at temperatures < -25 °C and > +55 °C reduces the mechanical endurance, the current-carrying capacity of the conducting paths and the switching frequency.

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 55 °C. There is no need to reduce the technical specifications.

Application

For operation in plants which are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. in railway applications.

Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to 1.25 x U_s and are fitted as standard with varistors to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

Technical specifications

Contactor relay	Type	3TH42	
General technical specifications			
Permissible ambient temperature			
• During operation	°C	-50 ... +70 ¹⁾	
• During storage	°C	-55 ... +80	
Control circuit			
Solenoid coil operating range		0.7 ... 1.25 x U _s	
Power consumption of the solenoid coils (for cold coil)			
	0.7 x U _s W	2.6	
	1.0 x U _s W	5.2	
	1.25 x U _s W	8.2	
(For cold coil: Closing = Closed)			
Permissible residual current of the electronics (with 0 signal)			
• DC operation		≤ 10 mA x (24 V/U _s)	
Operating times (Total break time = OFF-delay + Arcing time)			
• Closing			
- 0,7 x U _s	ON-delay (NO)	ms	70 ... 200
	OFF-delay (NC)	ms	28 ... 33
- 1 x U _s	ON-delay (NO)	ms	45 ... 80
	OFF-delay (NC)	ms	30 ... 34
- 1.25 x U _s	ON-delay (NO)	ms	40 ... 60
	OFF-delay (NC)	ms	31 ... 35
• Opening			
- 0.7 ... 1.25 x U _s	OFF-delay (NO)	ms	20 ... 30
	ON-delay (NC)	ms	22 ... 32
• Arcing time		ms	10

¹⁾ Side-by-side mounting with 10 mm distance.

All details and technical specifications not mentioned here are identical to those of the standard versions; see page 5/16.

Contactor Relays

Contactors with Extended Operating Range $0.7 \dots 1.25 \times U_s$ for Railway Applications

3TH4 contactor relays

Selection and ordering data

Solenoid coil fitted with varistor



3TH4244-0L...

Contacts	Rated operational current I_e /AC-15/AC-14				Contacts ¹⁾	Rated control supply voltage U_s		DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
	230 V	400 V	500 V	690 V	Ident. No. acc. to EN 50011	Version			Article No.	Price per PU		
Number	A	A	A	A		NO NC	V DC					

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

DC operation

8	10	6	4	2	44E	4	4	24 110	► 3TH4244-0LB4 ► 3TH4244-0LF4	1 1	1 unit 1 unit	41A 41A
8	10	6	4	2	53E	5	3	24 110	► 3TH4253-0LB4 ► 3TH4253-0LF4	1 1	1 unit 1 unit	41A 41A
8	10	6	4	2	62E	6	2	24 110	► 3TH4262-0LB4 ► 3TH4262-0LF4	1 1	1 unit 1 unit	41A 41A

¹⁾ Contacts not extendable.

Accessories [see page 5/22](#).

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers

Overview

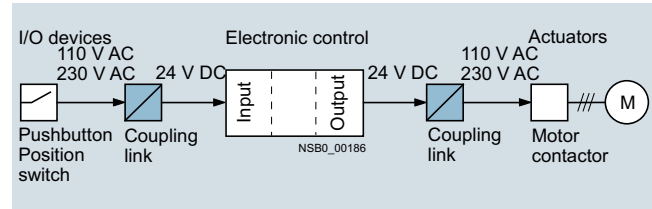
AC and DC operation

IEC 60947-5-1, EN 60947-5-1

In the coupling links in double-decker design, the connections are arranged on two levels; these units are extremely compact. Connection method: Screw terminals or spring-type terminals. For test purposes, versions are available with manual-0-automatic switches.

The input and output coupling links differ with regard to the positioning of the terminals and the LEDs. For equipment identification purposes, each coupling link has a blank labeling plate.

The semiconductor couplers have a low power consumption and are therefore particularly well suited for solid-state systems.



Application example: Motor control

Technical specifications

Type		
Dimensions (W x H x D)		
For width B see "Selection and ordering data"		
	mm	3TX7002, 3TX7003 W x 60 x 62
		3TX7004, 3TX7005 B x 80 x 85

General technical specifications

Rated insulation voltage U_i (pollution degree 3)	V	300
Protective separation ¹⁾ between coil and contacts acc. to IEC 60947-1, Appendix N	V	Up to 300 AC
Permissible ambient temperature	°C	-25 ... +60
• During operation	°C	-40 ... +80
• During storage		
Degree of protection		IP20
• Connections		IP30
• Enclosure		
Short-circuit protection		
• Short-circuit test with fuse links of operational class gG with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A	4

Conductor cross-sections

For 3TX7002, 3TX7004:		Screw terminals
• Solid	mm ²	1 x (0.25 ... 4)
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5)
• Terminal screws		M3
- Corresponding opening tool		Screwdriver, size 3.5 mm x 0.5 mm
For 3TX7003, 3TX7005:		Spring-type terminals
• Solid or finely stranded	mm ²	1 x (0.08 ... 2.5)
• Finely stranded with end sleeve	mm ²	1 x (0.25 ... 1.5)
• Corresponding opening tool		Screwdriver, size 3.0 mm x 0.5 mm (3RA2908-1A)

¹⁾ For 3TX700...-1FB02, no protective separation acc. to IEC 60947-1, Appendix N.

Type	3TX7002-, 3TX7003-	1AB00 1AB02	1BB00	1FB02	1CB00	2AB00	2AE00	1BF00 2BF02	2AF00 2AF05
Control side									
Operating range		0.8 ... 1.25 x U_s					0.8 ... 1.1 x U_s		
Power consumption									
• At $U_s = 24$ V AC/DC	W	0.75		1.2		0.75		--	
• At $U_s = 230$ V AC/DC	W	--		--		--		1.2	

Type	3TX7004, 3TX7005	Exception: 3TX7005-...05
Control side		
Operating range		
• At $U_s = 24$ V AC/DC		0.7 ... 1.25 x U_s
• At $U_s = 110$ V AC/DC and 230 V		0.8 ... 1.1 x U_s
- Exception: 3TX7005-1LN00		0.7 ... 1.25 x U_s
Power consumption		
• At $U_s = 24$ V AC/DC	VA/W	0.5
• At $U_s = 230$ V AC	VA	--
• At $U_s = 230$ V DC	W	6 1

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers

Type		3TX7002, 3TX7003	Exception: 3TX7002-1CB00
Load side			
Rated operational currents I_e¹⁾			
Conventional thermal current I_{th}	A	6	
Rated operational current I_e acc. to utilization categories (IEC 60947-5-1)			
• AC-15	At 24 ... 230 V	A	3
• DC-13	At 24 V	A	1
	At 110 V	A	0.2
	At 230 V	A	0.1
Switching current for resistive load acc. to IEC 60947-5-1			
• AC-12	At 24 ... 230 V	A	6
• DC-12	At 24 V	A	6
	At 110 V	A	0.2
	At 230 V	A	0.2
Switching voltage	AC/DC	V	24 ... 250
Min. contact load for 3TX700...02			1 V AC/DC/0.1 A
Mechanical endurance	Operating cycles		10×10^6
Electrical endurance at I_e	Operating cycles		1×10^5

Type		3TX7004-1B, -1L, 3TX7005-1L	3TX7004-.M, 3TX7005-.M,
Load side			
Rated operational currents I_e¹⁾			
Conventional thermal current I_{th}	A	6	
Rated operational current I_e acc. to utilization categories (IEC 60947-5-1)			
• AC-15	At 24 ... 230 V	A	3
• DC-13	At 24 V	A	1
	At 110 V	A	0.2
	At 230 V	A	0.1
Switching current for resistive load acc. to IEC 60947-5-1			
• AC-12	At 24 ... 230 V	A	6
• DC-12	At 24 V	A	6
	At 110 V	A	0.3
	At 230 V	A	0.2
Power limit for hard gold-plating			
• Voltage	V	30	
• Current	mA	20	
Switching voltage	AC/DC	V	17 ... 250
Min. switching voltage (reliability 1 ppm)			
• Standard contacts			17 V DC/5 mA
• Hard gold-plated contacts			5 V DC/1 mA
Mechanical endurance	Operating cycles		10×10^6
Electrical endurance at I_e	Operating cycles		1×10^5
			0.5×10^6

¹⁾ Capacitive loads can result in micro-welding on the contacts.

Note:

If inductive loads are connected in parallel, the endurance of the relay couplers can be increased.

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers

Relay couplers – circuit diagrams for 3TX7002, 3TX7003

Terminal designations acc. to EN 50005

Output/input coupling links

3TX7002-1AB00
3TX7002-1AB02
3TX7002-2A..00
3TX7002-2AF05
3TX7003-1AB00

Output coupling links

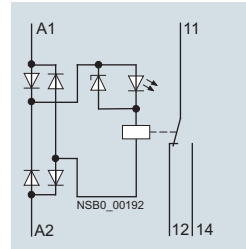
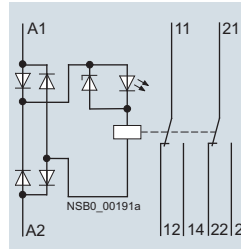
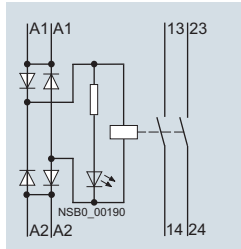
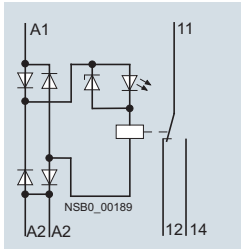
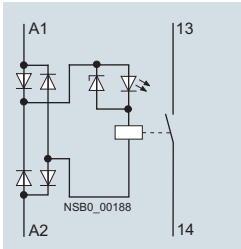
3TX7002-1BB00
3TX7002-1BF00
3TX7003-1BB00

3TX7002-1CB00
3TX7003-1CB00

3TX7002-1FB02

Input coupling links

3TX7002-2BF02



Relay couplers – circuit diagrams for 3TX7004, 3TX7005

Output coupling links

3TX700.-1M..00

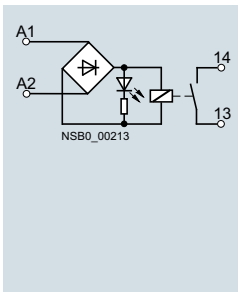
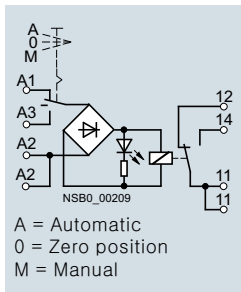
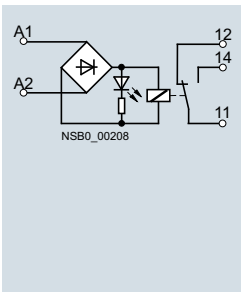
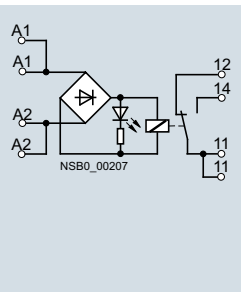
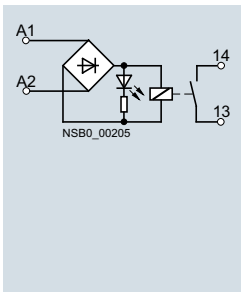
3TX700.-1BB00
3TX700.-1BF05

3TX700.-1L..0.

3TX700.-1BB10

Input coupling links

3TX700.-2M..02



Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers

Selection and ordering data

AC and DC operation · for snap-on mounting onto TH 35 standard mounting rail

	Rated control supply voltage U_s (at AC: 50/60 Hz)	Contacts Version		Width W	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V	NO	CO	mm						
Relay coupling links 3TX7002										
 3TX7002-1AB00	Output coupling links					Screw terminals 				
	24 AC/DC	1	--	11.5	▶	3TX7002-1AB00		1	1 unit	41H
	24 AC/DC	1 ¹⁾	--	11.5	▶	3TX7002-1AB02		1	1 unit	41H
	24 AC/DC	--	1	17.5	▶	3TX7002-1BB00		1	1 unit	41H
	230 AC/DC ³⁾	--	1	17.5	▶	3TX7002-1BF00		1	1 unit	41H
	24 AC/DC	2 ²⁾	--	22.5	▶	3TX7002-1CB00		1	1 unit	41H
	24 AC/DC	--	2 ^{1) 2)}	22.5	▶	3TX7002-1FB02		1	1 unit	41H
	Input coupling links									
	24 AC/DC	1	--	11.5	▶	3TX7002-2AB00		1	1 unit	41H
	110 AC/DC ⁴⁾	1	--	11.5	▶	3TX7002-2AE00		1	1 unit	41H
	230 AC/DC ³⁾	1 ²⁾	--	11.5	▶	3TX7002-2AF00		1	1 unit	41H
	230 AC/DC	1 ²⁾	--	11.5	▶	3TX7002-2AF05		1	1 unit	41H
	230 AC/DC ³⁾	--	1 ¹⁾	17.5	▶	3TX7002-2BF02		1	1 unit	41H
Relay coupling links 3TX7003										
 3TX7003-1BB00	Output coupling links					Spring-type terminals 				
	24 AC/DC	1	--	11.5	▶	3TX7003-1AB00		1	1 unit	41H
	24 AC/DC	--	1	17.5	▶	3TX7003-1BB00		1	1 unit	41H
	24 AC/DC	2 ²⁾	--	22.5	▶	3TX7003-1CB00		1	1 unit	41H
	Input coupling links									
	230 AC/DC	1	--	11.5	A	3TX7003-2AF00		1	1 unit	41H

1) Hard gold-plated contacts.

2) Different potential up to 300 V permitted; no protective separation.

3) Observe max. permissible cable length for AC control voltage: 7 m.

4) Observe max. permissible cable length for AC control voltage: 15 m.

Note:

For coil voltages which are not listed, SITOP DC power supplies can be used, e.g. 6EP1331-5BA00 or 6EP1331-5BA10; see Chapter 15, "Stabilized Power Supplies" → "SITOP Power Supplies".

Note:

A clearance of at least 10 mm between the modules or to adjacent contacts is required for operation with rated voltage and 100 % ON period over 24 hours a day.

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers

Rated control supply voltage U_s (at AC: 50/60 Hz)	Contacts	Version	Manual-0-automatic switch for testing purposes	Width W	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
V	NO	CO		mm						
3TX7004 relay couplers										
	Output coupling links					Screw terminals 				
	24 AC/DC	--	1	Without	6.2	▶ 3TX7004-1LB00		1	1 unit	41H
	24 AC/DC	--	1 ²⁾	Without	6.2	▶ 3TX7004-1LB02		1	1 unit	41H
	24 AC/DC	--	1	With	12.5	▶ 3TX7004-1BB10		1	1 unit	41H
	230 AC/DC	--	1	Without	6.2	▶ 3TX7004-1LF00		1	1 unit	41H
	230 AC/DC	--	1	Without	12.5 ¹⁾	▶ 3TX7004-1BF05		1	1 unit	41H
	24 AC/DC	1	--	Without	6.2	▶ 3TX7004-1MB00		1	1 unit	41H
	230 AC/DC	1	--	Without	6.2	▶ 3TX7004-1MF00		1	1 unit	41H
	Input coupling links									
	24 AC/DC	1 ²⁾	--	Without	6.2	▶ 3TX7004-2MB02		1	1 unit	41H
	110 AC/DC	1 ²⁾	--	Without	6.2	▶ 3TX7004-2ME02		1	1 unit	41H
	230 AC/DC	1 ²⁾	--	Without	6.2	▶ 3TX7004-2MF02		1	1 unit	41H
3TX7005 relay couplers										
	Output coupling links					Spring-type terminals 				
	24 AC/DC	--	1	Without	6.2	▶ 3TX7005-1LB00		1	1 unit	41H
	24 AC/DC	--	1 ²⁾	Without	6.2	▶ 3TX7005-1LB02		1	1 unit	41H
	110 AC/DC ³⁾	--	1	Without	6.2	B 3TX7005-1LN00		1	1 unit	41H
	230 AC/DC	--	1	Without	6.2	▶ 3TX7005-1LF00		1	1 unit	41H
	24 AC/DC	1	--	Without	6.2	▶ 3TX7005-1MB00		1	1 unit	41H
	230 AC/DC	1	--	Without	6.2	▶ 3TX7005-1MF00		1	1 unit	41H
	Input coupling links									
	24 AC/DC	1 ²⁾	--	Without	6.2	C 3TX7005-2MB02		1	1 unit	41H
	230 AC/DC	1 ²⁾	--	Without	6.2	B 3TX7005-2MF02		1	1 unit	41H

¹⁾ For long cables.

²⁾ Hard gold-plated contacts.

³⁾ Extended operating range 0.7 ... 1.25 x U_s .

Note:

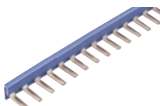
For replacement products see [3RS18 coupling links with industrial enclosure or other 3TX70 products](#).

For coil voltages which are not listed, SITOP DC power supplies can be used, e.g. 6EP1331-5BA00 or 6EP1331-5BA10; see Chapter 15, "Stabilized Power Supplies" → "SITOP Power Supplies".

Note:

A clearance of at least 10 mm between the modules or to adjacent contacts is required for operation with rated voltage and 100 % ON period over 24 hours a day.

Accessories

For coupling links	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							
Connecting comb, blue							
	3TX7004	For linking the same potentials	▶ 3TX7004-8AA00		1	1 unit	41H
		24 terminals, current carrying capacity for infeed max. 26 A Width 6.2 mm					
Connecting cable, blue							
	3TX7002 and 3TX7004 with screw terminals	With supply cable, blue	A 3TX7004-8BA00		1	1 unit	41H
	3TX7003 and 3TX7005 with spring-type terminals	24 terminals, current carrying capacity for infeed max. 12 A Length of cable between two terminals approx. 11 cm					

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers with plug-in design

Overview

Coupling links are used to connect signals from and to a PLC. The plug-in relays enable the relay to be replaced at the end of its service life without detaching the wiring.

For easy linking of the signals, each terminal can be jumpered using an external connecting comb.

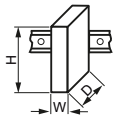
Note:

A clearance of at least 10 mm between the modules or to adjacent contacts is required for operation with rated voltage and 100 % ON period over 24 hours a day.

Benefits

- Plug-in base couplers with spring-type terminals in width 6.2 mm
- Fast exchange with existing wiring (plug-in relay)
- Tested complete units → shorter mounting time
- Single relays available as components
- The wire inlet and terminals can be reached from the front. This results in faster wiring time and wiring errors are prevented.
- Linking of control supply voltage and control signals with 16-pole connecting comb
- Galvanic isolation plate for isolating different voltages for neighboring units
- Integrated reverse polarity protection and EMC arc-suppression diode
- Clearly visible functional state of the relay coupler by yellow LED
- Protective separation according to IEC 61140
- Device variants with hard gold-plated contacts, hence high contact reliability
- 230 V AC/DC versions available

Technical specifications

Type		3TX7014, 3TX7015			
Dimensions (W x H x D)		mm	6.2 x 90 x 92		
• Galvanic isolation plate 3TX7014-7CE00		mm	1 x 89.2 x 94.2		
General technical specifications					
Rated insulation voltage U_i (pollution degree 2)	V	300			
Protective separation between coil and contacts acc. to IEC 60947-1, Appendix N	V	Up to 300 AC			
Permissible ambient temperature	°C	-25 ... +55			
• During operation	°C	-40 ... +80			
• During storage					
Degree of protection		IP20			
• Enclosure		IP40			
• Relays					
Short-circuit protection					
• Short-circuit test with fuse links of operational class gG with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A	4			
Conductor cross-sections					
For 3TX7014:		 Screw terminals			
• Solid	mm ²	1 x (0.5 ... 2.5)			
• Finely stranded with or without end sleeve	mm ²	1 x (0.5 ... 1.5)			
• Terminal screws		M2.5			
- Corresponding opening tool		Screwdriver, 3.0 mm x 0.5 mm (3RA29 08-1A)			
For 3TX7015:		 Spring-type terminals			
• Solid or finely stranded	mm ²	1 x (0.5 ... 2.5)			
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 1.5)			
• Corresponding opening tool		Screwdriver, 3.0 mm x 0.5 mm (3RA2908-1A)			
Type		3TX701.-1.M	3TX701.-1.B	3TX701.-1.E	3TX701.-1.F
Control side					
Operating range		0.85 ... 1.1 U_s	0,7 ... 1.25 U_s	0.8 ... 1.1 U_s	0.8 ... 1.1 U_s
Power consumption, max.					
• At $U_s = 24$ V	W	0.5			
• At $U_s = 115$ V	W	0.5			
• At $U_s = 230$ V	W	1			
Protection circuit					
• DC		Freewheel diode + Reverse polarity protection			
• AC		Rectifier bridge			

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Relay couplers with plug-in design

Type	3TX7014, 3TX7015	
Load side		
Rated currents ¹⁾		
• Conventional thermal current I_{th}	A	5
• Rated operational currents I_e		
- AC-15	At 24 ... 230 V A	3
- DC-13	At 24 V A	1
	At 110 V A	0.2
	At 230 V A	0.1
Switching voltage	AC/DC V	24 ... 250
Min. contact load (reliability 1 ppm)		
• Standard contact	17 V DC/5 mA	
• Hard gold-plated contacts	5 V DC/1 mA	
Mechanical endurance	Operating cycles	10 x 10 ⁶
Electrical endurance at I_e acc. to AC-15	Operating cycles	1 x 10 ⁵

¹⁾ Capacitive loads can result in micro-welding on the contacts.

Note:

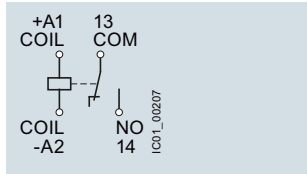
If inductive loads are connected in parallel, the endurance of the relay couplers can be increased.

Connections

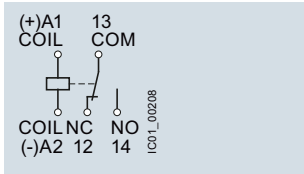
Terminal designations acc. to EN 50005

1 NO

3TX7014-1AM00
3TX7015-1AM00

**1 CO contact**

3TX7014-1B...
3TX7015-1B...

**Selection and ordering data**

Rated control supply voltage U_s (at AC: 50/60 Hz)	Contacts Version	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG
			Article No.			
V	 NO	 CO				
Plug-in base couplers, width 6.2 mm, complete with relay						
	24 DC	1	--	A	3TX7014-1AM00	1 5 units 41H
	24 DC	--	1	A	3TX7014-1BM00	1 5 units 41H
	24 AC/DC	--	1	A	3TX7014-1BB00	1 5 units 41H
	115 AC/DC	--	1	A	3TX7014-1BE00	1 5 units 41H
	230 AC/DC	--	1	A	3TX7014-1BF00	1 5 units 41H
3TX7014-1AM00						
With hard gold-plated contacts ¹⁾						
	24 DC	--	1	A	3TX7014-1BM02	1 5 units 41H
	24 AC/DC	--	1	A	3TX7014-1BB02	1 5 units 41H
	115 AC/DC	--	1	A	3TX7014-1BE02	1 5 units 41H
	230 AC/DC	--	1	A	3TX7014-1BF02	1 5 units 41H

¹⁾ The versions with hard gold-plated contacts feature high contact reliability (also for low currents) and are therefore especially suitable for solid-state inputs of programmable logic controllers.

Coupling Relays

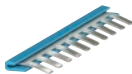
3TX7 Coupling Relays, Narrow Design

Relay couplers with plug-in design

Rated control supply voltage U_s (at AC: 50/60 Hz)	Contacts Version	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG
V	NO CO		Article No. Price per PU			
Plug-in base couplers, width 6.2 mm, complete with relay						
24 DC	1 --	A	3TX7015-1AM00	1 5 units	41H	
24 DC	-- 1	A	3TX7015-1BM00	1 5 units	41H	
24 AC/DC	-- 1	A	3TX7015-1BB00	1 5 units	41H	
115 AC/DC	-- 1	A	3TX7015-1BE00	1 5 units	41H	
230 AC/DC	-- 1	A	3TX7015-1BF00	1 5 units	41H	
With hard gold-plated contacts¹⁾						
24 DC	-- 1	A	3TX7015-1BM02	1 5 units	41H	
24 AC/DC	-- 1	A	3TX7015-1BB02	1 5 units	41H	
115 AC/DC	-- 1	A	3TX7015-1BE02	1 5 units	41H	
230 AC/DC	-- 1	A	3TX7015-1BF02	1 5 units	41H	

¹⁾ The versions with hard gold-plated contacts feature high contact reliability (also for low currents) and are therefore especially suitable for electronic inputs of programmable logic controllers.

Accessories

For coupling links		Rated control supply voltage U_s	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		V							
Replacement relay modules, width 6.2 mm, 1 changeover contact									
For complete unit									
3TX7014 and 3TX7015	12 DC		• 24 V AC/DC	A	3TX7014-7BQ00 3TX7014-7BQ02		1 20 units 1 20 units	41H 41H	
			• 24 V DC, hard gold-plated	A					
3TX7014 and 3TX7015	24 DC		• 24 V DC	A	3TX7014-7BM00 3TX7014-7BM02		1 20 units 1 20 units	41H 41H	
			• 24 V DC, hard gold-plating	A					
3TX7014 and 3TX7015	60 DC		• 115 V or 230 V AC/DC	A	3TX7014-7BP00 3TX7014-7BP02		1 20 units 1 20 units	41H 41H	
			• 115 V or 230 V AC/DC, hard gold-plated	A					
Connecting comb, blue									
	3TX7014 and 3TX7015	--	For linking the same potentials 16 terminals, current carrying capacity for infeed max. 6 A	A	3TX7014-7AA00		1 5 units	41H	
Galvanic isolation plates									
	3TX7014 and 3TX7015	--	--	A	3TX7014-7CE00		1 10 units	41H	

Assignment of replacement relay modules

Plug-in base couplers				Replacement modules	
Standard contacts	Hard gold-plated contacts	U_s	Contact	Standard contacts	Hard gold-plated contacts
3TX701.-1AM00	--	24 V DC	1 NO	3TX7014-7BM00	--
3TX701.-1BM00	3TX701.-1BM02	24 V DC	1 CO contact	3TX7014-7BM00	3TX7014-7BM02
3TX701.-1BB00	3TX701.-1BB02	24 V AC/DC		3TX7014-7BQ00	3TX7014-7BQ02
3TX701.-1BE00	3TX701.-1BE02	115 V AC/DC		3TX7014-7BP00	3TX7014-7BP02
3TX701.-1BF00	3TX701.-1BF02	230 V AC/DC		3TX7014-7BP00	3TX7014-7BP02

More information about replacement relay modules
see [Product Support](#):

<http://support.automation.siemens.com/WW/view/en/34803536>

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Semiconductor couplers

Overview

AC and DC operation

IEC 60947, EN 60947,
IEC 60664-1, EN 60664-1 and EN 50005;
optocouplers: IEC 60747-5, EN 60747-5;
programmable controllers: IEC 61131-2

The input and output coupling links differ with regard to the positioning of the terminals and the LEDs. For equipment identification purposes, each coupling link has a blank labeling plate.

The semiconductor couplers have a low power consumption and are therefore particularly well suited for solid-state systems.

In the coupling links in double-decker design, the connections are arranged on two levels; these units are extremely compact. For test purposes, versions are available with manual-0-automatic switches. This design can also be supplied with spring-type terminals.

Surge suppression

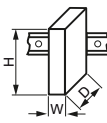
In the case of optocouplers, the contact element is a semiconductor. These are not subject to wear; so welding is not possible.

Note:

With semiconductors, the switching current is not dependent on the inductance of the load, i.e. the switching current for a DC-13 load is the same as that for an inductive DC-12 load.

This means that coupling links with a semiconductor output are particularly suitable for inductive loads such as solenoid valves. It is not relevant to specify any number of operating cycles because this does not affect the endurance of the semiconductor provided it is not overheated.

Technical specifications

Type		mm	3TX7002	3TX7004, 3TX7005
Dimensions (W x H x D)			W x 60 x 62	W x 80 x 85
For width W see "Selection and ordering data"				
General technical specifications				
Rated insulation voltage U_i (pollution degree 3)	V	300		
Optoelectronic coupling elements: Protective separation acc. to IEC 60947-1, Appendix N	V	Up to 300		
Permissible ambient temperature				
• During operation	°C	-25 ... +60		
• During storage	°C	-40 ... +80		
Conductor cross-sections				
For 3TX7002, 3TX7004:			Screw terminals	
• Solid	mm ²	1 x (0.25 ... 4)		
• Finely stranded with end sleeve	mm ²	1 x (0.5 ... 2.5)		
• Terminal screws - Corresponding opening tool		M3 Screwdriver, size 3.0 mm x 0.5 mm (3RA29 08-1A)		
For 3TX7005:			Spring-type terminals	
• Solid or finely stranded	mm ²	--	1 x (0.08 ... 2.5)	
• Finely stranded with end sleeve	mm ²	--	1 x (0.25 ... 1.5)	
• Corresponding opening tool		--	Screwdriver, size 3.0 mm x 0.5 mm (3RA2908-1A)	

Coupling Relays

3TX7 Coupling Relays, Narrow Design

Semiconductor couplers

Type		3TX7002-3AB00	3TX7002-3AB01	3TX7002-4AB00	3TX7002-4AG00
Control side					
Operating range	V	17 ... 30 DC	11 ... 30 DC	17 ... 30 AC/DC	88 ... 264 AC
Power consumption, max.					
• At 17 V DC	mA	18	5	--	--
• At 24 V DC	mA	20	7	--	--
• At 30 V DC	mA	22	8.5	--	--
• At 17 V AC/DC	mA	--	--	10	--
• At 24 V AC/DC	mA	--	--	14	--
• At 30 V AC/DC	mA	--	--	18	--
• At 88 V AC/DC	mA	--	--	--	9
• At 230 V AC/DC	mA	--	--	--	24
• At 264 V AC/DC	mA	--	--	--	28
Load side					
Switching current	A	1.8	1.5 ²⁾	0.1	0.1
Short-time loading capacity	A	20	4	1	1
	ms	20	200	20	20
Switching voltage (operating range) ¹⁾					
• Effective AC 50/60 Hz	V	48 ... 264	--	--	--
• DC	V	--	≤ 60	≤ 30	≤ 30
Minimum load current	mA	60	--	--	--
Voltage drop conducting	V	≤ 1.5	≤ 1.1	≤ 1.7	≤ 0.3

¹⁾ Comply with minimum switching voltage for 3TX7002-3AB00.

²⁾ See derating diagram.

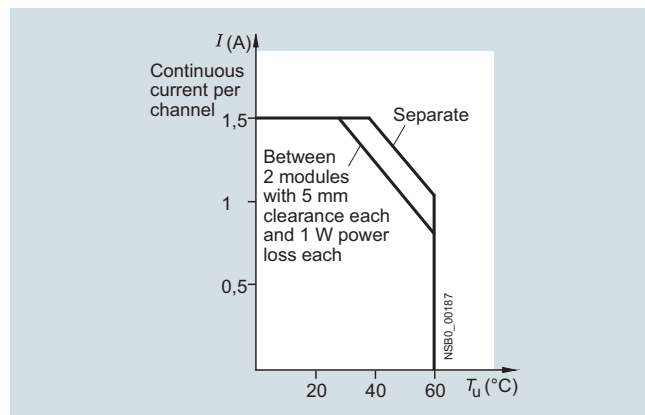
Type		3TX7004-3TX7005-	3AB04	3AC.4	3AC03	3PB54	3PB74	4PG24	3PG74
Control side									
Operating range	V		11 ... 30 DC					110 ... 230 AC/DC	88 ... 253 AC/DC
Power consumption, max.									
• At 24 V DC	W		0.5		0.25	0.2		--	--
• At 110 V DC	W		--		--	--		--	0.2
• At 230 V AC	VA		--		--	--		1.5	1.5
Load side									
Switching voltage	V		10 ... 48 DC	10 ... 30 DC	24 ... 250 AC	10 ... 30 DC	11 ... 30 DC	10 ... 30 DC	11 ... 30 DC
Switching current	A		0.5	5	2	1.5	3	0.1	3
Short-time loading capacity									
• Current	A		1.5	Short-circuit proof ¹⁾	100	Short-circuit proof ²⁾		0.2	Short-circuit proof ²⁾
• Duration	ms		20	--	20	--	--	3	--
Minimum load current	mA		--	500 ³⁾	50	--	--	--	--

¹⁾ In the event of a short circuit or overload, the semiconductor output switches off. In order to operate the device again, it must be temporarily disconnected from the power supply.

²⁾ In the event of a short circuit or overload, the current is limited by the semiconductor output.

³⁾ If the current falls below the minimum load current, the built-in semiconductor detects an open circuit in the load circuit. The control must be temporarily switched off for resetting.

Derating diagram for 3TX7002-3AB01



Load current as a function of ambient temperature T_u

Coupling Relays

3TX7 Coupling Relays, Narrow Design

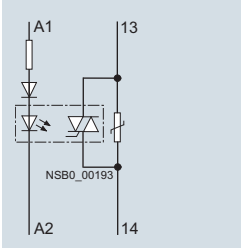
Semiconductor couplers

Semiconductor couplers – circuit diagrams

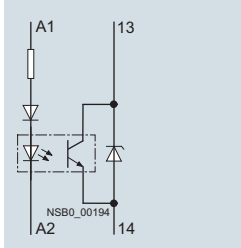
Terminal designations acc. to EN 50005

Output coupling links

3TX7002-3AB00

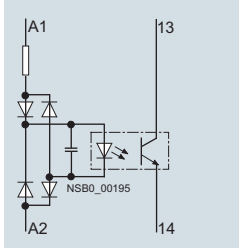


3TX7002-3AB01

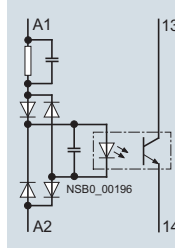


Input coupling links

3TX7002-4AB00

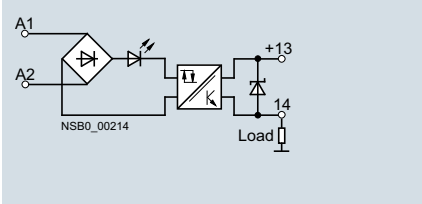


3TX7002-4AG00

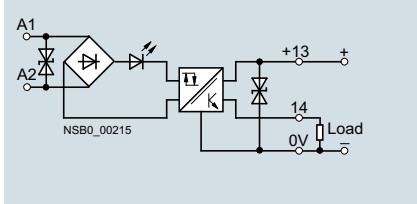


Output coupling links

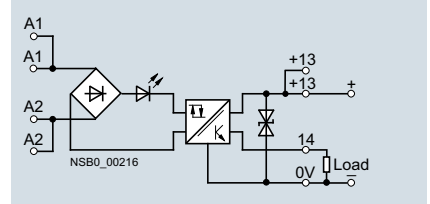
3TX700.-3AB04
3TX700.-3PB41



3TX700.-3PB54
3TX700.-3PG74
3TX700.-3PB74

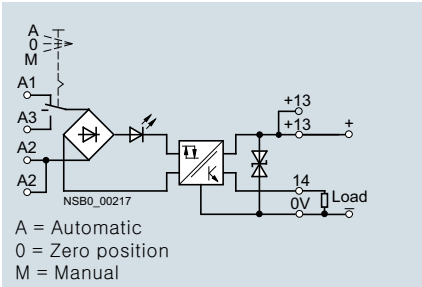


3TX700.-3AC04

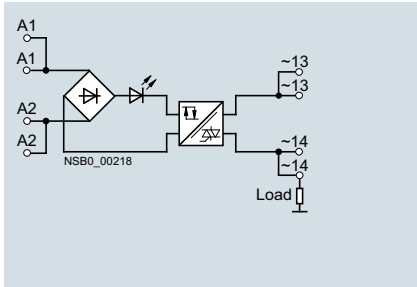


Output coupling links

3TX700.-3AC14

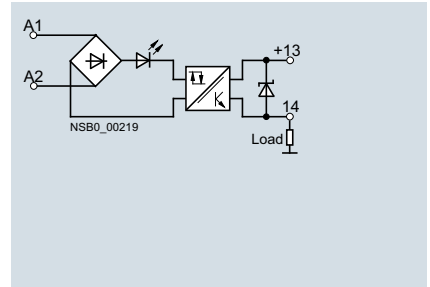


3TX700.-3AC03



Input coupling links

3TX700.-4AB04



Coupling Relays

3TX7 Coupling Relays, Narrow Design

Semiconductor couplers

Selection and ordering data

AC and DC operation · For snap-on mounting onto TH 35 standard mounting rail

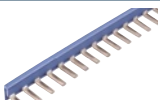
Rated control supply voltage U_s (at AC: 50/60 Hz)	Switching voltage	Switching current	Manual-O- automatic switch for testing purposes	Width W	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
V	V	A		mm						
3TX7002 semiconductor couplers, 1 transistor										
Output coupling links						Screw terminals 				
24 DC	48 ... 264 AC	1.8	--	11.5	▶	3TX7002-3AB00		1	1 unit	41H
	60 < DC	1.5	--	11.5	▶	3TX7002-3AB01		1	1 unit	41H
Input coupling links										
24 AC/DC	30 < DC	0.1	--	11.5	▶	3TX7002-4AB00		1	1 unit	41H
110 ... 240 AC	30 < DC	0.1	--	11.5	▶	3TX7002-4AG00		1	1 unit	41H
3TX7004 semiconductor couplers										
Output coupling links										
24 DC	≤ 48 DC	0.5	--	6.2	▶	3TX7004-3AB04		1	1 unit	41H
24 DC	11 ... 30 DC	1.5	--	6.2	▶	3TX7004-3PB54		1	1 unit	41H
24 DC	≤ 30 DC	3	--	6.2	▶	3TX7004-3PB74		1	1 unit	41H
110 ... 230 AC/DC	≤ 30 DC	3	--	6.2	A	3TX7004-3PG74		1	1 unit	41H
24 DC	≤ 30 DC	5	--	12.5	▶	3TX7004-3AC04		1	1 unit	41H
24 DC	≤ 30 DC	5	Yes	12.5	B	3TX7004-3AC14		1	1 unit	41H
24 DC	24 ... 250 AC	2	--	12.5	▶	3TX7004-3AC03		1	1 unit	41H
Input coupling links										
110 ... 230 AC/DC	≤ 30 DC	0.1	--	6.2	▶	3TX7004-4PG24		1	1 unit	41H
3TX7005 semiconductor couplers										
Output coupling links						Spring-type terminals 				
24 DC	≤ 48 DC	0.5	--	6.2	▶	3TX7005-3AB04		1	1 unit	41H
24 DC	11 ... 30 DC	1.5	--	6.2	▶	3TX7005-3PB54		1	1 unit	41H
24 DC	≤ 30 DC	3	--	6.2	A	3TX7005-3PB74		1	1 unit	41H
110 ... 230 AC/DC	≤ 30 DC	--	--	6.2	A	3TX7005-3PG74		1	1 unit	41H
24 DC	≤ 30 DC	5	--	12.5	▶	3TX7005-3AC04		1	1 unit	41H
24 DC	≤ 30 DC	--	Yes	12.5	C	3TX7005-3AC14		1	1 unit	41H
24 DC	24 ... 250 AC	2	--	12.5	C	3TX7005-3AC03		1	1 unit	41H
Input coupling links										
110 ... 230 AC/DC	≤ 30 DC	0.1	--	6.2	▶	3TX7005-4PG24		1	1 unit	41H

Note:

For replacement products, see [3RS18 coupling links with industrial enclosure](#) or other 3TX70 products.

For coil voltages which are not listed, SITOP DC power supplies can be used, e.g. 6EP1331-5BA00 or 6EP1331-5BA10; see Chapter 15, "Stabilized Power Supplies" → "SITOP Power Supplies".

Accessories

For coupling links	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							
Connecting comb, blue							
 3TX7004-8AA00	3TX7004	For linking the same potentials 24 terminals, current carrying capacity for infeed max. 26 A Width 6.2 mm	▶	3TX7004-8AA00		1	1 unit 41H
Connecting cable, blue							
 3TX7004-8BA00	3TX7002 and 3TX7004 with screw terminals 3TX7003 and 3TX7005 with spring-type terminals	With supply cable, blue 24 terminals, current carrying capacity for infeed max. 12 A Length of cable between two terminals approx. 11 cm	A	3TX7004-8BA00		1	1 unit 41H

SIRIUS 3RS18 Coupling Relays with Industrial Enclosure

Relay couplers

Overview

The 3RS18 coupling relays are couplers in the proven 22.5 mm industrial enclosure. This enclosure supports the same connection methods as for the 3RP15 timing relays, including spring-type connection; 2 wires can be clamped.

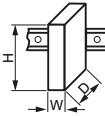
The series comprises devices with up to 3 changeover contacts with screw terminals or spring-type terminals as combination voltage or wide voltage range versions.

The relay coils are protected internally with noise suppression diodes.

Versions:

- Wide voltage range: One connection for a wide voltage range
- Combination voltage: Two connections for different voltage ranges
- Versions with solid-state compatible outputs (hard gold-plating)
- 1, 2 or 3 changeover contacts

Technical specifications

Type					
Dimensions (W x H x D)		mm	3RS1800-.A... 22.5 x 86 x 84	3RS1800-.B... 22.5 x 86 x 94	3RS1800-.H... 22.5 x 86 x 103
General technical specifications					
Rated insulation voltage U_i pollution degree 3		V	500		
Protective separation acc. to IEC 60947-1, Appendix N between the coil and the contacts and between the individual contacts.		V	300		
Permissible ambient temperature • During operation • During storage		°C °C	-25 ... +60 -40 ... +80		
Degree of protection acc. to IEC 60529 • Enclosure • Cover			IP20 IP40		
Short-circuit protection Short-circuit test with fuse links of operational class gG with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1		A	4		
Conductor cross-sections					
For 3RS1800-1:			 Screw terminals		
• Solid • Finely stranded with end sleeve • AWG cables, solid or stranded	mm ² mm ² mm ²	1 x (0.5 ... 4); 2 x (0.5 ... 2.5) 2 x (0.5 ... 2.5) 2 x (20 ... 14)			
• Terminal screw - Corresponding opening tool		M3.5 Screwdriver, size 3.0 mm x 0.5 mm (3RA29 08-1A)			
• Tightening torque	Nm	0.8 ... 1.2			
For 3RS1800-2:			 Spring-type terminals		
• Solid • Finely stranded without end sleeve • Finely stranded with end sleeve • AWG cables, solid or stranded	mm ² mm ² mm ² AWG	2 x (0.25 ... 1.5) 2 x (0.25 ... 1.5) 2 x (0.25 ... 1) 2 x (24 ... 16)			
• Corresponding opening tool		Screwdriver, size 3.0 mm x 0.5 mm (3RA2908-1A)			
Control side					
Operating range			0.85 ... 1.1 x U_s		
Power consumption, max.	AC or DC	VA/W	8 / 1		
Load side					
Conventional thermal current I_{th}		A	6		
Rated operational currents I_e • AC-15 • DC-13		At 24 ... 400 V At 24 V A At 110 V A At 230 V A	3 1 0.2 0.1		
Switching current for resistive load • AC-12 • DC-12		At 24 ... 400 V A At 24 V A At 115 V A At 230 V A	5 5 0.2 0.2		
Switching voltage • Max. AC • Max. DC		V V	400 250		
Min. contact load • Standard contacts • Hard gold-plated contacts			17 V DC, 5 mA at 1 ppm fault 5 V DC, 1 mA at 1 ppm fault		
Mechanical endurance		Operating cycles	10 x 10 ⁶		
Electrical endurance at I_a		Operating cycles	1 x 10 ⁵		

Coupling Relays

SIRIUS 3RS18 Coupling Relays with Industrial Enclosure

Relay couplers

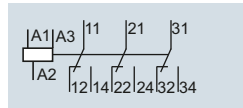
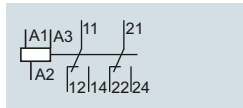
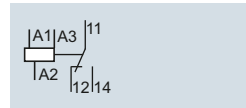
Circuit diagrams

Terminal designations acc. to EN 50005

3RS1800-..AP00,
3RS1800-..AQ00

3RS1800-..BP00,
3RS1800-..BQ00,
3RS1800-..BW00

3RS1800-..HP00,
3RS1800-..HQ00,
3RS1800-..HW00

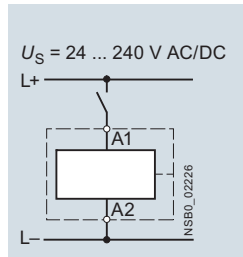
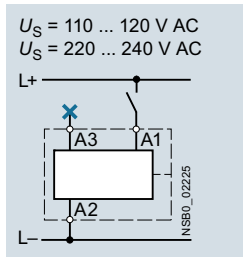
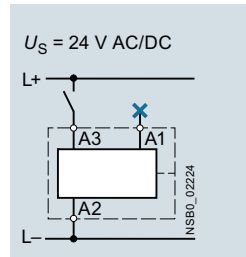


Connection of the control supply voltage U_s

3RS1800-..P00,
3RS1800-..Q00

3RS1800-..P00,
3RS1800-..Q00

3RS1800-..W00



Note:

The position of the connection points on the device is based on the principle of logical separation, i.e. the coil terminals A1, A2, A3 are above and the terminals for the changeover contacts 11, 12, 14 etc. are below.

Selection and ordering data

Rated control supply voltage U_s (at AC: 50/60 Hz)	Connection U_s	Contacts Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
V		CO						
Coupling relays in industrial enclosure, 22.5 mm								
Wide voltage range				Screw terminals 				
24 ... 240 AC/DC	A1 - A2	2 3 3 ¹⁾	A	3RS1800-1BW00		1	1 unit	41H
			A	3RS1800-1HW00		1	1 unit	41H
			A	3RS1800-1HW01		1	1 unit	41H
Combination voltage								
24 AC/DC and 110 ... 120 AC	A3 - A2 or A1 - A2	1 2 3 3 ¹⁾	A	3RS1800-1AQ00		1	1 unit	41H
			A	3RS1800-1BQ00		1	1 unit	41H
			A	3RS1800-1HQ00		1	1 unit	41H
			C	3RS1800-1HQ01		1	1 unit	41H
24 AC/DC and 220 ... 240 AC	A3 - A2 or A1 - A2	1 2 3 3 ¹⁾	A	3RS1800-1AP00		1	1 unit	41H
			A	3RS1800-1BP00		1	1 unit	41H
			A	3RS1800-1HP00		1	1 unit	41H
			A	3RS1800-1HP01		1	1 unit	41H
Coupling relays in industrial enclosure, 22.5 mm								
Wide voltage range				Spring-type terminals 				
24 ... 240 AC/DC	A1 - A2	2 3 3 ¹⁾	A	3RS1800-2BW00		1	1 unit	41H
			A	3RS1800-2HW00		1	1 unit	41H
			A	3RS1800-2HW01		1	1 unit	41H
Combination voltage								
24 AC/DC and 110 ... 120 AC	A3 - A2 or A1 - A2	1 2 3 3 ¹⁾	C	3RS1800-2AQ00		1	1 unit	41H
			A	3RS1800-2BQ00		1	1 unit	41H
			C	3RS1800-2HQ00		1	1 unit	41H
			C	3RS1800-2HQ01		1	1 unit	41H
24 AC/DC and 220 ... 240 AC	A3 - A2 or A1 - A2	1 2 3 3 ¹⁾	A	3RS1800-2AP00		1	1 unit	41H
			A	3RS1800-2BP00		1	1 unit	41H
			A	3RS1800-2HP00		1	1 unit	41H
			A	3RS1800-2HP01		1	1 unit	41H

¹⁾ Hard gold-plated contacts.

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Overview

Plug-in relay coupling links can be ordered as complete units or as individual modules for customer assembly.

Function

The semiconductor couplers have a low power consumption and are therefore particularly well suited for solid-state systems. In the versions equipped with LEDs, these indicate the switching state. The LZS:PT/MT plug-in relay couplers have a test button. This can be used to force the plug-in relay coupler into the switching state and to lock it. This is indicated by a raised petrol-colored lever.

Control with solid-state output

In the case of solid-state outputs (e.g. proximity switches) with overload and short-circuit protection, you must make allowance during configuration for the temporarily flowing capacitor charging currents! This is possible, for example, by using a suitable LZS plug-in relay coupler.

Surge suppression

The 24 V DC relays LZX:RT and LZX: PT with LEDs can be supplied with, all others without integral surge suppression (free-wheel diode connected in parallel with A1/A2). The positive control supply voltage must be connected to coil terminal A1.

Mounting

The relays are plugged into the base and this is snapped onto a TH 35 standard mounting rail according to IEC 60715.

A retaining bracket can be ordered for the MT series that additionally fixes the relay into a plug-in base (under conditions of increased mechanical stress). For the RT and PT series, a combined retaining and ejection bracket is available which can be used to disassemble the relay where access is difficult, for example, when relays are mounted side-by-side.

They can be mounted as required.

Logical separation

The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for coil. Logical separation is not necessarily protective separation.

Protective separation

For safe isolation, transfer of the voltage of one circuit to another circuit is prevented to a suitable degree of safety (requirements and tests are described in IEC 60947-1 in Appendix N).

Notes on the previous LZX series

The complete units and accessory parts of the LZX series are no longer listed in this catalog. The complete units of the LZS series are fully compatible with the corresponding units of the LZX series. Prices for the LZS series are lower than for the previous LZX series.

The LZX plug-in relays are available unchanged and are used accordingly in both the LZS and the LZX series.

Note:

Due to differences in geometry the LED modules, plug-in bases, retaining brackets and labels can be combined and/or used in only the respective series, LZS or LZX.

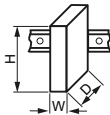
The LZS series offers not only service-proven screw connections but also versions with plug-in terminals (push-in).

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Technical specifications

Relay type		LZX:RT print relay, 8-pole, (12.7 mm) 1 CO/2 CO				LZX:PT industrial relay, 8-, 11- and 14-pole, (22.5 mm) 2 CO/3 CO/4 CO				
Dimensions (W x H x D)										
• LZX:RT.A4 / LZX:PT.A5	mm									
• LZX:RT.B4 / LZX:PT.B5	mm									
• LZX:RT.D4 / LZX:PT.D5	mm									
										
General technical specifications										
Rated control supply voltage $U_s^{1)}$	V	24 DC	24 AC	115 AC	230 AC	24 DC	24 AC	115 AC	230 AC	
Rated insulation voltage U_i (pollution degree 3)	V	250				250				
Overvoltage category acc. to IEC 60664-1		III				III				
Protective separation between coil and contacts acc. to IEC 60947-1, Appendix N		Up to 250 V (with plug-in base LZS:RT78726) No (for complete units with standard socket)				No				
Degree of protection • Relays • Bases		IP67 IP20				IP50 IP20				
Permissible ambient temperature • During operation • During storage	°C °C	-40 ... +70 -40 ... +80				-40 ... +70 -40 ... +80				
Conductor cross-sections										
Connection type		 Screw terminals				 Screw terminals				
• Solid • Finely stranded with end sleeve • Corresponding opening tool	mm ² mm ²	2 x 2.5 2 x 1.5 Screwdriver, size 3.0 ... 3.5 mm x 0.5 mm (3RA29 08-1A)				2 x 2.5 2 x 1.5				
Connection type		 Plug-in terminals (push-in)				 Plug-in terminals (push-in)				
• Solid • Finely stranded without end sleeve • Finely stranded with end sleeve	mm ² mm ² mm ²	1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5 1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5 1 x (0.75 ... 1.0), 2 x 0.75, 1 x 1.5				1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5 1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5 1 x (0.75 ... 1.0), 2 x 0.75, 1 x 1.5				
Control side										
Operating range at 20 °C	V	16.8 ... 52	18 ... 52	86.3 ... 127	172 ... 264	18 ... 40.8	19.2 ... 39.6	92 ... 190	184 ... 380	
Power consumption at U_s • AC • DC	VA W	-- 0.4	0.75 --			-- 0.75	1 --			
Release voltage	V	2.4	7.2	34.5	69	3.6	7.2	34.5	69	
Protection circuit		Freewheel diode for complete unit	--			Freewheel diode in LED module	--			
Load side										
Switching voltage AC/DC	V	24 ... 250				24 ... 250				
Rated currents ²⁾ • Conventional thermal current I_{th} - 1 CO contact - 2 CO contacts - 3 CO contacts - 4 CO contacts • Rated operational current I_e AC-15 acc. to utilization categories (IEC 60947-5-1) • Rated operational current I_e DC-13 with suppressor diode acc. to utilization categories (IEC 60947-5-1)	A A A A A A A	-- 16 6 -- -- RT3 (1 changeover contact): 6 RT4 (2 changeover contacts): 2.5				-- 12 10 6 PT2 (2 changeover contacts): 5 PT3 (3 changeover contacts): 5 PT5 (4 changeover contacts): 4 (DC coils), 2 (AC coils) PT2, PT3: 5 at 24 V PT5: 4 at 24 V 0.5 at 230 V				
Short-circuit protection Short-circuit test with fuse links of operational class gG with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1 • DIAZED, type 5SB		A	10				6			
Min. contact load (reliability: 1 ppm)		Standard 17 V, 10 mA; hard gold-plated 17 V/0.1 mA				Standard 17 V, 10 mA; hard gold-plated 20 mV/1 mA				
Mechanical endurance	Operating cycles	30 x 10 ⁶	10 x 10 ⁶			10 x 10 ⁶				
Electrical endurance (resistive load at 250 V AC)	Operating cycles	1 x 10 ⁵					1 x 10 ⁵			

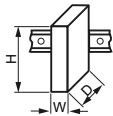
¹⁾ AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10 %; the power loss will reduce slightly.

²⁾ Capacitive loads can result in micro-welding on the contacts.

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Relay type			MT industrial relay, 11-pole (35.5 mm) 3 CO			
Dimensions (W x H x D)	mm		36 x 69 x 36			
AC and DC operation						
Rated control supply voltage U_s ¹⁾	V	24 DC	24 AC	115 AC	230 AC	
Rated insulation voltage U_i (pollution degree 3)	V	250				
Overvoltage category acc. to IEC 60664-1			III			
Protective separation between coil and contacts acc. to IEC 60947-1, Appendix N			No			
Degree of protection of relay/base • Relays • Bases			IP50 IP20			
Permissible ambient temperature • During operation • During storage	°C	-40 ... +60	-45 ... +50	-45 ... +50	-45 ... +50	
	°C	-45 ... +80	-45 ... +80	-45 ... +80	-45 ... +80	
Conductor cross-sections						
Connection type			 Screw terminals			
• Solid	mm ²	2 x 2.5				
• Finely stranded with or without end sleeve	mm ²	2 x 1.5				
• Corresponding opening tool			Screwdriver, size 1 or Pozidriv 1			
Control side						
Operating range at 20 °C	V	18 ... 38	19.2 ... 38	92 ... 137	184 ... 264	
Power consumption • AC • DC	VA W	-- 1.2	2.3 --			
Release voltage	V	2.4	9.6	46	92	
Protection circuit			--			
Load side						
Switching voltage • AC/DC	V	24 ... 250				
Rated currents ²⁾ • Conventional thermal current I_{th} • Rated operational current I_{θ} /DC-13 acc. to utilization categories (IEC 60947-5-1) • Rated operational current I_{θ} /AC-15 acc. to utilization categories (IEC 60947-5-1)	A A A	10 2 at 24 V, 0.27 at 230 V 5 at 24 V and 230 V				
Short-circuit protection Short-circuit test with fuse links of operational class gG with short-circuit current I_k = 1 kA acc. to IEC 60947-5-1 • DIAZED, type 5SB	A	10				
Min. contact load (reliability: 1 ppm)			12 V DC/10 mA			
Mechanical endurance	Operating cycles	20 x 10 ⁶				
Electrical endurance (resistive load at 250 V AC)	Operating cycles	4 x 10 ⁵				

¹⁾ AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10 %; the power loss will reduce slightly.

²⁾ Capacitive loads can result in micro-welding on the contacts.

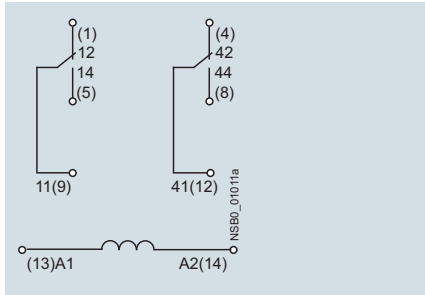
Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

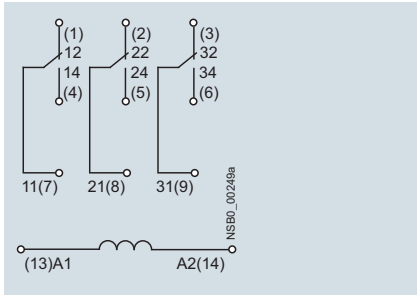
Plug-in relay couplers

Circuit diagrams

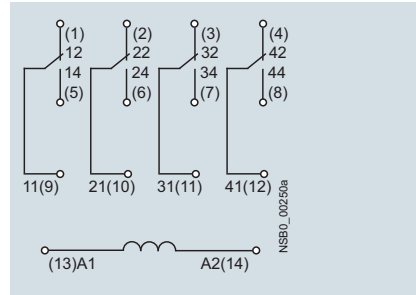
LZX:PT270
2-pole



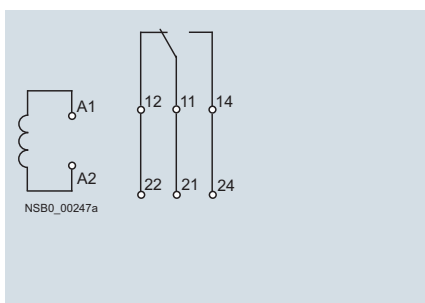
LZX:PT370
3-pole



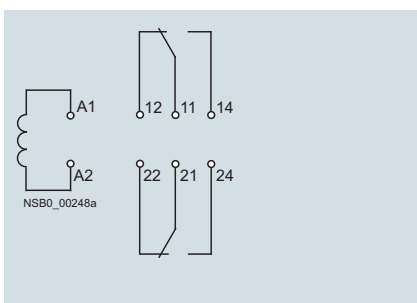
LZX:PT520, LZX:PT570, LZX:PT580
4-pole



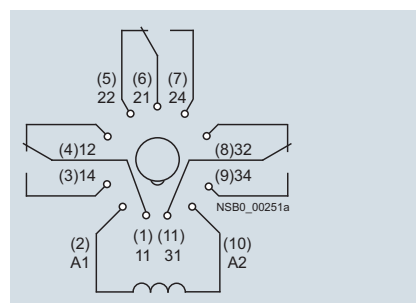
LZX:RT3
1-pole



LZX:RT4
2-pole



LZX:MT32
3-pole



Note:

Values in brackets: Plug-in base designations
Without brackets: Contact/coil designations

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Selection and ordering data

Version	Rated control supply voltage U_s (at AC: 50/60 Hz)	Contacts, number of CO contacts	Width mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Complete units, 11- and 14-pole, PT series									
 LZS:PT3A5L24	Complete units with plug-in base for snap-on mounting onto TH 35 standard mounting rail comprising:				Screw terminals 				
	- Coupling relays with plug-in relays - Standard plug-in base with screw terminals - LED module (version 24 V DC: LED module with freewheel diode) - Fixing/ejection brackets - Labels								
	3 CO contacts	24 DC	3	28	A	LZS:PT3A5L24	1	5 units	41H
		24 AC			A	LZS:PT3A5R24	1	5 units	41H
		115 AC			A	LZS:PT3A5S15	1	5 units	41H
		230 AC			A	LZS:PT3A5T30	1	5 units	41H
	4 CO contacts	24 DC	4	28	A	LZS:PT5A5L24	1	5 units	41H
		24 AC			A	LZS:PT5A5R24	1	5 units	41H
		115 AC			A	LZS:PT5A5S15	1	5 units	41H
		230 AC			A	LZS:PT5A5T30	1	5 units	41H
Complete units with plug-in base with logical separation for snap-on mounting onto TH 35 standard mounting rail comprising:									
- Coupling relays with plug-in relays - Plug-in base with logical separation and screw terminals - LED module (version 24 V DC: LED module with freewheel diode) - Fixing/ejection brackets - Labels									
 LZS:PT5D5L24	4 CO contacts	24 DC	4	28	A	LZS:PT5B5L24	1	5 units	41H
		24 AC			A	LZS:PT5B5R24	1	5 units	41H
		115 AC			A	LZS:PT5B5S15	1	5 units	41H
		230 AC			A	LZS:PT5B5T30	1	5 units	41H
Complete units, 8- and 14-pole, PT series									
 LZS:PT5D5L24	Complete units with plug-in base with logical separation for snap-on mounting onto TH 35 standard mounting rail comprising:				Plug-in terminals (push-in) 				
	- Coupling relays with plug-in relays - Plug-in base with logical separation and plug-in terminals (push-in) - LED module (version 24 V DC: LED module with freewheel diode) - Fixing/ejection brackets - Labels								
	2 CO contacts	24 DC	2	28	A	LZS:PT2D5L24	1	5 units	41H
		230 AC			A	LZS:PT2D5T30	1	5 units	41H
	4 CO contacts	24 DC	4	28	A	LZS:PT5D5L24	1	5 units	41H
		24 AC			A	LZS:PT5D5R24	1	5 units	41H
		115 AC			A	LZS:PT5D5S15	1	5 units	41H
		230 AC			A	LZS:PT5D5T30	1	5 units	41H

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Version	Rated control supply voltage U_s at AC 50/60 Hz	Contacts, number of CO contacts	Width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V		mm						

Individual modules for customer assembly, PT series

Industrial relays, 8-, 11-, and 14-pole

Mini industrial relays

- With test bracket and mechanical switch position indicator, without LED¹⁾



LZX:PT370024

24 DC	2	22.5	▶	LZX:PT270024	1	1 unit	41H	
	3		▶		LZX:PT370024	1	1 unit	41H
	4		▶		LZX:PT570024	1	1 unit	41H
24 AC	2	22.5	▶	LZX:PT270524	1	1 unit	41H	
	3		A		LZX:PT370524	1	1 unit	41H
	4		▶		LZX:PT570524	1	1 unit	41H
115 AC	2	22.5	C	LZX:PT270615	1	1 unit	41H	
	3		A		LZX:PT370615	1	1 unit	41H
	4		▶		LZX:PT570615	1	1 unit	41H
230 AC	2	22.5	▶	LZX:PT270730	1	1 unit	41H	
	3		▶		LZX:PT370730	1	1 unit	41H
	4		▶		LZX:PT570730	1	1 unit	41H
• With hard gold-plating								
24 DC	4	22.5	▶	LZX:PT580024	1	1 unit	41H	
230 AC			▶		LZX:PT580730	1	1 unit	41H
• Without test bracket								
24 DC	4	22.5	▶	LZX:PT520024	1	1 unit	41H	
230 AC			C		LZX:PT520730	1	1 unit	41H

Plug-in bases for PT relays

Standard plug-in bases

for mounting onto TH 35 standard mounting rail



LZS:PT78740

--	2	28	▶	LZS:PT78720	1	1 unit	41H
	3		▶	LZS:PT78730	1	1 unit	41H
	4		▶	LZS:PT78740	1	1 unit	41H

Plug-in bases with logical separation

for mounting onto TH 35 standard mounting rail



LZS:PT78722

--	2	28	▶	LZS:PT78722	1	1 unit	41H
	4		▶	LZS:PT78742	1	1 unit	41H

Plug-in bases with logical separation

for mounting onto TH 35 standard mounting rail



LZS:PT7874P

--	2	28	▶	LZS:PT7872P	1	1 unit	41H
	4		▶	LZS:PT7874P	1	1 unit	41H

¹⁾ The test bracket is designed to be non-latching. If the test bracket is pressed further until 90° has been reached, two small lugs break off and the test bracket can be latched in position.

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Version	Rated control supply voltage U_s at AC 50/60 Hz	Contacts, number of CO contacts	Width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V		mm						

Individual modules for customer assembly, PT series

More individual modules

LED modules

• Red

With freewheel diode	24 DC	--	12.5	▶	LZS:PTML0024		1	1 unit	41H
Without freewheel diode	24 AC/DC			▶	LZS:PTML0524		1	1 unit	41H
	110 ... 230 AC/DC			▶	LZS:PTML0730		1	1 unit	41H

• Green

With freewheel diode	24 DC	--	12.5	▶	LZS:PTMG0024		1	1 unit	41H
Without freewheel diode	24 AC			▶	LZS:PTMG0524		1	1 unit	41H
	110 ... 230 AC/DC			▶	LZS:PTMG0730		1	1 unit	41H

Fixing/ejection brackets for PT base with logical separation

Screw terminals and plug-in terminals (push-in)	--	26	▶	LZS:PT17021		100	10 units	41H
---	----	----	---	-------------	--	-----	----------	-----

Fixing/ejection brackets for standard plug-in base without logical separation

Screw terminals	--	26	▶	LZS:PT17024		100	10 units	41H
-----------------	----	----	---	-------------	--	-----	----------	-----

Labels

--	--	26	▶	LZS:PT17040		100	10 units	41H
----	----	----	---	-------------	--	-----	----------	-----

RC elements

6 ... 60 AC	--	26	▶	LZS:PTMU0524		1	1 unit	41H
110 ... 230 AC			▶	LZS:PTMU0730		1	1 unit	41H

Freewheel diodes with connection to A1

6 ... 230 DC	--	26	▶	LZS:PTMT00A0		1	1 unit	41H
--------------	----	----	---	--------------	--	---	--------	-----

Connecting cables, 24-pole

Current carrying capacity 12 A, with supply cable, blue			A	3TX7004-8BA00		1	1 unit	41H
---	--	--	---	---------------	--	---	--------	-----

Connecting combs for PT screw base

6-pole, 10 A current carrying capacity, natural-colored			▶	LZS:PT170R6		1	10 units	41H
---	--	--	---	-------------	--	---	----------	-----

Connecting brackets for PT push-in base

2-pole, 10 A current carrying capacity, natural-colored			▶	LZS:PT170P1		1	10 units	41H
---	--	--	---	-------------	--	---	----------	-----

Individual modules for customer assembly, MT series

Industrial relays, 11-pole

Industrial relays with test bracket

Without LED	24 DC	3	35.5	A	LZX:MT321024		1	1 unit	41H
With LED				▶	LZX:MT323024		1	1 unit	41H
Without LED	24 AC	3	35.5	A	LZX:MT326024		1	1 unit	41H
With LED				C	LZX:MT328024		1	1 unit	41H
Without LED	115 AC	3	35.5	C	LZX:MT326115		1	1 unit	41H
With LED				C	LZX:MT328115		1	1 unit	41H
Without LED	230 AC	3	35.5	A	LZX:MT326230		1	1 unit	41H
With LED				A	LZX:MT328230		1	1 unit	41H

Plug-in bases

for mounting onto TH 35 standard mounting rail	--	38	▶	Screw terminals		1	1 unit	41H
				LZX:MT78750				

Retaining brackets

--	--	38	▶	LZX:MT28800		1	1 unit	41H
----	----	----	---	-------------	--	---	--------	-----

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Note:

For coil voltages which are not listed, SITOP DC power supplies can be used, e.g. 6EP1331-5BA00 or 6EP1331-5BA10; see Chapter 15, "Stabilized Power Supplies" → "SITOP Power Supplies".

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

Version	Rated control supply voltage U_s at AC 50/60 Hz	Contacts, number of CO contacts	Width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V		mm						
Complete units, 8-pole, 5 mm pinning, RT series									
 LZS:RT4A4T30	Complete units with standard plug-in base for snap-on mounting onto TH 35 standard mounting rail comprising:				Screw terminals 				
	• Coupling relays with plug-in relays • Standard plug-in base with screw terminals • LED module (version 24 V DC: LED module with freewheel diode) • Fixing/ejection brackets • Labels								
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5	A A A A	LZS:RT3A4L24 LZS:RT3A4R24 LZS:RT3A4S15 LZS:RT3A4T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	A A A A	LZS:RT4A4L24 LZS:RT4A4R24 LZS:RT4A4S15 LZS:RT4A4T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
 LZS:RT4B4T30	Complete units with plug-in base with logical separation for snap-on mounting onto TH 35 standard mounting rail comprising:								
	• Coupling relays with plug-in relays • Plug-in base with logical separation and screw terminals • LED module (version 24 V DC: LED module with freewheel diode) • Fixing/ejection brackets • Labels								
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5	A A A A	LZS:RT3B4L24 LZS:RT3B4R24 LZS:RT3B4S15 LZS:RT3B4T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	A A A A	LZS:RT4B4L24 LZS:RT4B4R24 LZS:RT4B4S15 LZS:RT4B4T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
 LZS:RT3D4L24	Complete units with plug-in base with logical separation for snap-on mounting onto TH 35 standard mounting rail comprising:				Plug-in terminals (push-in) 				
	• Coupling relays with plug-in relays • Plug-in base with logical separation and plug-in terminals (push-in) • LED module (version 24 V DC: LED module with freewheel diode) • Fixing/ejection brackets • Labels								
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5	A A A A	LZS:RT3D4L24 LZS:RT3D4R24 LZS:RT3D4S15 LZS:RT3D4T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	A A A A	LZS:RT4D4L24 LZS:RT4D4R24 LZS:RT4D4S15 LZS:RT4D4T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H

Note:

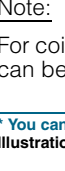
Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

Plug-in relay couplers

	Version	Rated control supply voltage U_s at AC 50/60 Hz	Contacts, number of CO contacts	Width	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		V		mm						
Individual modules for customer assembly, RT series										
	Print relays, 8-pole, 5 mm pinning									
	Print relays with hard gold-plating Version with 1 CO contact									
	Version with 1 CO contact									
	24 DC 230 AC									
	Version with 2 CO contacts									
	12 DC 24 DC 24 AC 115 AC 230 AC									
	Standard plug-in bases for mounting onto TH 35 standard mounting rail									
	--									
	Plug-in bases with logical separation for mounting onto TH 35 standard mounting rail									
	--									
	Plug-in bases with logical separation for mounting onto TH 35 standard mounting rail									
	--									
	LED modules • Red With freewheel diode Without freewheel diode									
	24 DC 24 AC/DC 110 ... 230 AC/DC									
	• Green With freewheel diode Without freewheel diode									
	24 DC 24 AC/DC 110 ... 230 AC/DC									
	Fixing/ejection brackets for RT base									
	--									
	Labels									
	--									
	RC elements									
	6 ... 60 AC 110 ... 230 AC									
	Freewheel diodes with connection to A1									
	6 ... 230 DC									
	Connecting cables, 24-pole Current carrying capacity 12 A, with supply cable, blue									
	A									
	Connecting combs for RT screw base 8-pole, 10 A current carrying capacity, natural-colored									
	▶									
	Connecting brackets for PT push-in base 2-pole, 10 A current carrying capacity, natural-colored									
	▶									

Note:

For coil voltages which are not listed, SITOP DC power supplies can be used, e.g. 6EP1331-5BA00 or 6EP1331-5BA10;

see Chapter 15, "Stabilized Power Supplies" → "SITOP Power Supplies".

Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

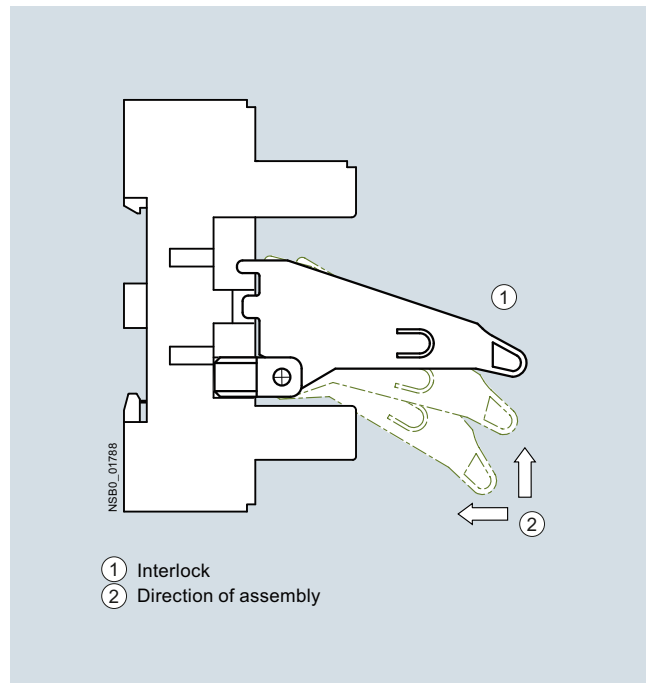
Plug-in relay couplers

More information

Notes on configuration

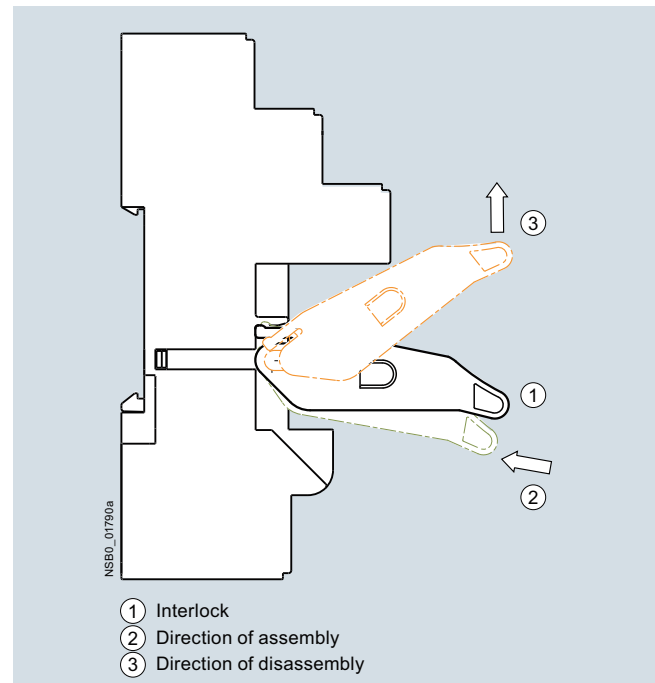
PT series

Mounting the LZS:PT17024 fixing/ejection bracket on the standard plug-in base with LZS:PT787.0 screw terminal

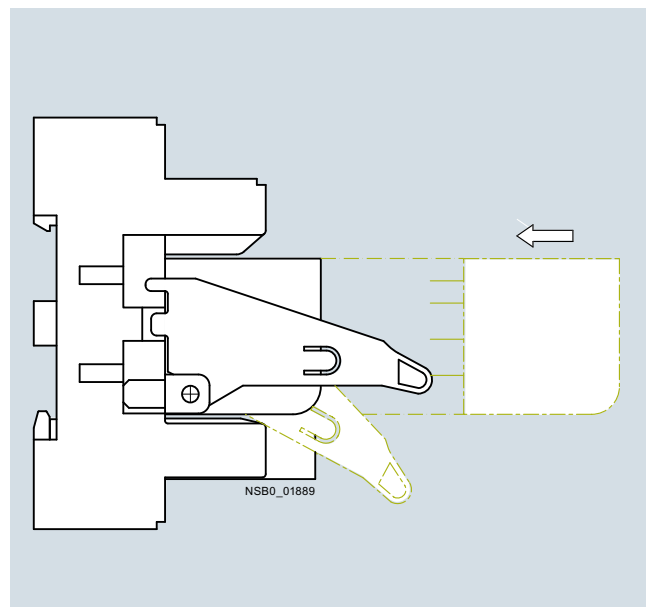


RT series

Mounting the LZS:RT17016 fixing/ejection bracket on the LZS:RT7872 plug-in base



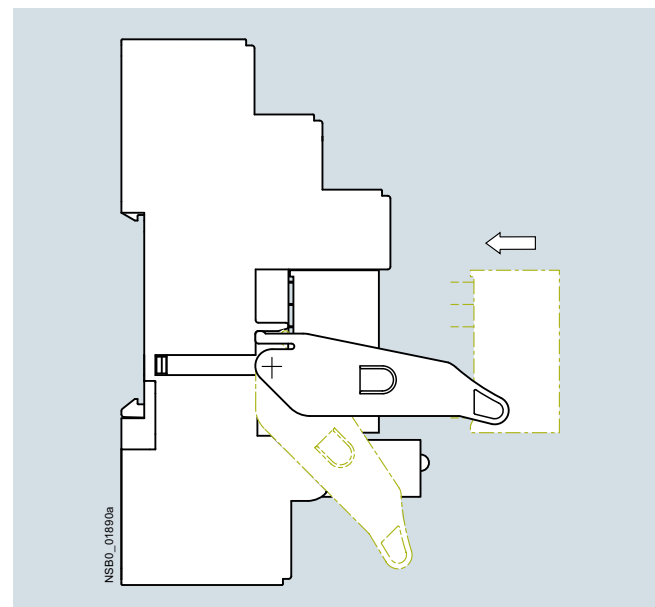
Mounting the coupling relay with plug-in relay



Note:

The LZS:PT17021 and LZS:PT17024 ejection brackets of the coupling relays with plug-in relay are not status displays!

Mounting the coupling relay with plug-in relay



Note:

The LZS:RT17016 ejection brackets of the coupling relays with plug-in relay are not status displays!