



NEW

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Article-No.

3RA1943-2C
3RA1943-2B
3RA1953-2B
3RA1953-2N



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[www.siemens.com/
product?3RA1943-2C](https://www.siemens.com/product?3RA1943-2C)

Price groups

PG 41A, 41B, 41H

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Introduction

Contactor relays

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- 5/24 3TH2 contactor relays, 4- and 8-pole
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- Contactors with extended operating range $0.7 \dots 1.25 \times U_s$ for railway applications
- 5/35 SIRIUS 3RH21 contactor relays
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Coupling relays

Coupling links for control by PLC

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- 5/54 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 · 2015 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](https://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 5/25

Contactor relays for railway applications • Coils with extended voltage range

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3TH4 contactor relays

8-pole • Screw terminals

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10-pole

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Contactor relays for railway applications • Coils with extended voltage range

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3TH2 contactor relays

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

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8-pole • Screw terminals

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4-pole, latched • Screw terminals

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Accessories for 3RH2 contactor relays

Auxiliary switch blocks • On front
• Lateral
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3RA28 Chapter 3

Timing relay blocks • On front

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Surge suppressors • On front

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Additional load module • On front

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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



3TX7002



3TX7014



3RS18



LZS/LZX



3TG10

Type		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	5/40
Plug-in base couplers, complete with relay	- Width 6.2 mm (1 NO, 1 CO) - Relays, replaceable	3TX7014-1..00, 3TX7015-1..00	5/45
Plug-in base couplers, complete with relay and hard gold-plating	Width 6.2 mm (1 CO)	3TX7014-1..02, 3TX7015-1..02	5/45
Semiconductor couplers	Output 1 semiconductor, triac or transistor, width 6.2, 11.5 and 12.5 mm	3TX7002, 3TX7004, 3TX7005	5/48
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	5/52
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	5/54
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	5/60
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	5/61
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	Chapter 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

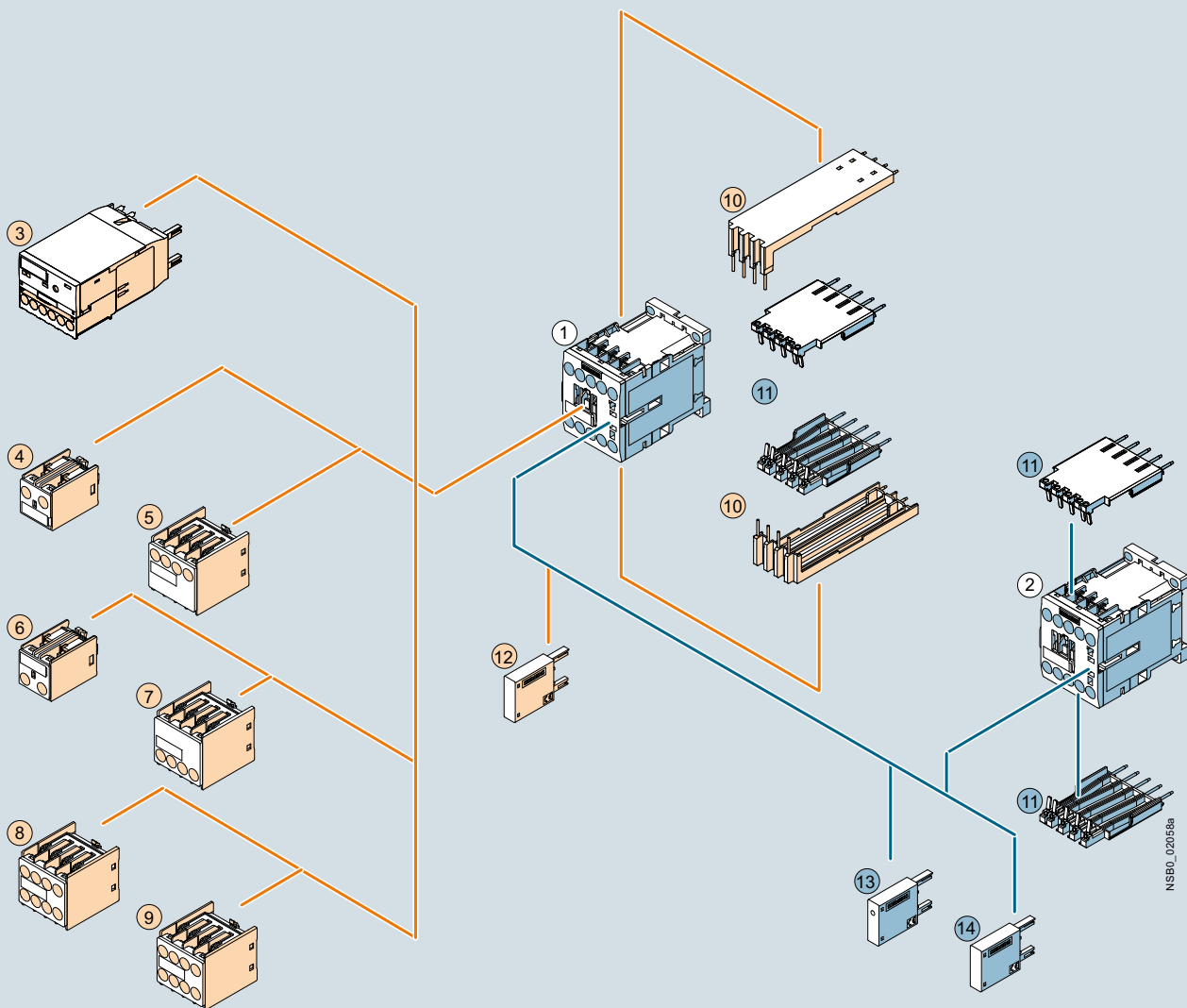
The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

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

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).

Article No. scheme

Digit of the article No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
SIRIUS contactor relays	3 R H															
2. 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.

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 (see page 5/12) are available for terminal designations according to EN 50011 or IEC 60947-5-1. 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

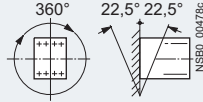
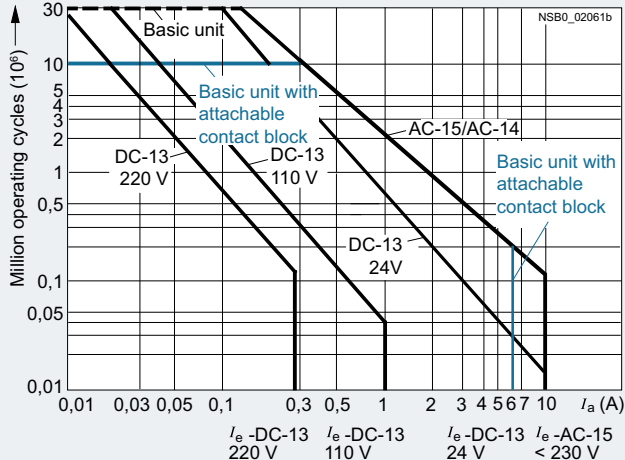
- System manual "SIRIUS Innovations – System Overview", <http://support.automation.siemens.com/WW/view/en/60311318>
- Manual "SIRIUS Innovations – SIRIUS 3RT2 Contactors/ Contactor Assemblies", <http://support.automation.siemens.com/WW/view/en/60306557>

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

Contactor Relays

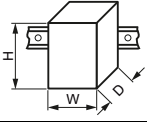
SIRIUS 3RH2 contactor relays, 4- and 8-pole

Technical specifications

Contactor relays	Type Size	3RH2 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: - ZH1/457 - 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: - ZH1/457 - 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 freewheel 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		
• with mounted auxiliary switch block		mm		
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	$d_2 = \min. 3.2$		
- DIN 46234 without insulation sleeve	mm	$d_3 = \max. 7.5$		
- 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.

Contactors Relays

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

Contactor relays	Type	3RH2.
	Size	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	W	4.0
- Closing = closed		
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 ms with 1.0 x U_s ms 3RH24 minimum operating time ms	8 ... 33 9 ... 22 ≥ 35
- OFF-delay of NC contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s ms	6 ... 25 6.5 ... 19
• Opening		
- OFF-delay of NO contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s ms 3RH24 minimum operating time ms	4 ... 15 4.5 ... 15 ≥ 30
- ON-delay of NC contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s ms	5 ... 15 5 ... 15
<u>DC operation</u>		
• Closing		
- ON-delay of NO contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s ms 3RH24 minimum operating time ms	30 ... 100 35 ... 50 ≥ 100
- OFF-delay of NC contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s ms	25 ... 90 30 ... 45
• Opening		
- OFF-delay of NO contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s ms 3RH24 minimum operating time ms	7 ... 13 7 ... 12 ≥ 30
- ON-delay of NC contact	with 0.8 ... 1.1 x U_s ms with 1.0 x U_s 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).

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

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} 1 000
• for utilization category	AC-15/AC-14	h^{-1} 1 000
	DC-13	h^{-1} 1 000
• No-load switching frequency		h^{-1} 10 000
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

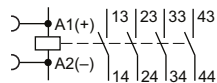
Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts		Rated control supply voltage U_s at 50/60 Hz ²⁾	DT	Screw terminals ¹⁾		DT	Spring-type terminals	
	Ident. No.	Version			Article No.	Price per PU		Article No.	Price per PU
A		NO NC	V AC						

A NO NC V AC

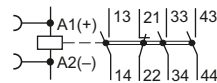
For screw fixing and snap-on mounting onto TH 35
standard mounting rail

Terminal designations, according to EN 50011

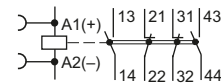
4 NO, Ident. No. **40E**



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



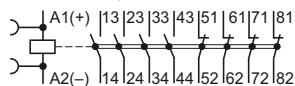
2 NO + 2 NC, Ident. No. **22E**



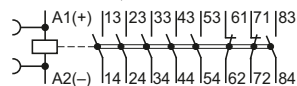
10	40E	4	--	24 110 230	▶ 3RH2140-1AB00 ▶ 3RH2140-1AF00 ▶ 3RH2140-1AP00	B	3RH2140-2AB00 3RH2140-2AF00 3RH2140-2AP00
	31E	3	1	24 110 230	▶ 3RH2131-1AB00 ▶ 3RH2131-1AF00 ▶ 3RH2131-1AP00	B	3RH2131-2AB00 3RH2131-2AF00 3RH2131-2AP00
	22E	2	2	24 110 230	▶ 3RH2122-1AB00 ▶ 3RH2122-1AF00 ▶ 3RH2122-1AP00	B	3RH2122-2AB00 3RH2122-2AF00 3RH2122-2AP00

• with permanently mounted auxiliary switch block

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



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



6	44E	4	4	230	▶ 3RH2244-1AP00	A	3RH2244-2AP00
	62E	6	2	230	▶ 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 × U_s
 at 60 Hz: 0.85 to 1.1 × 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.

DC operation

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

Size S00



3RH2122-1B..0



3RH2122-2B..0



3RH2244-1B..0



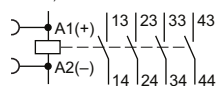
3RH2244-2B..0

Rated operational current I_N /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
		NO NC	V DC						

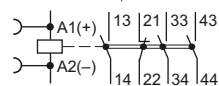
For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Terminal designations, according to EN 50011

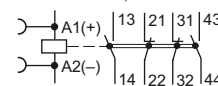
4 NO, Ident. No. **40E**



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



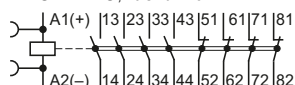
2 NO + 2 NC, Ident. No. **22E**



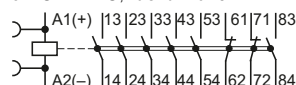
10	40E	4	--	24 220	▶ 3RH2140-1BB40 ▶ 3RH2140-1BM40	▶ 3RH2140-2BB40 ▶ 3RH2140-2BM40
	31E	3	1	24 220	▶ 3RH2131-1BB40 ▶ 3RH2131-1BM40	▶ 3RH2131-2BB40 ▶ 3RH2131-2BM40
	22E	2	2	24 220	▶ 3RH2122-1BB40 ▶ 3RH2122-1BM40	▶ 3RH2122-2BB40 ▶ 3RH2122-2BM40

• With permanently mounted auxiliary switch block

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



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



6	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 the 10th and 11th digits 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.								
Auxiliary contacts								
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	--		▶	3RH2911-1GA40	▶	3RH2911-2GA40
	71E	3	1		▶	3RH2911-1GA31	▶	3RH2911-2GA31
	62E	2	2		▶	3RH2911-1GA22	▶	3RH2911-2GA22
	53E	1	3		▶	3RH2911-1GA13	▶	3RH2911-2GA13
	44E	--	4		▶	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.

Contactor Relays

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

The following accessory parts are 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)									
 3RT2916-1B.00	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)										
 3RT2916-1J.00	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
			--	24 ... 70	20 ... 470	▶	3RT2916-1LM00	1	1 unit	41B
	3RH2.	Noise suppression diode	--	50 ... 150	50 ... 700	A	3RT2916-1LN00	1	1 unit	41B
			--	150 ... 250	160 ... 950	▶	3RT2916-1LP00	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	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Type							
Additional load modules							
 3RT2916-1GA00	3RH2.	▶	3RT2916-1GA00		1	1 unit	41B
	For plugging onto the front side of the contactors with or without auxiliary switch blocks¹⁾ 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

For contactor relays with DC operation

Non-adjustable delay time

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



3RT2916-2B.01

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 contactors	A	3RT2916-4MA10		1	5 units	41B
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¹⁾ Exception: contactors and contactor relays with 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
---	---------------	--	---	----------	-----

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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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

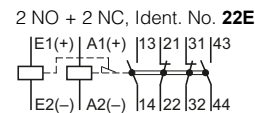
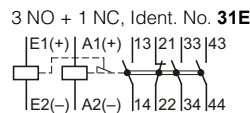
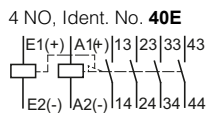


3RH2422-1A...0

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

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

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

Accessories, see pages 5/12 and 5/13.

Contactors 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.

Note:

The 3TH42 and 3TH43 contactor relays feature positively-driven operation in accordance with IEC 60947-5-1, Ed. 3.1.

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 current ≥ 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).

Mounting

Note:

With 3TH4 contactor relays with AC operation, an overvoltage of $1.1 \times U_s$, an ambient temperature ≥ 45 °C and 100% ON-period of all contactors, a minimum clearance of 5 mm between the contactors shall be observed in the case of side-by-side mounting.

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.

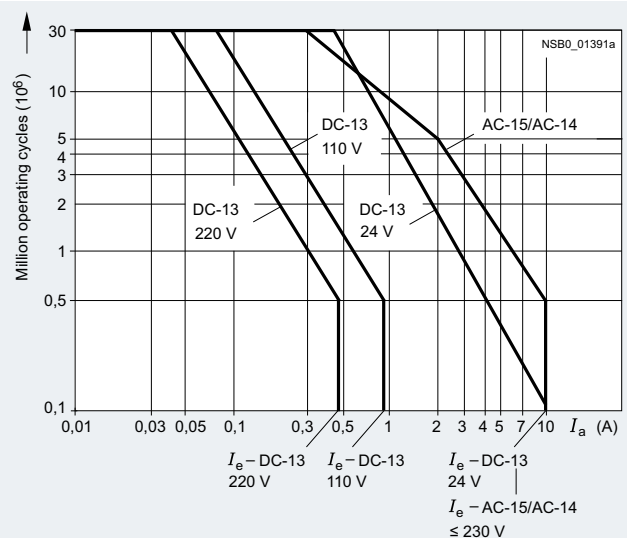


Diagram legend:

P_{rated} = Rated power for squirrel-cage motors at 400 V

I_a = Breaking current

I_e = Rated operational current

Contactor Relays

3TH4 contactor relays, 8- and 10-pole

Type			3TH42		3TH43	
Dimensions (W x H x D)			45 x 78 x 97		55 x 78 x 97	
• AC operation			45 x 78 x 130		55 x 78 x 130	
• 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				V	690	
(Pollution degree 3)						
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, Japan		
- Closing	VA/p.f.	80/0.8
- Closed	VA/p.f.	10.7/0.29
• AC operation, 60 Hz, Japan		
- 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		$\leq 8 \text{ mA} \times (220 \text{ V}/U_s)$
• for DC operation		$\leq 1.25 \text{ mA} \times (220 \text{ V}/U_s)$
Operating times ²⁾		
Total break time = OFF-delay + arcing time (the values apply up to and incl. 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' : $z' = z \cdot I_e/I' \cdot (U_e/U')^{1.5} \cdot 1/h$

Contactors Relays

3TH4 contactor relays, 8- and 10-pole

Selection and ordering data

8-pole contactor relays

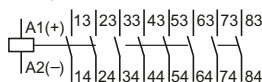
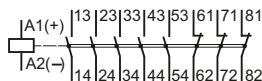
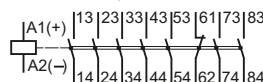
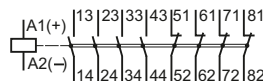
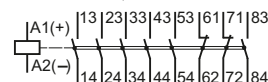
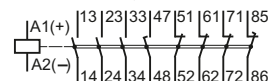


3TH4244-0B..

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			
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**5 NO + 3 NC, Ident. No. **53E**7 NO + 1 NC, Ident. No. **71E**4 NO + 4 NC, Ident. No. **44E**6 NO + 2 NC, Ident. No. **62E**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 x 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](#).

10-pole contactor relays



3TH4355-0A..



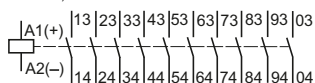
3TH4355-0B..

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		 NO  NC  NO  NC					

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

Terminal designations, according to EN 50011

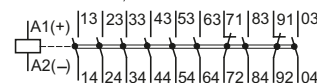
10 NO, Ident. No. **100E**



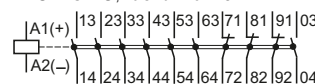
9 NO + 1 NC, Ident. No. **91E**



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



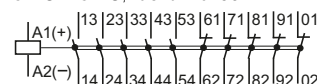
7 NO + 3 NC, Ident. No. **73E**



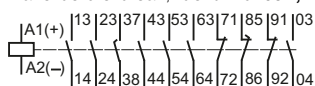
6 NO + 4 NC, Ident. No. **64E**



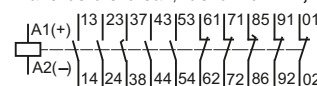
5 NO + 5 NC, Ident. No. **55E**



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



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 x 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.

Contactors Relays

3TH4 contactor relays, 8- and 10-pole

Options

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

Rated control supply voltage U_s	Contactor type	3TH42/3TH43
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
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	DC						
	V	V						
Surge suppressors¹⁾ for 3TH4 contactor relays								
 3TX7402-3.	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	24 ... 70	A	3TX7402-3G	1	1 unit	41B
		48 ... 127	70 ... 150	A	3TX7402-3H	1	1 unit	41B
		127 ... 240	150 ... 250	A	3TX7402-3J	1	1 unit	41B
		240 ... 400	--	C	3TX7402-3K	1	1 unit	41B
		400 ... 600	--	C	3TX7402-3L	1	1 unit	41B
	RC elements with line spacer, for mounting onto the coil terminal	24 ... 48	24 ... 70	A	3TX7402-3R	1	1 unit	41B
		48 ... 127	70 ... 150	A	3TX7402-3S	1	1 unit	41B
		127 ... 240	150 ... 250	A	3TX7402-3T	1	1 unit	41B
		240 ... 400	--	B	3TX7402-3U	1	1 unit	41B
		400 ... 600	--	C	3TX7402-3V	1	1 unit	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.

Contactor Relays

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 Time tolerance +100 %, -50 %	220 ... 230	0.1	B	3TX4180-0A		1	1 unit 41B

3TX4180-0A

Coupling links for control by PLC for 3TH4 contactor relays

 3TX4090 Mounted to contactor	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 • for mounting directly onto contactor coil with surge suppressor		A	3TX4090-0C		1	1 unit 41B
				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											
 3TX4701-0AN1	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

Contactors 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 comply with 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 comply with 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 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 acc. 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

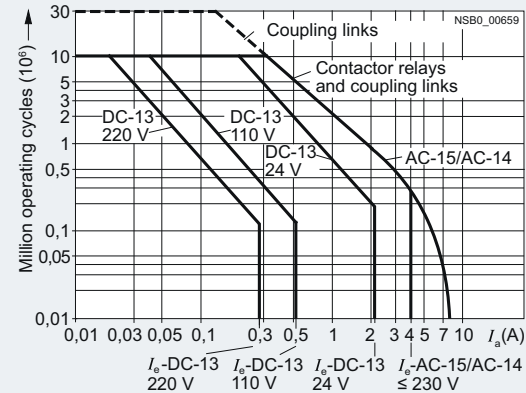
The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

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:

- ZH1/457
- 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:

- ZH1/457
- 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

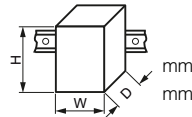
Low-Voltage Switchgear and Controlgear, Control Circuit Devices and Switching Elements.

Special requirements for positively-driven contacts.

SUVA

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

Type	Contactor relays			Auxiliary switch block
Dimensions (W x H x D)	3TH20...-....			3TH22...-....
• with 3TX4490 surge suppressor	45 x 48 x 63 45 x 48 x 88			45 x 48 x 91 45 x 48 x 116
	mm			mm



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	V	690
• Flat connectors 6.3 mm x 0.8 mm	V	500
• Solder pin connections	V	500
Rated impulse withstand voltage U_{imp}		
(Pollution degree 3)		
• Screw terminals	kV	6
• Flat connectors 6.3 mm x 0.8 mm	kV	6
• Solder pin connections	kV	6
Protective separation between coil and contacts	V	Up to 300
(According to IEC 60947-1, Appendix N)		
Permissible ambient temperature ¹⁾	• During operation • During storage	°C -25 ... +55 -55 ... +80
Degree of protection, acc. to IEC 60947-1 Appendix C		IP00/open IP20
• Connection range for screw terminals		
Touch protection, acc. to EN 50274		Finger-safe for screw terminals
Shock resistance		
• Rectangular pulse	- AC operation - DC operation	g/ms 7/5 and 4/10 10/5 and 6/10
• Sine pulse	- AC operation - DC operation	g/ms 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 ... 1.1 x U_N ;
at 50 Hz, 1.1 x 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 range¹⁾			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_s²⁾			
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_s²⁾			
• 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).

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

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

Contactor Relays

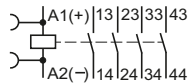
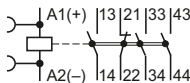
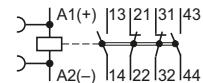
3TH2 contactor relays, 4- and 8-pole

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**3 NO + 1 NC, Ident. No. **31E**2 NO + 2 NC, Ident. No. **22E**

AC operation

4	4	3	2	1	40E	4	--	A	3TH2040-0AP0	1	1 unit	41A
					31E	3	1	A	3TH2031-0AP0	1	1 unit	41A
					22E	2	2	A	3TH2022-0AP0	1	1 unit	41A

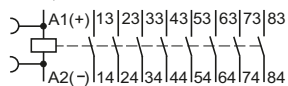
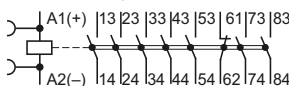
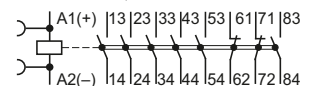
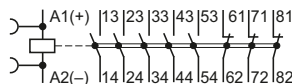
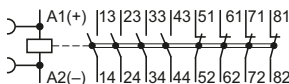
DC operation

4	4	3	2	1	40E	4	--	A	3TH2040-0BB4	1	1 unit	41A
					31E	3	1	A	3TH2031-0BB4	1	1 unit	41A
					22E	2	2	A	3TH2022-0BB4	1	1 unit	41A

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**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**

AC operation

8	4	3	2	--	80E	8	0	C	3TH2280-0AP0	1	1 unit	41A
					71E	7	1	C	3TH2271-0AP0	1	1 unit	41A
					62E	6	2	C	3TH2262-0AP0	1	1 unit	41A
					53E	5	3	C	3TH2253-0AP0	1	1 unit	41A
					44E	4	4	C	3TH2244-0AP0	1	1 unit	41A

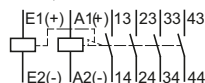
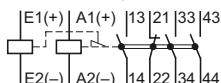
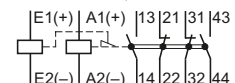
DC operation

8	4	3	2	--	80E	8	0	C	3TH2280-0BB4	1	1 unit	41A
					71E	7	1	C	3TH2271-0BB4	1	1 unit	41A
					62E	6	2	C	3TH2262-0BB4	1	1 unit	41A
					53E	5	3	C	3TH2253-0BB4	1	1 unit	41A
					44E	4	4	C	3TH2244-0BB4	1	1 unit	41A

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**3 NO + 1 NC, Ident. No. **31E**2 NO + 2 NC, Ident. No. **22E**

AC operation

4	4	3	2	1	40E	4	--	C	3TH2740-0AP0	1	1 unit	41A
					31E	3	1	C	3TH2731-0AP0	1	1 unit	41A
					22E	2	2	C	3TH2722-0AP0	1	1 unit	41A

DC operation

4	4	3	2	1	40E	4	--	C	3TH2740-0BB4	1	1 unit	41A
					31E	3	1	C	3TH2731-0BB4	1	1 unit	41A
					22E	2	2	C	3TH2722-0BB4	1	1 unit	41A

3TH27...

Accessories, see pages 5/30 and 5/31.

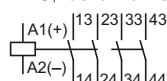
3TH2 contactor relays, 4- and 8-pole

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							
						NO NC					

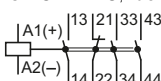
Contactor relays with 6.3 mm x 0.8 mm flat connectors

Terminal designations, according to EN 50011

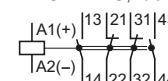
4 NO, Ident. No. **40E**



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



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



AC operation

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

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

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

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...

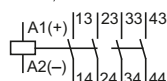


3TH20...-7...

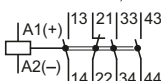
Contactor relays with solder pin connections for printed circuit boards

Terminal designations, according to EN 50011

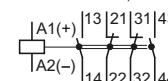
4 NO, Ident. No. **40E**



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



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



AC operation

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

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 the 10th and 11th digits 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	60 Hz		
24 V AC	29 V AC	B0	--
110 V AC	132 V AC	F0	--
230/220 V AC	276 V AC	P0 ¹⁾	P0 ¹⁾

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

DC operation

24 V DC	B4	B4
110 V DC	F4	--
220 V DC	M4	--

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/ 400/ 500 V 220 V 380 V	Ident. No. Version		Article No. Price per PU			
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



3TX4490-1A

Bridging of voltage interruptions up to 0.8 sec

3TH2...-OBB4	--	24	0.25 or 0.5	A	3TX4490-1H	1	1 unit	41B
3TH2...-OBF4	110	--	0.1 or 0.2	A	3TX4490-1A	1	1 unit	41B
3TH2...-OBM4, 3TH2...-OBP4	220/230	--	0.4 or 0.8	A	3TX4490-1A	1	1 unit	41B

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 diode										
	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				D	3TX4490-1J		1	1 unit	41B
	3TH2...-0A...	230/220, 50 Hz	--	--						
		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 × 6.3 mm ... 0.8 mm				D	3TX4491-2A		1	5 units	41A
	Rated insulation voltage U_i : 400 V (at pollution degree 3); rated impulse withstand voltage U_{imp} : 6 kV; rated operational current I_{Op} : 6 A; Ⓢ and Ⓡ rated data: max. 300 V, 6 A									
	3TH20...-3...									
	3TH20...-7...									
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)

Contactors 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 conductors 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 relays (see page 5/6).

Contactor type	3RH21...-HB40	3RH21...-JB40	3RH21...-KB40
Size	S00	S00	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	3RH21...-MB40-0KT0	3RH21...-VB40	3RH21...-WB40
Size	S00	S00	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	20 ... 80	5 ... 20
- ON-delay NC	ms	10 ... 30	30 ... 90	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_{θ} /AC-15/ AC-14 at 230 V	Auxiliary contacts Ident. No. acc. to EN 50011	Version	DT	Screw terminals		DT	Spring-type terminals	
				Article No.	Price per PU		Article No.	Price per PU
		NO NC						

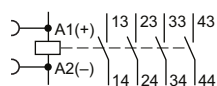
Screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S00

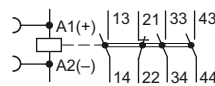
Diode, varistor or RC element, attachable

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

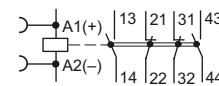
4 NO, Ident. No. **40E**



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.

Contactors 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 Ident. No. acc. to EN 50011	Version	DT	Screw terminals	DT	Spring-type terminals
				Article No.	Price per PU	Article No. Price per PU
		NO NC				

A

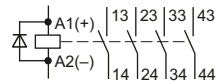
Screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S00

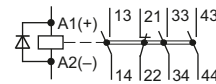
with integrated coil circuit (diode)

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

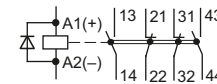
4 NO, Ident. No. **40E**



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**

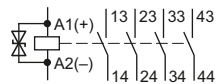
Power consumption of the solenoid coils **1.6 W** at 24 V

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

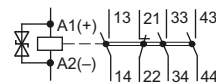
with integrated coil circuit (suppressor diode)

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

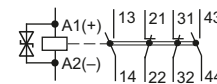
4 NO, Ident. No. **40E**



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

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 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 $1.25 \times U_s$ 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 $1.25 \times U_s$; the 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

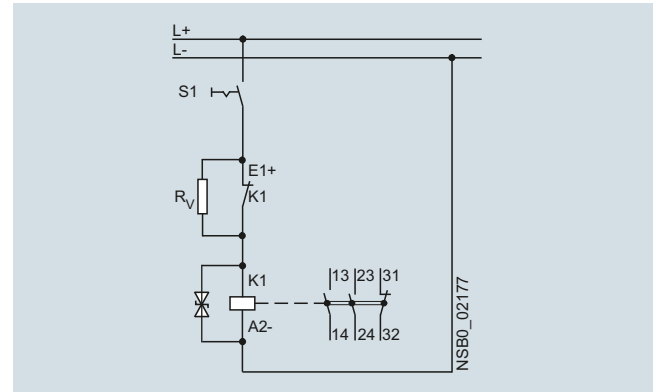
A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C ≤ 70 °C.

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	$-40 \dots +70^{1)}$
• During storage	°C	$-55 \dots +80$
Control circuit		
Solenoid coil operating range	DC	$0.7 \dots 1.25 \times U_s$
Power consumption of the solenoid coils		
for cold coil and $1.0 \times U_s$		
• 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 -0LA0 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.

Contactors 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_N /AC-15/AC-14 T_U : 70 °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		

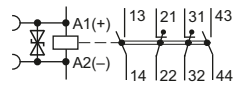
3RH21 contactor relays

Size S00

with conventional coil, fitted with suppressor diode

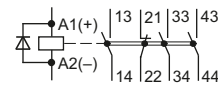
Terminal designations, according to EN 50011

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



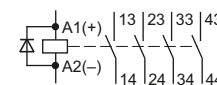
10 3 2 1

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



10 3 2 1

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

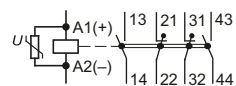


10 3 2 1

with conventional coil, fitted with varistor

Terminal designations, according to EN 50011

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



10 3 2 1

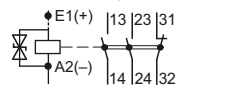
10 3 2 1

10 3 2 1

with series resistor, fitted with suppressor diode

Terminal designations, according to EN 50011

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



10 3 2 1

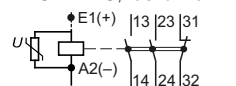
10 3 2 1

10 3 2 1

with series resistor, fitted with varistor

Terminal designations, according to EN 50011

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



10 3 2 1

10 3 2 1

10 3 2 1

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

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

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 $1.25 \times U_s$ 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.

Contactors 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			24 110	▶ 3TH4244-0LB4 ▶ 3TH4244-0LF4	1 1	1 unit 1 unit	41A 41A
8	10	6	4	2	53E			24 110	▶ 3TH4253-0LB4 ▶ 3TH4253-0LF4	1 1	1 unit 1 unit	41A 41A
8	10	6	4	2	62E			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

Coupling Links for Control by PLC

Coupling links for mounting on contactors

Overview

Coupling links enable contacts with standard coil to be converted to coupling contactors.

IEC 60947 and EN 60947

The coupling links are suitable for use in any climate. They are finger-safe according to EN 50274. The terminal designations comply with EN 50005.

System-compatible operation with 24 V DC, operating range 17 to 30 V.

Low power consumption of 0.5 W in conformity with the technical specifications of the solid-state systems. An LED indicates the switching state.

Surge suppression

The 3RH2924-1GP11 coupling link has an integrated surge suppressor (varistor) for the contactor coil being switched.

Mounting

The 3RH2924-1GP11 coupling link is mounted on the contactor coil (only for contactors with screw terminals) of size S0 using a supplied coil connection module.

The 3RH2914-1GP11 coupling link is fitted onto the front of the contactor (sizes S00 to S2).

The coupling links are not suitable for stand-alone installation.

Technical specifications

For detailed technical specifications, see [Chapter 3 "Power Contactors for Switching Motors" → "Accessories for 3RT2 contactors"](#)

Selection and ordering data

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

Coupling links for control by PLC

Size S0



3RH2924-1GP11

3RT2.2

For mounting onto the coil terminals of the contactors with DC operation (only for contactors with screw terminals)
 With LED for indicating switching state.
 With integrated varistor for damping opening surges.

Control 24 V DC,
 Operating range 17 ... 30 V DC
 Power consumption: 0.5 W at 24 V DC
 Permissible residual current of the electronics (with 0 signal): 2.5 mA
 Rated operational current I_g :
 • AC-15/AC-14 at 230 V: 3 A
 • DC-13 at 230 V: 0.1 A

► **3RH2924-1GP11** 1 1 unit 41B

Sizes S00 to S2 **NEW**



3RH2914-1GP11

3RT2.1,
 3RT2.2,
 3RT2.3

For fitting to the front of contactors with AC, DC or AC/DC operation
 Control 24 V DC,
 Operating range 17 ... 30 V DC
 Power consumption: 0.5 W at 24 V DC

B **3RH2914-1GP11** 1 1 unit 41B

Spring-type terminals

B **3RH2914-2GP11** 1 1 unit 41B

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

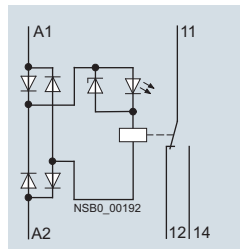
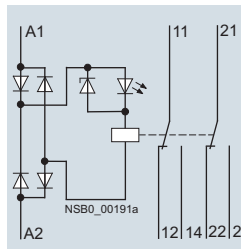
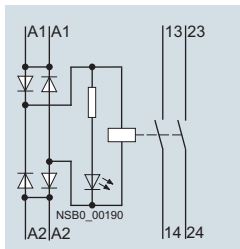
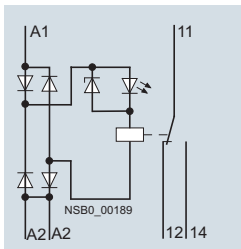
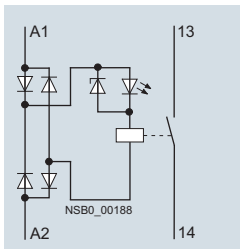
3TX7002-1BB00
3TX7002-1BF00
3TX7003-1BB00

3TX7002-1CB00
3TX7003-1CB00

3TX7002-1FB02

Input coupling links

3TX7002-2BF02



Relay couplers – circuit diagrams for 3TX7004, 3TX7005

Output coupling links

3TX700.-1M..00

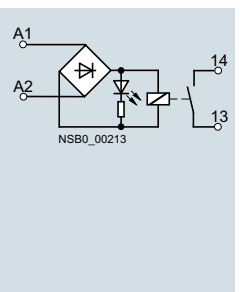
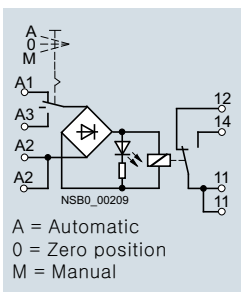
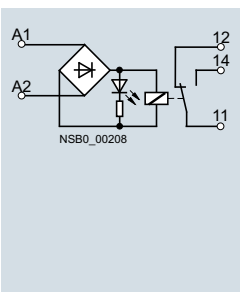
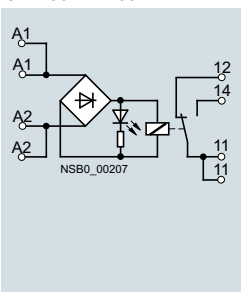
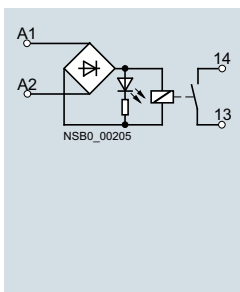
3TX700.-1BB00
3TX700.-1BF05

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		Manual-0-automatic switch for testing purposes	Width W	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		NO	CO								
V					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:

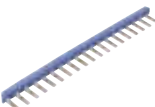
For replacement products see [3RS18 coupling links with industrial enclosure or other 3TX70 products](#).

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.

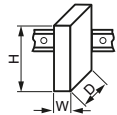
Note:

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				
Dimensions (W x H x D)				
• Galvanic isolation plate 3TX7014-7CE00				
				3TX7014, 3TX7015 6.2 x 90 x 92 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				
• During operation	°C			-25 ... +55
• During storage	°C			-40 ... +80
Degree of protection				
• Enclosure				IP20
• Relays				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 3TX7014:				
• Solid	mm ²			 Screw terminals 1 x (0.5 ... 2.5) 1 x (0.5 ... 1.5) M2.5 Screwdriver, 3.0 mm x 0.5 mm (3RA29 08-1A)
• Finely stranded with or without end sleeve	mm ²			
• Terminal screws				
- Corresponding opening tool				
for 3TX7015:				
• Solid or finely stranded	mm ²			 Spring-type terminals 1 x (0.5 ... 2.5) 1 x (0.5 ... 1.5) Screwdriver, 3.0 mm x 0.5 mm (3RA2908-1A)
• Finely stranded with end sleeve	mm ²			
• Corresponding opening tool				
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 currents¹⁾		
• 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:

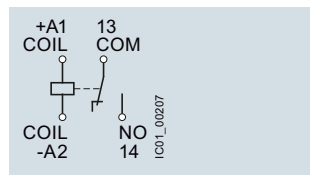
If inductive loads are connected in parallel, the endurance of the relay couplers can be increased.

Connections

Terminal designations acc. to EN 50005

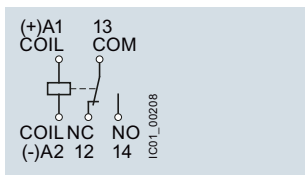
1 NO

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.	Price per PU		
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 contacts¹⁾								
	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

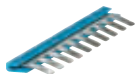
3TX7 Coupling Relays, Narrow Design

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 solid-state 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								
3TX7014 and 3TX7015	12 DC	for complete unit • 24 V AC/DC • 24 V DC, hard gold-plated	A	3TX7014-7BQ00		1 20 units		41H
			A					
3TX7014 and 3TX7015	24 DC	• 24 V DC • 24 V DC, hard gold-plated	A	3TX7014-7BM00		1 20 units		41H
			A					
3TX7014 and 3TX7015	60 DC	• 115 V or 230 V AC/DC • 115 V or 230 V AC/DC, hard gold-plated	A	3TX7014-7BP00		1 20 units		41H
			A					
Connecting comb, blue								
 3TX7014-7AA00	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								
 3TX7014-7CE00	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	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](http://support.automation.siemens.com/WW/view/en/34803536)
<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-O-automatic switches. This design can also be supplied with spring-type terminals.

Surge suppression

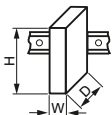
In the case of optocouplers, the contact element is a semiconductor. These are not subject to wear; so welding is not possible.

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		3TX7002	3TX7004, 3TX7005
Dimensions (W x H x D) for width W see "Selection and ordering data", page 5/51	 mm	W x 60 x 62	W x 80 x 85
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 (3RA2908-1A)	
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"

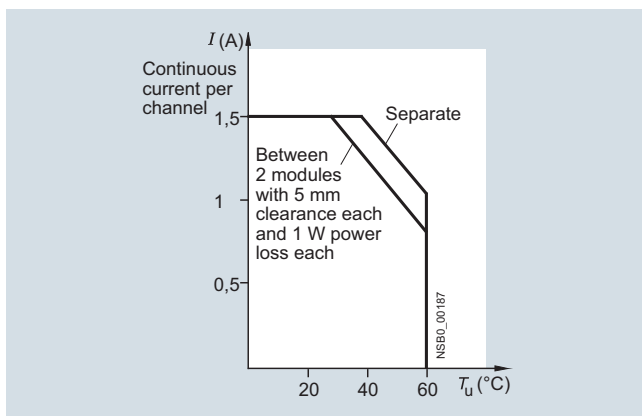
Type		3TX7004-3TX7005-	3AB04	3AC .4	3AC03	3PB54	3PB74	4PG24	3PG74
Control side									
Operating range	V		11 ... 30 DC					110 ... 230 AC/DC	88 ... 253 AC/DC
Power consumption, max.									
• at 24 V DC	W	0.5		0.25	0.2			--	--
• at 110 V DC	W	--	--	--	--			--	0.2
• at 230 V AC	VA	--	--	--	--			1.5	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

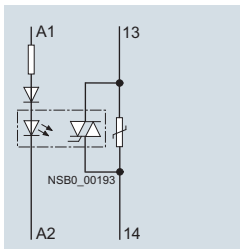
Semiconductor couplers

Semiconductor couplers – circuit diagrams

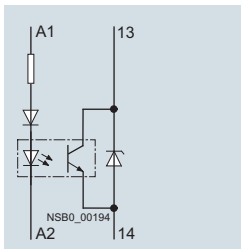
Terminal designations acc. to EN 50005

Output coupling links

3TX7002-3AB00

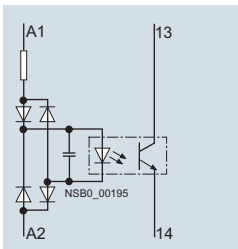


3TX7002-3AB01

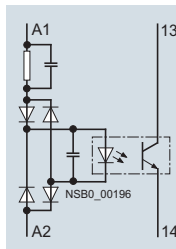


Input coupling links

3TX7002-4AB00

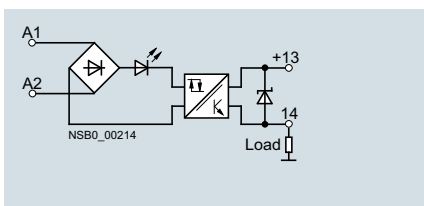


3TX7002-4AG00

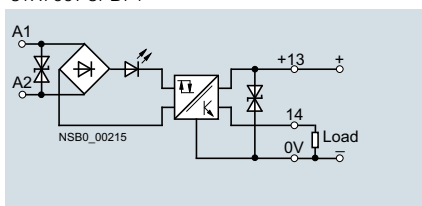


Output coupling links

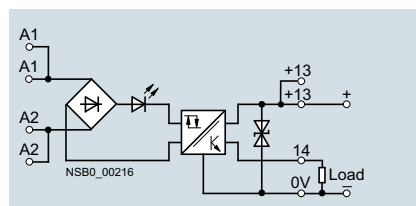
3TX700.-3AB04
3TX700.-3PB41



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

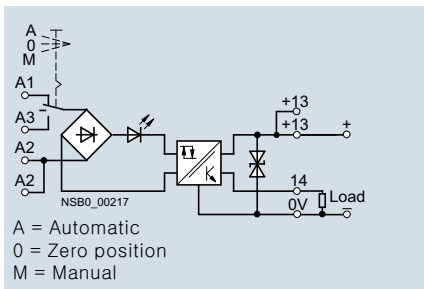


3TX700.-3AC04

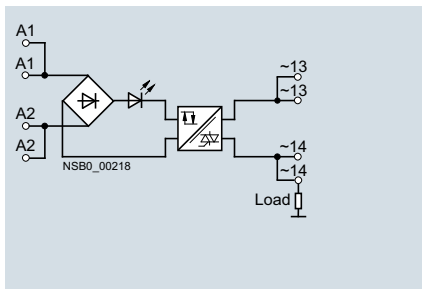


Output coupling links

3TX700.-3AC14

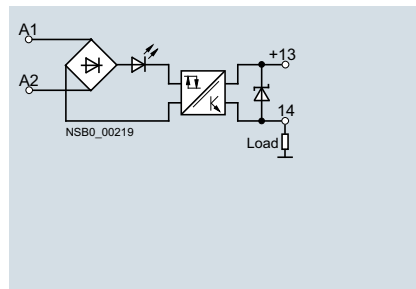


3TX700.-3AC03



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

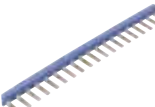
	Rated control supply voltage U_s (at AC: 50/60 Hz)	Switching voltage	Switching current	Manual-0-Automatic testing switch	Width W	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	V	V	A		mm						
3TX7002 semiconductor couplers, 1 transistor											
	Output coupling links						Screw terminals				
	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	3	--	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	5	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	for linking the same potentials	▶	3TX7004-8AA00		1	1 unit	41H
		24 terminals, 26 A max. infeed current carrying capacity Width 6.2 mm						
Connecting cable, blue								
	3TX7002 and 3TX7004 with screw terminals 3TX7003 and 3TX7005 with spring-type terminals	with supply cable, blue 24 terminals, 12 A max. infeed current carrying capacity Length of cable between two terminals approx. 11 cm	A	3TX7004-8BA00		1	1 unit	41H

Coupling Relays

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.

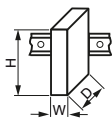
The series comprises devices with up to 3 changeover contacts with screw terminals or spring-type terminals as combination voltage or wide voltage range versions.

Relay coils internally protected 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	22.5 x 86 x 84	22.5 x 86 x 94	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		°C	-25 ... +60		
• During storage		°C	-40 ... +80		
Degree of protection acc. to IEC 60529					
• Enclosure			IP20		
• Cover			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		mm ²	1 x (0.5 ... 4); 2 x (0.5 ... 2.5)		
• Finely stranded with end sleeve		mm ²	2 x (0.5 ... 2.5)		
• AWG cables, solid or stranded		mm ²	2 x (20 ... 14)		
• Terminal screw			M3.5		
- Corresponding opening tool			Screwdriver, size 3.0 mm x 0.5 mm (3RA2908-1A)		
• Tightening torque		Nm	0.8 ... 1.2		
for 3RS1800-2:			 Spring-type terminals		
• Solid		mm ²	2 x (0.25 ... 1.5)		
• Finely stranded without end sleeve		mm ²	2 x (0.25 ... 1.5)		
• Finely stranded with end sleeve		mm ²	2 x (0.25 ... 1)		
• AWG cables, solid or stranded		AWG	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		At 24 ... 400 V	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					
• AC-12		At 24 ... 400 V A	5		
• DC-12		At 24 V A	5		
		At 115 V A	0.2		
		At 230 V A	0.2		
Switching voltage					
• Max. AC		V	400		
• Max. DC		V	250		
Min. contact load					
• Standard contacts			17 V DC, 5 mA at 1 ppm fault		
• Hard gold-plated contacts			5 V DC, 1 mA at 1 ppm fault		
Mechanical endurance		Operating cycles	10 x 10 ⁶		
Electrical endurance at I_e		Operating cycles	1 x 10 ⁵		

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 (freewheel 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.

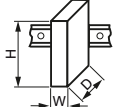
The LZS series offers not only service-proven screw connections but also versions with plug-in terminals (push-in).

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)				mm	15.5 x 78 x 71			28 x 74 x 72		
• LZX:RT.A4 / LZX:PT.A5		mm	15.5 x 77 x 71					28 x 77 x 79		
• LZX:RT.B4 / LZX:PT.B5		mm	15.5 x 98 x 71					28 x 98 x 79		
• LZX:RT.D4 / LZX:PT.D5										
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	16 6 -- -- RT3 (1 changeover contact): 6 RT4 (2 changeover contacts): 2.5 2 at 24 V 0.27 at 230 V					-- 12 10 6 PT2 (2 changeover contacts): 5 PT3 (3 changeover contacts): 5 PT5 (4 changeover contacts): 4 (DC), 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		

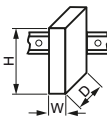
¹⁾ AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10 %; the power loss will reduce slightly.

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		mm	MT industrial relay, 11-pole (35.5 mm) 3 CO			
Dimensions (W x H x D)			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 °C	-40 ... +60 -45 ... +80	-45 ... +50 -45 ... +80	-45 ... +50 -45 ... +80	-45 ... +50 -45 ... +80	
Conductor cross-sections						
Connection type		 Screw terminals				
• Solid	mm ² mm ²	2 x 2.5				
• Finely stranded with or without end sleeve		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}	A	10				
• Rated operational current I_e /DC-13 Acc. to utilization categories (IEC 60947-5-1)	A	2 at 24 V, 0.27 at 230 V				
• Rated operational current I_e /AC-15 Acc. to utilization categories (IEC 60947-5-1)	A	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.

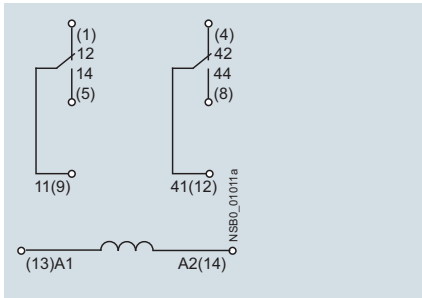
Coupling Relays

Coupling Relays with LZS/LZX Plug-In Relays

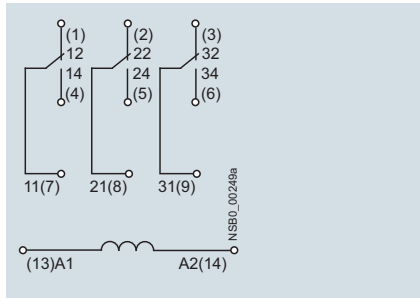
Plug-in relay couplers

Circuit diagrams

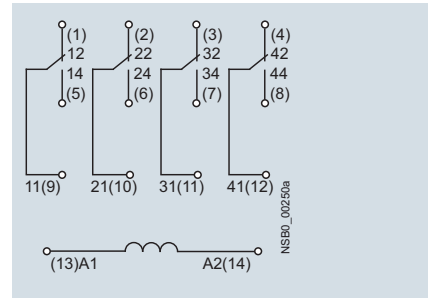
LZX:PT270
2-pole



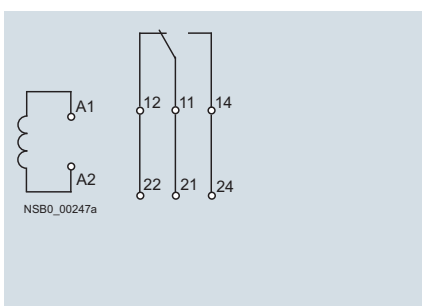
LZX:PT370
3-pole



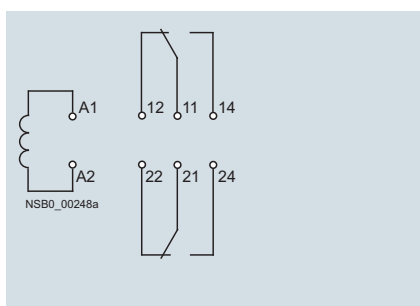
LZX:PT520, LZX:PT570, LZX:PT580
4-pole



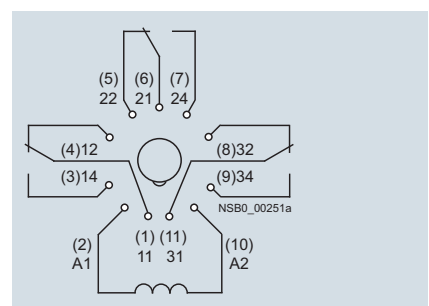
LZX:RT3
1-pole



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 24 AC 115 AC 230 AC	3	28	A A A A	LZS:PT3A5L24 LZS:PT3A5R24 LZS:PT3A5S15 LZS:PT3A5T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
	4 CO contacts	24 DC 24 AC 115 AC 230 AC	4	28	A A A A	LZS:PT5A5L24 LZS:PT5A5R24 LZS:PT5A5S15 LZS:PT5A5T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 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								
	4 CO contacts	24 DC 24 AC 115 AC 230 AC	4	28	A A A A	LZS:PT5B5L24 LZS:PT5B5R24 LZS:PT5B5S15 LZS:PT5B5T30	1 1 1 1	5 units 5 units 5 units 5 units	41H 41H 41H 41H
	Complete units, 8- and 14-pole, PT series								
	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								
 LZS:PT5D5L24	2 CO contacts	24 DC 230 AC	2	28	A A	LZS:PT2D5L24 LZS:PT2D5T30	1 1	5 units 5 units	41H 41H
	4 CO contacts	24 DC 24 AC 115 AC 230 AC	4	28	A A A A	LZS:PT5D5L24 LZS:PT5D5R24 LZS:PT5D5S15 LZS:PT5D5T30	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, 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

Screw terminals



Plug-in terminals (push-in)



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
---	--	--	---	--------------------	--	--	---	----------	-----

3TX7004-8BA00

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	24 AC	3	35.5	A	LZX:MT323024		1	1 unit	41H
without LED	24 AC	3	35.5	A	LZX:MT326024		1	1 unit	41H
with LED	115 AC	3	35.5	C	LZX:MT328024		1	1 unit	41H
without LED	230 AC	3	35.5	C	LZX:MT326115		1	1 unit	41H
with LED	230 AC	3	35.5	C	LZX:MT328115		1	1 unit	41H
without LED	230 AC	3	35.5	A	LZX:MT326230		1	1 unit	41H
with LED	230 AC	3	35.5	A	LZX:MT328230		1	1 unit	41H

Plug-in bases

for mounting onto TH 35 standard mounting rail

--	--	38	▶	LZS:MT78750			1	1 unit	41H
----	----	----	---	--------------------	--	--	---	--------	-----

Retaining brackets

--	--	38	▶	LZS: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: • 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				Screw terminals 				
	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
	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
 LZS:RT4B4T30	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
	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 plug-in terminals (push-in) • LED module (version 24 V DC: LED module with freewheel diode) • Fixing/ejection brackets • Labels				Plug-in terminals (push-in) 				
	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
 LZS:RT3D4L24	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:

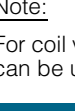
Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

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 mm	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		V								
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									
LZX:RT314024		24 DC 230 AC	1	12.7	► C	LZX:RT315024 LZX:RT315730		1 1	1 unit 1 unit	41H 41H
	Print relays Version with 1 CO contact									
		24 DC 24 AC 115 AC 230 AC	1	12.7	► C C C ►	LZX:RT314024 LZX:RT314524 LZX:RT314615 LZX:RT314730		1 1 1 1	1 unit 1 unit 1 unit 1 unit	41H 41H 41H 41H
	Version with 2 CO contacts									
		12 DC 24 DC 24 AC 115 AC 230 AC	2	12.7	► C C ► ► ►	LZX:RT424012 LZX:RT424024 LZX:RT424524 LZX:RT424615 LZX:RT424730		1 1 1 1 1	1 unit 1 unit 1 unit 1 unit 1 unit	41H 41H 41H 41H 41H
	Standard plug-in bases for mounting onto TH 35 standard mounting rail					Screw terminals 				
		--	--	15.5	►	LZS:RT78725		1	1 unit	41H
	Plug-in bases with logical separation for mounting onto TH 35 standard mounting rail									
		--	--	15.5	►	LZS:RT78726		1	1 unit	41H
	Plug-in bases with logical separation for mounting onto TH 35 standard mounting rail					Plug-in terminals (push-in) 				
		--	--	15.5	►	LZS:RT7872P		1	1 unit	41H
	LED modules									
	• Red									
	with freewheel diode	24 DC	--	15.5	►	LZS:PTML0024		1	1 unit	41H
	without freewheel diode	24 AC/DC 110 ... 230 AC/DC	--		► ►	LZS:PTML0524 LZS:PTML0730		1 1	1 unit 1 unit	41H 41H
	• Green									
	with freewheel diode	24 DC	--	15.5	►	LZS:PTMG0024		1	1 unit	41H
	without freewheel diode	24 AC/DC 110 ... 230 AC/DC	--		► ►	LZS:PTMG0524 LZS:PTMG0730		1 1	1 unit 1 unit	41H 41H
	Fixing/ejection brackets for RT base									
		--	--	15.5	►	LZS:RT17016		100	10 units	41H
	Labels									
		--	--	15.5	►	LZS:RT17040		100	10 units	41H
	RC elements									
		6 ... 60 AC 110 ... 230 AC	--	15.5	► ►	LZS:PTMU0524 LZS:PTMU0730		1 1	1 unit 1 unit	41H 41H
	Freewheel diodes with connection to A1									
		6 ... 230 DC	--	15.5	►	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 RT screw base 8-pole, 10 A current carrying capacity, natural-colored					►				
						LZS:RT170R8		1	10 units	41H
	Connecting brackets for PT push-in base 2-pole, 10 A current carrying capacity, natural-colored					►				
						LZS:RT170P1		100	10 units	41H

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

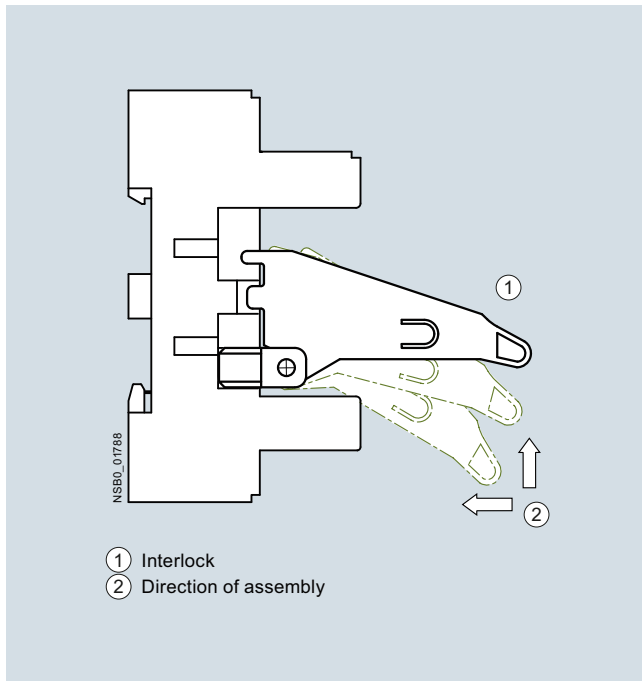
Plug-in relay couplers

More information

Notes on configuration

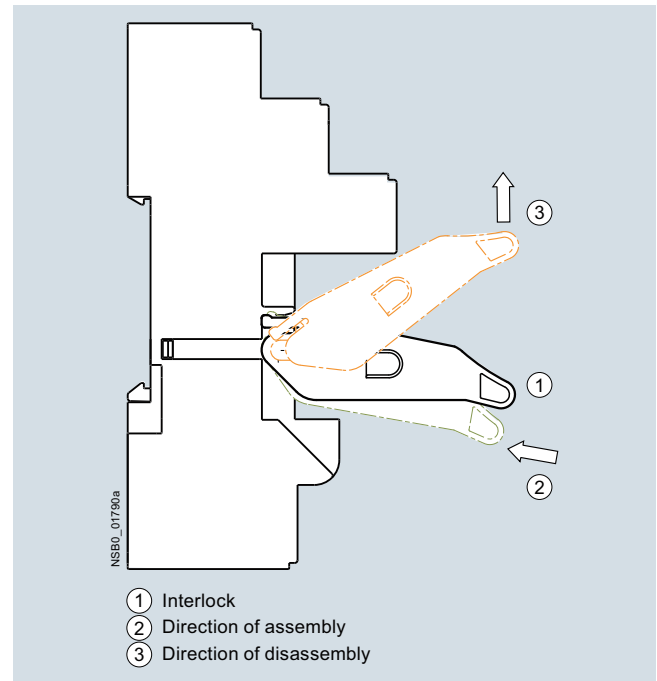
PT series

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

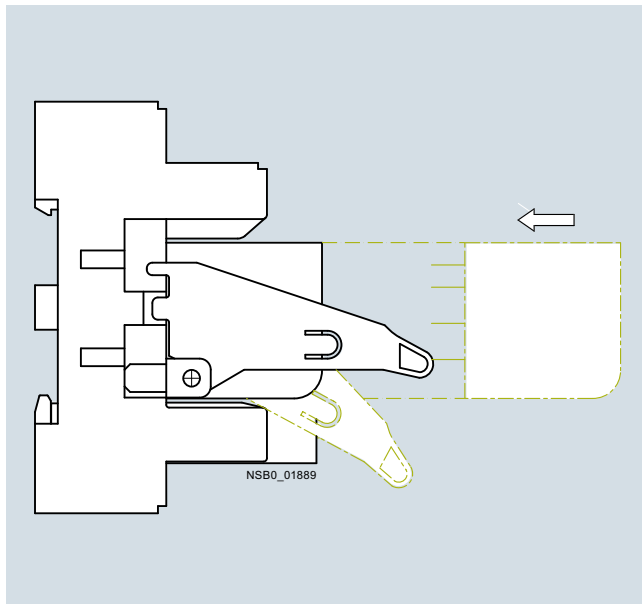


RT series

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



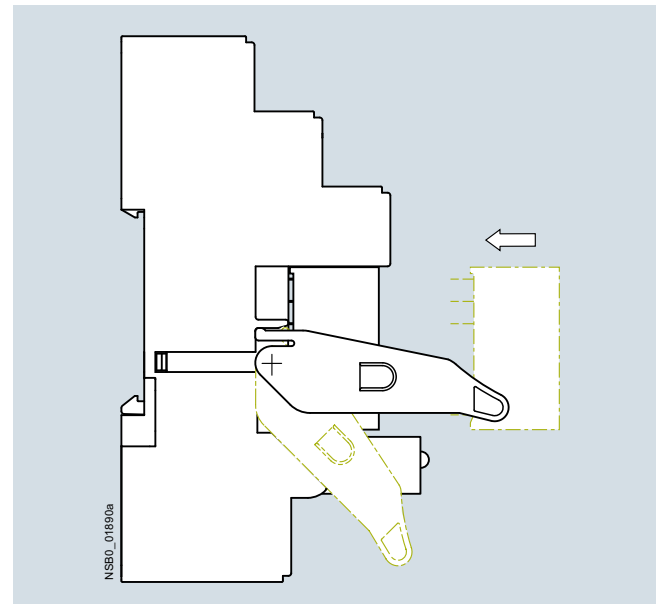
Mounting the coupling relay with plug-in relay



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!

Coupling Relays

Notes