

**Price groups**

PG 41A, 41B, 41H, 41L

5/2

Introduction**Contactor relays**

- 5/5 SIRIUS 3RH2 contactor relays, 4- and 8-pole
- 5/14 3TH4 contactor relays, 8- and 10-pole
- 5/20 - Accessories for 3TH4 contactor relays
- 4/63 Contactors for railway applications
- 4/63 - SIRIUS 3RH2 contactor relays with extended operating range
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Coupling relays

- 5/21 SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e **NEW**
- 5/29 SIRIUS 3RQ2 coupling relays with industrial enclosure
- 5/33 SIRIUS 3RQ3 coupling relays, narrow design
- 5/42 LZS coupling relays with plug-in relays

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3TG10 power relays/miniature contactors

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Introduction

Overview

More information

Homepage, see www.siemens.com/sirius

Conversion tool, see www.siemens.com/conversion-tool

Industry Mall, see www.siemens.com/product?3RH_3TH

The advantages at a glance



Size
Type

S00
3RH21

S00
3RH22

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3TH42

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3TH43

	Article No.	Page
SIRIUS 3RH2 contactor relays		
4-pole		
• Screw or spring-loaded terminals	3RH21	5/10, 5/11
8-pole		
	3RH22	5/10, 5/11
4-pole, latched		
	3RH24	5/10, 5/11
Coupling contactor relays		
• Coils for control by the PLC	3RH21	5/12, 5/13
Contactor relays for railway applications		
• Coils with extended voltage range	3RH21	4/65
3TH4 contactor relays		
8-pole		
• Screw terminals	3TH42	5/17
10-pole		
	3TH43	5/18
Contactor relays for railway applications		
• Coils with extended voltage range	3TH42	4/66
Accessories for SIRIUS 3RH2 contactor relays		
Auxiliary switches		
• On the front	3RH29, 3RA281.	from 3/81 onwards, 3/95
• Lateral	3RH29	3/91
Function modules (direct-on-line starting, star-delta (wye-delta) starting)		
• On the front	3RA281., 3RA283.	3/100
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• On the front	3RT2916	3/97, 3/98
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• On the front	3RT2916	3/114

Note:

Safety characteristics for contactors, see "Standards and approvals", page 16/9.

More information

Homepage, see www.siemens.com/sirius-coupling-relays
 Industry Mall, see www.siemens.com/product?3RQ_3RS_LZ
 TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais
 Conversion tool, see www.siemens.com/conversion-tool



Video: Overview of SIRIUS coupling relays

The advantages at a glance

3RQ1



3RQ2



3RQ3



LZS/LZX

Type

Article No. Page

SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**Coupling relays with force-guided contacts**

- Widths 17.5 and 22.5 mm
- Safety certification according to functional safety SIL 3/PL e
- Can be used as output extension for SIRIUS 3SK safety relays via device connectors

3RQ1

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SIRIUS 3RQ2 coupling relays with industrial enclosure**Coupling relays with relay output**

- 1, 2 or 3 changeover contacts with wide voltage range
- Also available with hard gold-plated contacts

3RQ2

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SIRIUS 3RQ3 coupling relays, narrow design**Coupling relays with relay output (not plug-in)**

- Width 6.2 mm, 1 CO, versions with hard gold-plated contacts optionally available
- Output coupling links
- Input coupling links

3RQ301
3RQ3035/33
5/33**Coupling relays with plug-in relays**

- Width 6.2 mm, 1 CO, versions with hard gold-plated contacts optionally available
- Output coupling links

3RQ311

5/33

Coupling relays with semiconductor output (not plug-in)

- Width 6.2 mm, output 1 semiconductor, triac or transistor
- Output coupling links
- Input coupling links

3RQ305, 3RQ306
3RQ3075/33
5/33**LZS coupling relays with plug-in relays****Coupling relays with plug-in relays 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:PT, LZX:PT

5/48 ... 5/50

Coupling relays with plug-in relays with 3 changeover contacts and circular base

- Switching capacity 10 A
- 11-pole circular base
- Width 38 mm

LZS:MT, LZX:MT

5/48

Coupling relays with plug-in relays with 1 or 2 changeover contacts

- Switching capacity 16 A/8 A
- Width 15.5 mm
- Base with or without logical separation

LZS:RT, LZX:RT

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Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Introduction

Connection methods

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

The 3RQ coupling relays are supplied with screw terminals or spring-loaded (push-in) terminals. The plug-in sockets for LZS/LZX coupling relays are also available with plug-in (push-in) terminals.

	Screw terminals
	Spring-loaded terminals, spring-loaded terminals (push-in)
	Flat connectors
	Plug-in terminals (push-in)

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

3RQ coupling relays: Spring-loaded terminals (push-in) with TOP wiring

Push-in terminals are a form of spring-loaded terminals allowing fast wiring without tools for rigid conductors or conductors equipped with end sleeves.

As with other spring-type terminals, a screwdriver (with 3.0 x 0.5 mm blade) is required to disconnect the conductor. The same tool can also be used to wire finely-stranded or stranded conductors with no end finishing.

The advantages of the push-in terminals are found, as with all spring-loaded terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

With the TOP wiring method, the wire inlet and terminals can be reached from the front. This helps to speed up the wiring process and eliminate wiring errors.



Video: SIRIUS spring-loaded terminals - Strong, flexible, safe, fast

Ordering notes for multi-unit packaging

On request, 3RQ1 and 3RQ2 coupling relays can also be ordered in practical and environmentally friendly multi-unit packaging.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"X90"** must be specified.

Ordering examples:

- 3RQ10 coupling relays with a width of 17.5 mm
3RQ1000-1EB00-Z X90;
Order quantity 16 units → Delivered in one package containing 16 units
- 3RQ20 coupling relays with a width of 22.5 mm
3RQ2000-1AW00-Z X90;
Order quantity 12 units → Delivered in one package containing 12 units

For more information, [see page 16/7](#).

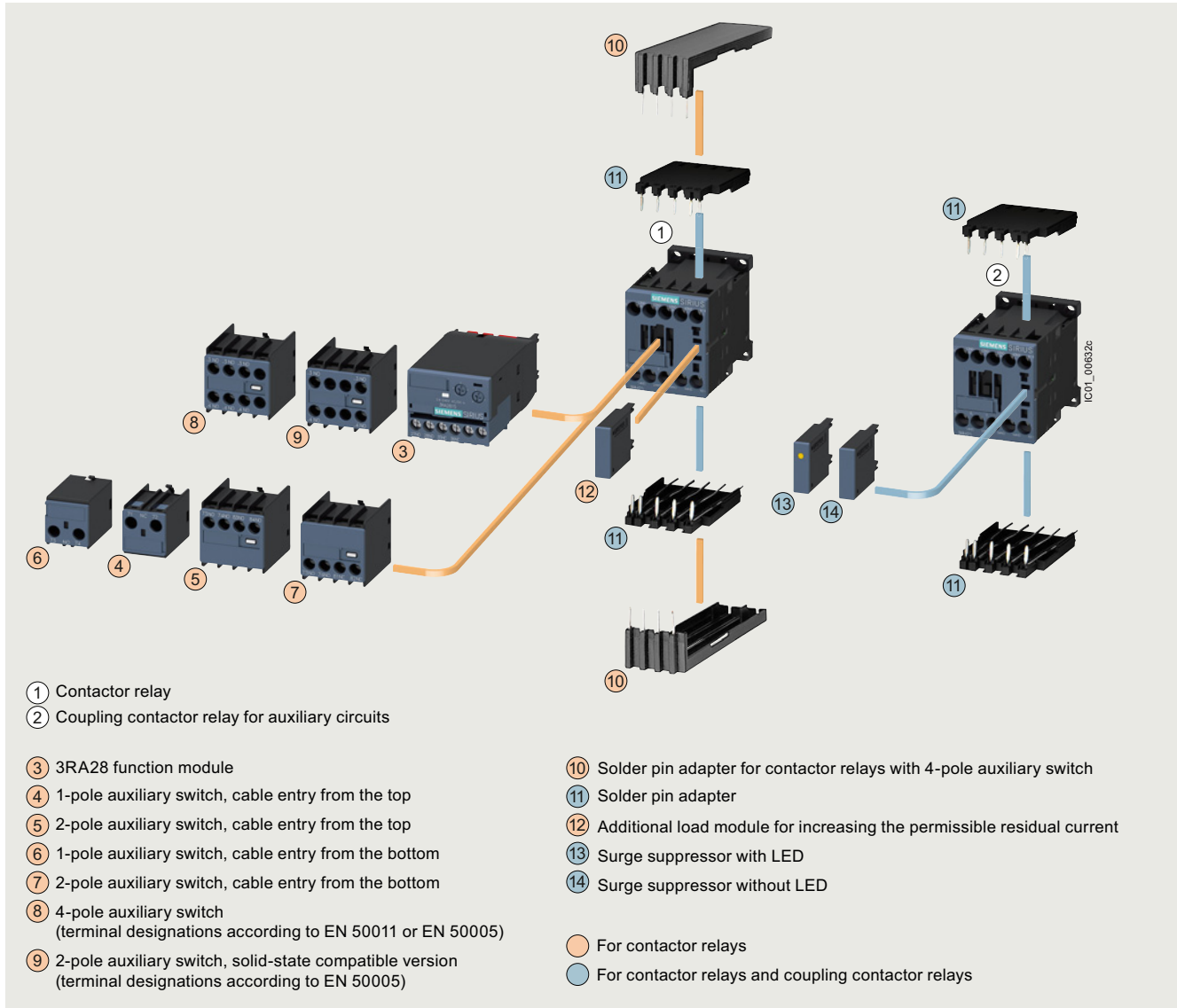
Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

Overview

Contactor relays, size S00, with accessories



Accessories, see page 3/69 onwards.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

Standards

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

The 3RH2 contactor relays are available with screw or spring-loaded terminals. The basic unit contains four contacts with terminal designations according to EN 50011.

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

Contact reliability of auxiliary contacts

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

Protection of the device connections against overvoltage

Protection against overvoltage at the control supply voltage connection

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.

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

Depending on the version, the solenoid coils of the coupling contactor relays are supplied either without overvoltage damping (versions 3RH21...-HB40 or 3RH21...-MB40-OKT0) or with a diode or suppressor diode connected as standard.

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information on how damping influences the time response, [see the Equipment Manual](#).

Accessories

The accessories for the 3RT2 contactors in size S00 can also be used for the 3RH2 contactor relays ([see page 3/69 onwards](#)).

Mounting of additional auxiliary switches

Expansion possibilities

All 3RH21 contactor relays (except for coupling contactor relays) can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about fitting of auxiliary switches, [see pages 3/81 to 3/86](#).

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

The conventional front auxiliary contacts fulfill the characteristics of force-guided operation and are therefore suitable for safety applications.

Contactor relays in safety-related applications

Contactor relays are a significant part of safety-related applications. They are generally the actuators that perform the switching operation leading to the safe disconnection of the corresponding application or system.

Contactor relays with force-guided operation according to IEC 60947-5-1 are generally required for use in safety-related applications. Most of our contactors meet this requirement; a corresponding note can be found in the technical product data sheet.

Contactor relays with increased tamper protection

Increased tamper protection is ensured either by using our contactor relay versions with permanently mounted auxiliary switches installed in the factory (e.g. 3RH22 contactor relays), or by using the 3RT2916-4MA10 sealable cover as an accessory ([see page 3/112](#)).

Article number scheme

Product versions	Article number
SIRIUS contactor relays	3RH2 □ □ □ - □ □ □ □ 0 - □ □ □ □
Device type	e.g. 1 = 4-pole contactor relay □
Number of NO contacts	e.g. 2 = 2 NO □
Number of NC contacts	e.g. 2 = 2 NC □
Type of electrical connection	Screw terminals 1
	Spring-loaded terminals 2
Operating range/solenoid coil circuit	e.g. A = AC standard/without coil circuit □
Rated control supply voltage	e.g. P0 = 50/60 Hz 230 V AC □ □
Special version	□ □ □ □
Example	3RH2 1 2 2 - 1 A P 0 0

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

Technical specifications

More information

Technical specifications, see <https://support.industry.siemens.com/cs/ww/en/ps/16188/td>
 FAQs, see <https://support.industry.siemens.com/cs/ww/en/ps/16188/faq>

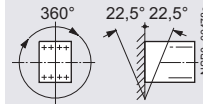
Manuals, see <https://support.industry.siemens.com/cs/ww/en/ps/16188/man>

Type
Size

Contactor relays
3RH2
S00

Permissible mounting position

The contactor relays are designed for operation on a vertical mounting surface.



Upright mounting position



Special version required

(in the case of coupling contactor relays and contactor relays with extended operating range 3RH2122-2K.40 on request)

Force-guided operation of contacts in contactor relays

3RH2:

Yes, in the basic unit and the auxiliary switch as well as between the basic unit and the mounted auxiliary switch (**removable**) according to:

- ZH1/457
- IEC 60947-5-1, Annex L

3RH22:

Yes, in the basic unit and the auxiliary switch as well as between the basic unit and the mounted auxiliary switch (**permanently mounted**) according to:

- ZH1/457
- IEC 60947-5-1, Annex L

Note:

3RH2911-.NF. solid-state-compatible auxiliary switches have no force-guided contacts.

Explanations:

There is force-guided 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, Annex L

Standard for low-voltage switchgear and controlgear; "Special requirements for mechanically linked contact elements"

Contact reliability

Contact reliability at 17 V, 1 mA according 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 arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

If magnetic circuits other than the contactor operating mechanisms 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 freewheeling diodes.

The characteristic curves apply to

- 3RH21/3RH22 contactor relays¹⁾
- 3RH24 latched contactor relays
- 3RH2911 auxiliary switches¹⁾
- Auxiliary switches for snapping onto the front, max. 4-pole and for mounting on the side in size S00

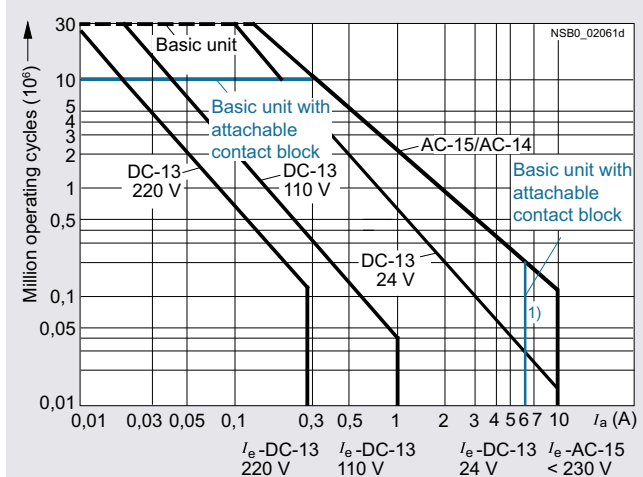


Diagram legend:

I_a = Breaking current

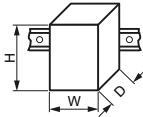


I_e = Rated operational current

¹⁾ 3RH22, 3RH2911: $I_e = 6$ A for AC-15/AC-14 and DC-13.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

		Contactor relays				
		3RH21	3RH22	3RH24		
Type		S00				
Size						
General data						
Dimensions (W x H x D)						
<ul style="list-style-type: none"> Basic units <ul style="list-style-type: none"> Screw terminals Spring-loaded terminals Basic unit with mounted auxiliary switch <ul style="list-style-type: none"> Screw terminals Spring-loaded terminals Basic unit with mounted function module or solid-state time-delay auxiliary switch <ul style="list-style-type: none"> Screw terminals Spring-loaded terminals 		mm	45 x 58 x 73	--	90 x 58 x 73	
		mm	45 x 70 x 73	--		
		mm	45 x 58 x 117		--	
		mm	45 x 70 x 121		--	
		mm	45 x 58 x 147	--		
		mm	45 x 70 x 147	--		
		Mechanical endurance				
		Basic units	Operating cycles	30 million		5 million
		Basic unit with mounted auxiliary switch	Operating cycles	10 million		5 million
		Solid-state-compatible auxiliary switch	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 coil and contacts in the basic unit, according to IEC 60947-1, Annex N						
	V	400				
Permissible ambient temperature						
During operation	°C	-25 ... +60				
During storage	°C	-55 ... +80				
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 according to IEC 60947-5-1	A	10				
With miniature circuit breakers with C characteristic with short-circuit current $I_k = 400$ A according to IEC 60947-5-1	A	6				
		Contactor relays				
		3RH21	3RH22	3RH24		
Type		S00				
Size						
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 conductors and coil terminals²⁾ (1 or 2 conductors can be connected)						
 Spring-loaded terminals						
Operating devices	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	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)				

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.
On spring-loaded terminals with conductor cross-sections ≤ 1 mm² an insulation stop is recommended, see page 3/115.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

Type	Contactor relays	
Size	3RH2 S00	
Control		
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 coil (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)
¹⁾ The 3RT2916-1GA00 additional load module is recommended for higher residual currents, see page 3/114.		

Type	Coupling contactor relays					
Size	3RH21.. S00					
	-HB40	-JB40	-KB40	-MB40-0KT0	-VB40	-SB40
Control						
Solenoid coil operating range						
	0.7 ... 1.25 x U_s			0.85 ... 1.85 x U_s		
Power consumption of the solenoid coil (for cold coil and 1.0 x U_s) Closing = Closed at $U_s = 24$ V						
W	2.8			1.6		
Permissible residual current of the electronics with 0 signal						
	< 10 mA x (24 V/ U_s)			< 8 mA x (24 V/ U_s)		
Overvoltage configuration of the solenoid coil						
	No overvoltage damping	Integrated diode	Integrated suppressor diode	No overvoltage damping	Integrated diode	Integrated suppressor diode
						

Type	Contactor relays	
Size	3RH2 S00	
Rated data of the auxiliary contacts		
Load rating with AC		
Rated operational currents I_e		
AC-12	A	10
AC-15/AC-14, at rated operational voltage U_e		
	Up to 230 V A	10 ¹⁾
	400 V A	3
	500 V A	2
	690 V A	1
Ⓢ and Ⓞ rated data		
Basic units and auxiliary switches		
• 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.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

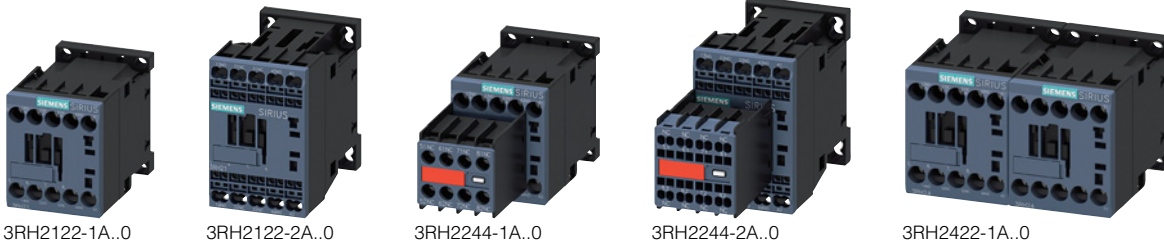
Contactor relays

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

Selection and ordering data

AC operation

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







3RH2122-1A..0

3RH2122-2A..0

3RH2244-1A..0

3RH2244-2A..0

3RH2422-1A..0

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

For screw and snap-on mounting on TH 35 DIN rail

Size S00

10	40E	4	--	24	3RH2140-1AB00 3RH2140-1AF00 3RH2140-1AP00	3RH2140-2AB00 3RH2140-2AF00 3RH2140-2AP00
				110		
				230		
31E	3	1	24	3RH2131-1AB00 3RH2131-1AF00 3RH2131-1AP00	3RH2131-2AB00 3RH2131-2AF00 3RH2131-2AP00	
			110			
			230			
22E	2	2	24	3RH2122-1AB00 3RH2122-1AF00 3RH2122-1AP00	3RH2122-2AB00 3RH2122-2AF00 3RH2122-2AP00	
			110			
			230			
With permanently mounted auxiliary switch						
6	44E	4	4	230	3RH2244-1AP00	3RH2244-2AP00
				230		
62E	6	2	230	3RH2262-1AP00	3RH2262-2AP00	
Latched						
No lateral auxiliary switches can be mounted						
10	40 E	4	--	24	3RH2440-1AB00 3RH2440-1AF00 3RH2440-1AP00	-- -- --
				110		
				230		
31 E	3	1	24	3RH2431-1AB00 3RH2431-1AF00 3RH2431-1AP00	-- -- --	
			110			
			230			
22 E	2	2	24	3RH2422-1AB00 3RH2422-1AF00 3RH2422-1AP00	-- -- --	
			110			
			230			

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

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

DC operation

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






3RH2122-1B..0

3RH2122-2B..0

3RH2244-1B..0

3RH2244-2B..0

3RH2422-1B.40

Rated operational current I_e /AC-15/AC-14 at 230 V	Contacts		Rated control supply voltage U_c	Screw terminals 		Spring-loaded terminals 	
	Ident. No.	Version		Article No.	Price per PU	Article No.	Price per PU
A		 	V DC				

For screw and snap-on mounting on TH 35 DIN rail

Size S00

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 integrated coil circuit (diode integrated at the factory)							
10	40E	4	--	24	3RH2140-1FB40	3RH2140-2FB40	
	31E	3	1	24	3RH2131-1FB40	3RH2131-2FB40	
	22E	2	2	24	3RH2122-1FB40	3RH2122-2FB40	
With permanently mounted auxiliary switch							
6	44E	4	4	24	3RH2244-1BB40	3RH2244-2BB40	
	62E	6	2	24	3RH2262-1BB40	3RH2262-2BB40	
Latched							
No lateral auxiliary switches can be mounted							
10	40E	4	--	24 110 220	3RH2440-1BB40 3RH2440-1BF40 3RH2440-1BM40	-- -- --	
	31E	3	1	24 110 220	3RH2431-1BB40 3RH2431-1BF40 3RH2431-1BM40	-- -- --	
	22E	2	2	24 110 220	3RH2422-1BB40 3RH2422-1BF40 3RH2422-1BM40	-- -- --	

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

DC operation for direct control by PLC

- Coupling contactor relays with adapted power consumption
- Suitable for solid-state PLC outputs
- Cannot be expanded with auxiliary switches

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

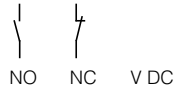


3RH21..-1.B40



3RH21..-2.B40

Rated operational current I_e /AC-15/ AC-14 at 230 V	Auxiliary contacts		Rated control supply voltage U_s	Screw terminals		Spring-loaded terminals	
	Ident. No. according to EN 50011	Version		Article No.	Price per PU	Article No.	Price per PU



A For screw and snap-on mounting on TH 35 DIN rail

Size S00

Cannot be expanded with auxiliary switches
 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	--	24
	31E	3	1	24
	22E	2	2	24

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	--	24
	31E	3	1	24
	22E	2	2	24

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.

3RH2140-1HB40 3RH2131-1HB40 3RH2122-1HB40	3RH2140-2HB40 3RH2131-2HB40 3RH2122-2HB40		
		3RH2140-1MB40-0KT0 3RH2131-1MB40-0KT0 3RH2122-1MB40-0KT0	3RH2140-2MB40-0KT0 3RH2131-2MB40-0KT0 3RH2122-2MB40-0KT0

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

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

DC operation for direct control by PLC

- Coupling contactor relays with adapted power consumption
- Suitable for solid-state PLC outputs
- Cannot be expanded with auxiliary switches



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

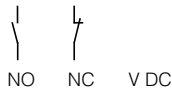


3RH21...-1.B40



3RH21...-2.B40

Rated operational current I_e /AC-15/ AC-14 at 230 V	Auxiliary contacts		Rated control supply voltage U_s	Screw terminals 		Spring-loaded terminals 	
	Ident. No. according to EN 50011	Version		Article No.	Price per PU	Article No.	Price per PU



A

For screw and snap-on mounting on TH 35 DIN rail

Size S00

With integrated coil circuit (diode integrated at factory)

Cannot be expanded with auxiliary switches

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	--	24
	31E	3	1	24
	22E	2	2	24

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	--	24
	31E	3	1	24
	22E	2	2	24

With integrated coil circuit (suppressor diode integrated at factory)

Cannot be expanded with auxiliary switches

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	--	24
	31E <td>3</td> <td>1</td> <td>24</td>	3	1	24
	22E	2	2	24

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	--	24
	31E <td>3</td> <td>1</td> <td>24</td>	3	1	24
	22E	2	2	24

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.

3RH2140-1JB40 3RH2131-1JB40 3RH2122-1JB40	3RH2140-2JB40 3RH2131-2JB40 3RH2122-2JB40
3RH2140-1VB40 3RH2131-1VB40 3RH2122-1VB40	3RH2140-2VB40 3RH2131-2VB40 3RH2122-2VB40
3RH2140-1KB40 3RH2131-1KB40 3RH2122-1KB40	3RH2140-2KB40 3RH2131-2KB40 3RH2122-2KB40
3RH2140-1SB40 3RH2131-1SB40 3RH2122-1SB40	3RH2140-2SB40 3RH2131-2SB40 3RH2122-2SB40

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole

Overview

Standards

IEC 60947-1, IEC 60947-5-1

Note:

The 3TH42 and 3TH43 contactor relays feature force-guided 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 "Particular Contactor Relays".

Contact reliability of auxiliary contacts

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

Protection of the device connections against overvoltage

Protection against overvoltage at the control supply voltage connection

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 page 5/20](#).

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information on how damping influences the time response, [see the Equipment Manual](#).

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

More information

Technical specifications, [see https://support.industry.siemens.com/cs/ww/en/ps/16176/td](https://support.industry.siemens.com/cs/ww/en/ps/16176/td)
FAQs, [see https://support.industry.siemens.com/cs/ww/en/ps/16176/faq](https://support.industry.siemens.com/cs/ww/en/ps/16176/faq)

Manuals, [see https://support.industry.siemens.com/cs/ww/en/ps/16176/man](https://support.industry.siemens.com/cs/ww/en/ps/16176/man)

Contactor relays

Type

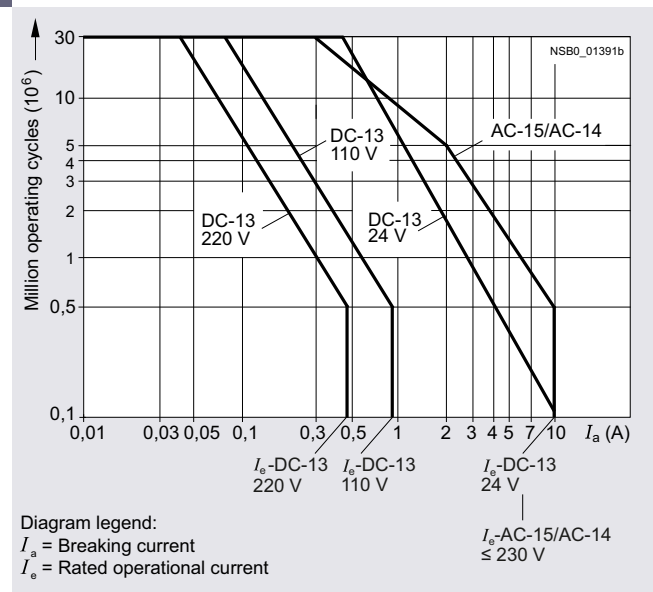
3TH42, 3TH43

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 arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

If magnetic circuits other than the contactor operating mechanisms or solenoid valves are present, e.g. magnetic brakes, protective measures for the load circuits are necessary.

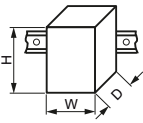
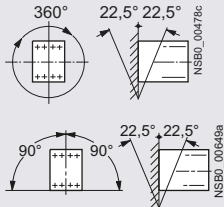


RC elements or freewheeling diodes are suitable as protective measures for the circuits.



Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole

Contactor relays	Type	3TH42	3TH43
General data			
Dimensions (W x H x D)			
<ul style="list-style-type: none"> AC operation DC operation 		mm 45 x 78 x 97 mm 45 x 78 x 130	55 x 78 x 97 55 x 78 x 130
Permissible mounting position			
The contactor relays are designed for operation on a vertical mounting surface.			
<ul style="list-style-type: none"> AC operation DC operation 			
Upright mounting position AC and DC operation			
		Special version required	
Mechanical endurance	Basic units	Operating cycles	30 million
Rated insulation voltage U_i (pollution degree 3)		V	690
Rated impulse withstand voltage U_{imp}		kV	8
Protective separation between the coil and the main contacts according to IEC 60947-1, Annex N		V	Up to 500
Permissible ambient temperature			
<ul style="list-style-type: none"> During operation During storage 	°C	-25 ... +55 °C -55 ... +80	
Short-circuit protection			
Short-circuit test			
<ul style="list-style-type: none"> With fuse links of operational class gG With short-circuit current $I_k = 1$ kA according to IEC 60947-5-1 - LV HRC, type 3NA - DIAZED, type 5SB - NEOZED, type 5SE, quick With miniature circuit breakers With short-circuit current $I_k = 400$ A according to IEC 60947-5-1 - C characteristic - B characteristic 	A	16 16 20 16 16	
Ⓢ and Ⓜ rated data			
Basic units			
Rated control supply voltage U_s	Max. 600 V AC, 230 V DC (according to UL 240 V DC)		
Rated voltage	600 V AC, 600 V DC		
Switching capacity	A 600, P 600		
Conductor cross-sections			
Auxiliary conductors and coil terminals (1 or 2 conductors can be connected)		 Screw terminals	
<ul style="list-style-type: none"> Solid or stranded Finely stranded with end sleeve Terminal screw 	mm ² mm ²	2 x (0.5 ... 1) ¹⁾ ; 2 x (1 ... 2.5) ¹⁾ ; 1 x 4 2 x (0.75 ... 2.5) 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.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole

Contactor relays	Type	3TH42, 3TH43
Control		
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 coil (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		$\leq 1.25 \text{ mA} \times (220 \text{ V}/U_s)$
Rated data of the auxiliary contacts		
Load rating with AC		
Rated operational currents I_e		
• AC-12	A	16
• AC-15/AC-14,	230 V A	10
at rated operational voltage U_e	400 V A	6
	500 V A	4
	690 V A	2
Rated power of three-phase motors		
	230/220 V kW	2.4
According to utilization categories AC-3 and AC-3e, 50 Hz	400/380 V kW	4
	500 V kW	4
	690/660 V kW	4

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole

Selection and ordering data

8-pole contactor relays


AC operation  or DC operation 



3TH4280-0AP0



3TH4244-0BB4

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

For screw and snap-on mounting on TH 35 DIN rail

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

8	10	6	4	2	80E	8	--	--	--	3TH4280-0AP0	1	1 unit	41A
					71E	7	1	--	--	3TH4271-0AP0	1	1 unit	41A
					62E	6	2	--	--	3TH4262-0AP0	1	1 unit	41A
					53E	5	3	--	--	3TH4253-0AP0	1	1 unit	41A
					44E	4	4	--	--	3TH4244-0AP0	1	1 unit	41A
					44E, 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	80E	8	--	--	--	3TH4280-0BB4	1	1 unit	41A
					71E	7	1	--	--	3TH4271-0BB4	1	1 unit	41A
					62E	6	2	--	--	3TH4262-0BB4	1	1 unit	41A
					53E	5	3	--	--	3TH4253-0BB4	1	1 unit	41A
					44E	4	4	--	--	3TH4244-0BB4	1	1 unit	41A
					44E, U	3	3	1	1	3TH4293-0BB4	1	1 unit	41A

¹⁾ Operating range at 220 V: 0.85 to $1.1 \times U_s$;
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 5/19 on request.

Accessories, see page 5/20.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole

10-pole contactor relays

AC operation  or DC operation 

3TH4355-0AP0



3TH4355-0BB4

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

For screw and snap-on mounting on TH 35 DIN rail

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

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

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

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

¹⁾ Operating range at 220 V: 0.85 to $1.1 \times U_s$;
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 5/19 on request.

Accessories, see page 5/20.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole

Options

Rated control supply voltages, possible on request (change of the 10th and 11th digits of the article number)

Delivery time on request

Rated control supply voltage U_s		Control supply voltage at	3TH42/3TH43
AC operation			
Solenoid coils for 50 and 60 Hz AC			
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	
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	
For Japan			
50 Hz	60 Hz		
100 V AC	100 ... 110 V AC	G6 ²⁾	
200 V AC	200 ... 220 V AC	N6 ²⁾	
For USA and Canada			
50 Hz	60 Hz		
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		3TH42/3TH43
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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Contactor relays

3TH4 contactor relays, 8- and 10-pole > Accessories for 3TH4 contactor relays

Selection and ordering data

Version	Rated control supply voltage U_s		Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	AC V	DC V					

Surge suppressors for 3TH4 contactor relays



3TX7402-3.

Interference suppression diodes With line spacer, for mounting on the coil terminal	--	24 ... 250	3TX7402-3A		1	1 unit	41B
Diode assemblies (diode and Zener diode) With line spacer, DC operation, for mounting on the coil terminal	--	24 ... 250	3TX7402-3D		1	1 unit	41B
Varistors¹⁾ With line spacer, for mounting on the coil terminal	24 ... 48	24 ... 70	3TX7402-3G		1	1 unit	41B
	48 ... 127	70 ... 150	3TX7402-3H		1	1 unit	41B
	127 ... 240	150 ... 250	3TX7402-3J		1	1 unit	41B
	240 ... 400	--	3TX7402-3K		1	1 unit	41B
	400 ... 600	--	3TX7402-3L		1	1 unit	41B
RC elements With line spacer, for mounting on the coil terminal	24 ... 48	24 ... 70	3TX7402-3R		1	1 unit	41B
	48 ... 127	70 ... 150	3TX7402-3S		1	1 unit	41B
	127 ... 240	150 ... 250	3TX7402-3T		1	1 unit	41B
	240 ... 400	--	3TX7402-3U		1	1 unit	41B
	400 ... 600	--	3TX7402-3V		1	1 unit	41B
Covers for switch position indicator	--	--	3TX4210-0P		1	1 unit	41B

¹⁾ Includes the peak value of the alternating voltage on the DC side.

For contactors	Version	Rated control supply voltage U_s 50/60 Hz AC	Time setting range (minimum times)	Screw terminals	PU (UNIT, SET, M)	PS*	PG

ON-delay devices



3TX4180-0A

3TH42, 3TH43	NTC thermistors Time tolerance +100%, -50%	220 ... 230	0.1	3TX4180-0A		1	1 unit	41B
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Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

NEW SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e

Overview



Picture on left: 3RQ1000-1EW00 coupling relay,
1 NO contact + 1 NC contact, screw terminal
Picture on right: 3RQ1000-2LW00 coupling relay,
4 NO contacts + 1 NC contact, spring-loaded terminal (push-in)



3RQ1 coupling relay in the 3SK system

More information

Homepage, see www.siemens.com/sirius-coupling-relays
 Industry Mall, see www.siemens.com/product?3RQ1
 Technical specifications, see
<https://support.industry.siemens.com/cs/ww/en/ps/26008/td>
 Manuals, see
<https://support.industry.siemens.com/cs/ww/en/ps/26008/man>
 TIA Selection Tool Cloud (TST Cloud), see
www.siemens.com/tstcloud/?node=SIRIUSRelais
 SIRIUS 3SK safety relays, see
<https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10143262?tree=CatalogTree>



Video: SIRIUS 3RQ1 coupling relays

The force-guided SIRIUS 3RQ1 coupling relays in a modern titanium gray industrial enclosure are available in widths of 17.5 mm and 22.5 mm, and each with a supply voltage of 24 V DC (120 mm mounting depth) and 24 to 240 V AC/DC (90 mm mounting depth).

They are used for safe coupling up to SIL 3/PL e of control signals to and from a control system or as an output expansion for the SIRIUS 3SK safety relays (see page 11/13 onwards).

Further fields of application are based on the force-guided operation of relays according to IEC 60947-5-1 and EN 61810-3 for reading back relay states, for reliable diagnostics or signaling, or for the use of antivalent signals. Typical fields of application here are railways, signaling technology and elevators.

The series consists of devices with up to five outputs and can be supplied with screw or spring-loaded (push-in) terminals.

International standards and certifications including CE, UL/CSA, EAC and railway approvals ensure international usability and exportability.

An extensive range of accessories is also available, such as device connectors for easy and safe connection of the 3RQ1 devices, replacement terminals, push-in lugs for wall mounting and coding pins, see page 5/27 onwards.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e **NEW**

Article number scheme

Product versions		Article number				
Coupling relays with force-guided contacts		3RQ1	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0
Version	Performance Level (SIL): c (SIL 2)	0				
	Performance Level (SIL): e (SIL 3)	2				
Connection methods	Screw terminals	1				
	Spring-loaded terminals (push-in)	2				
Outputs	1 NO + 1 NC		E			Width 17.5 mm
	2 NO + 1 NC		G			Width 17.5 mm
	2 NO + 2 NC		H			Width 22.5 mm
	4 NO + 1 NC		L			Width 22.5 mm
Rated control supply voltage	24 V DC		B			Depth 120 mm
	24 to 240 V AC/DC		W			Depth 90 mm
Example		3RQ1	0	0	0	- 1 E W 0 0

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

Benefits

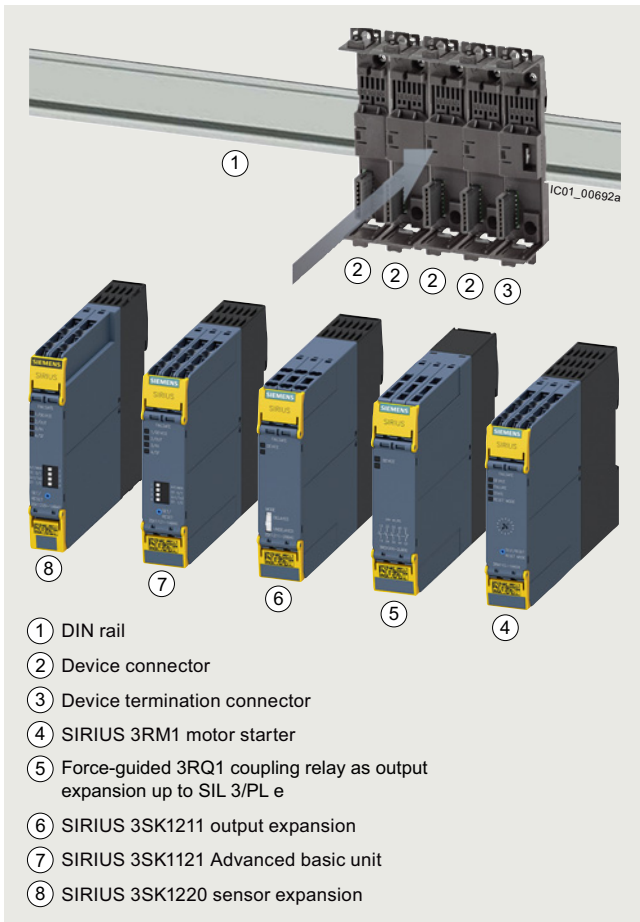
- Wide-range voltage versions from 24 to 240 V AC/DC available with a mounting depth of 90 mm for all variants
- Permanent wiring thanks to removable terminals in screw or spring-loaded technology (push-in)
- Replacement of individual terminals minimizes wiring effort
- Can be used as output extension for SIRIUS 3SK safety relays via device connectors
- All versions with real load contacts, also in the NC circuit
- Safety certification according to functional safety SIL 3/PL e
- International standards and certifications including CE, UL/CSA, EAC, railway approvals, and more

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

NEW SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e

Application



- ① DIN rail
- ② Device connector
- ③ Device termination connector
- ④ SIRIUS 3RM1 motor starter
- ⑤ Force-guided 3RQ1 coupling relay as output expansion up to SIL 3/PL e
- ⑥ SIRIUS 3SK1211 output expansion
- ⑦ SIRIUS 3SK1121 Advanced basic unit
- ⑧ SIRIUS 3SK1220 sensor expansion

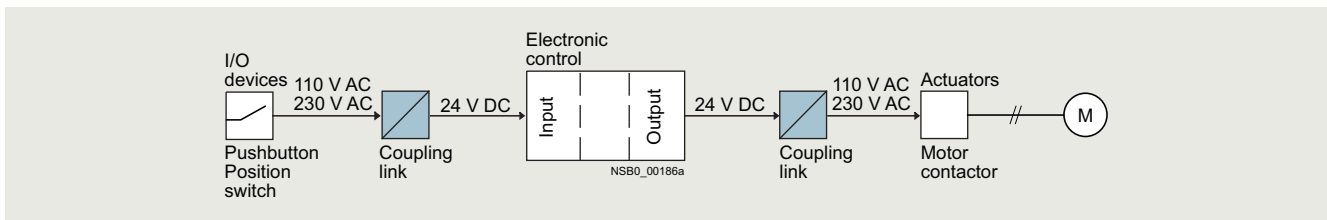
- Safe coupling up to SIL 3/PL e of control signals from and to a control system
- Output expansion for 3SK safety relays
- Use of force-guided contacts for reading back relay states
- For reliable diagnostics or signaling or for antivalent switching of loads
- Safe coupling:
 - Electrical separation between the input and output circuit
 - Adjustment of different signal levels
 - Signal amplification
 - Contact multiplication

3RQ1 output expansion (up to SIL 3/PL e) for the 3SK system

The force-guided 3RQ1 coupling relays with a mounting depth of 120 mm can be used as an output expansion up to SIL 3/PL e and can be connected by wiring to all 3SK basic units and by using the 3ZY12 device connector to all 3SK1 and 3SK2 Advanced basic units.

They have a switching capacity of AC-15 5/3 A (like 3SK1211) at a switching voltage of 230 V and are available in widths of 17.5 mm and 22.5 mm. Furthermore, they have NC contacts with a switching capacity of AC-15 2/1.5 A for direct switching of loads (anti-parallel switching, signaling, etc.).

System configuration example with SIRIUS 3SK safety relays



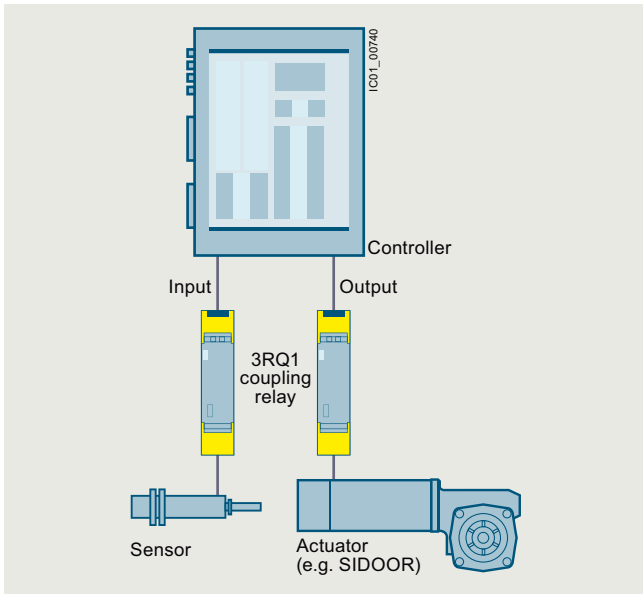
Typical application with a fail-safe control system

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

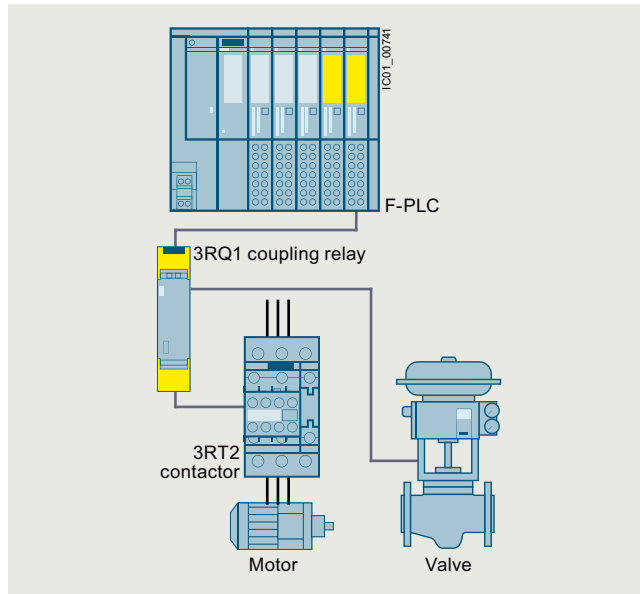
Coupling relays

SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e **NEW**

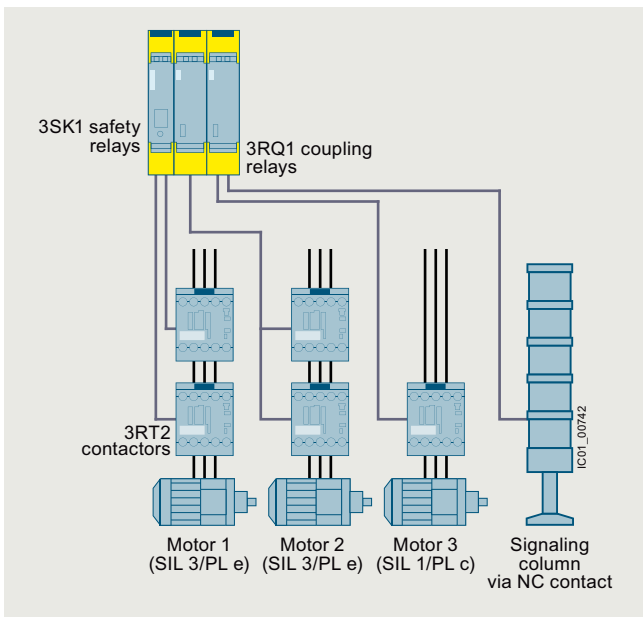
Applications



Application based on force-guided operation



3RQ1 as coupling link for signals, e.g. for a fail-safe control system



3RQ1 as output expansion (SIL 1 to 3) for 3SK with direct control of actuators and signaling elements

5

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

NEW SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e

Technical specifications

More information

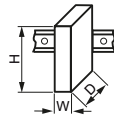
Technical specifications, see
<https://support.industry.siemens.com/cs/ww/en/ps/26008/td>

Manuals, see
<https://support.industry.siemens.com/cs/ww/en/ps/26008/man>
 Equipment Manual 3SK1/3RQ1, see
<https://support.industry.siemens.com/cs/ww/en/view/67585885>

Article number	3RQ1000-EB00, 3RQ1000-GB00	3RQ1200-EB00	3RQ1000-EW00, 3RQ1000-GW00	3RQ1200-EW00	3RQ1000-HB00, 3RQ1000-LB00	3RQ1000-HW00, 3RQ1000-LW00
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General data

Dimensions (W x H x D)



Dimensions (W x H x D) mm	17.5 x 100 x 120	17.5 x 100 x 90	22.5 x 100 x 120	22.5 x 100 x 90
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Safety Integrity Level (SIL) according to IEC 62061

2 3 2 3 2

Performance Level (PL) according to ISO 13849-1

c e c e c

Certificate of suitability

- UL approval
- TÜV approval

Yes
Yes

Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3

V 300

Ambient temperature

- During operation
- During storage

°C -25 ... +60
°C -40 ... +80

Degree of protection IP

IP20

Control circuit

Control supply voltage

- At AC
 - At 50 Hz
 - At 60 Hz
- At DC

V	--	24 ... 240	--	24 ... 240
V	--	24 ... 240	--	24 ... 240
V	24	24 ... 240	24	24 ... 240

Operating range factor of the control supply voltage, rated value

- At DC

0.8 ... 1.2 0.7 ... 1.1 0.8 ... 1.2 0.7 ... 1.1

Load circuit

Thermal current of the non-solid-state contact blocks, maximum

A 5

Mechanical endurance (operating cycles) typical

10 000 000

Article number	3RQ1000-1, 3RQ1200-1	3RQ1000-2, 3RQ1200-2
Type of electrical connection	Screw terminals	Spring-loaded terminals (push-in)
Type of connectable conductor cross-sections	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²) 1x (0.5 ... 4 mm ²), 2x (0.5 ... 1.5 mm ²)	1x (0.5 ... 4 mm ²) 1x (0.5 ... 2.5 mm ²) 1x (20 ... 12)
• Solid		
• Finely stranded with end sleeve		
• Solid for AWG cables	AWG 1x (20 ... 12), 2x (20 ... 14)	
Tightening torque	Nm 0.6 ... 0.8	--

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e **NEW**
Selection and ordering data

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

Multi-unit packaging,
 see page 16/7.

Control supply voltage at AC at 50/60 Hz	Control supply voltage at DC	Number of auxiliary contacts		Depth	Suitable for use with 3ZY12 device connector	Screw terminals 		Spring-loaded terminals (push-in) 	
V	V	NO	NC	mm		Article No.	Price per PU	Article No.	Price per PU

Width 17.5 mm


3RQ1000-1EW00 3RQ1000-2EW00

Fail-safe up to SIL 2/PL c

--	24	1	1	120	✓	3RQ1000-1EB00	3RQ1000-2EB00
--	24	2	1	120	✓		
24 ... 240	24 ... 240	1	1	90	--	3RQ1000-1EW00	3RQ1000-2EW00
24 ... 240	24 ... 240	2	1	90	--	3RQ1000-1GW00	3RQ1000-2GW00

Fail-safe up to SIL 3/PL e

--	24	1	-- ¹⁾	120	✓	3RQ1200-1EB00	3RQ1200-2EB00
24 ... 240	24 ... 240	1	1	90	--		

Width 22.5 mm


3RQ1000-1LW00 3RQ1000-2LW00

Fail-safe up to SIL 2/PL c

--	24	2	2	120	✓	3RQ1000-1HB00	3RQ1000-2HB00
--	24	4	1	120	✓		
24 ... 240	24 ... 240	2	2	90	--	3RQ1000-1LB00	3RQ1000-2LB00
24 ... 240	24 ... 240	4	1	90	--	3RQ1000-1HW00	3RQ1000-2HW00
						3RQ1000-1LW00	3RQ1000-2LW00

✓ Yes

-- No

¹⁾ NC contact designed to act as feedback contact.

Note:

All force-guided 3RQ1 coupling relays have safety certification up to SIL 2/PL c or SIL 3/PL e according to IEC 62061/ISO 13849.

To achieve SIL 3/PL e, two 3RQ10 devices can also be wired in series, see [Equipment Manual](#).

In addition, the 3SK1211 devices (output expansions for 3SK) provide force-guided coupling relays with 4 NO contacts and 1 NC contact up to SIL 3/PL e with 24 V AC, 24 V DC, and 110 to 240 V AC/DC.

For applications with high currents up to a switching capacity of 10 A AC-15, the 3SK1213 output expansions are also available with 24 V AC, 24 V DC and 110 to 240 V AC/DC.

These devices can be used in the same way as the 3RQ1 coupling relays for coupling to and from safe control systems, they feature 4 NO contacts and 1 NC contact, and are available as variants with 24 V AC, 24 V DC and 110 to 240 V AC/DC (see [page 11/27](#)).

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

NEW SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e

Accessories

More information

Manuals, see
<https://support.industry.siemens.com/cs/ww/en/ps/26008/man>

Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Device connectors for the electrical connection of SIRIUS devices in the industrial DIN-rail enclosure



3ZY1212-1BA00

3ZY1212-2BA00

Device connectors

- Width 17.5 mm (for 3RQ1000-.EB00/-.GB00, 3RQ1200-.EB00)
- Width 22.5 mm (for 3RQ1000-.HB00/-.LB00)

3ZY1212-1BA00

1 1 unit 41L

3ZY1212-2BA00

1 1 unit 41L



3ZY1212-2DA00

Device termination connectors

- Width 17.5 mm (for 3RQ1000-.EB00/-.GB00, 3RQ1200-.EB00)
- Width 22.5 mm (for 3RQ1000-.HB00/-.LB00)

Note:
Observe positions of the slide switch for width 22.5 mm, see [Equipment Manual](#).

3ZY1212-1DA00

1 1 unit 41L

3ZY1212-2DA00

1 1 unit 41L

Device daisy chain connectors

24 V DC, 22.5 mm, for implementation of distances between devices according to the installation guidelines

3ZY1212-2AB00

1 1 unit 41L

Device connectors

For height adjustment for device arrangements without electrical connection via device connector, with a width of 22.5 mm or greater

3ZY1210-2AA00

1 1 unit 41L

Terminals for SIRIUS devices in the industrial DIN-rail enclosure



3ZY1122-1BA00

3ZY1122-2BA00

Removable terminals

- 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm²
- 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve)

Screw terminals



3ZY1122-1BA00

1 6 units 41L

Spring-loaded terminals (push-in)



3ZY1122-2BA00





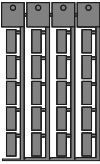


1 6 units 41L

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e

NEW

Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Accessories for enclosures					
 <p>3ZY1321-2AA00</p>	Sealing covers <ul style="list-style-type: none"> • 17.5 mm • 22.5 mm 		1	5 units	41L
	3ZY1321-1AA00 3ZY1321-2AA00		1	5 units	41L
 <p>3ZY1311-0AA00</p>	Push-in lugs For wall mounting		1	10 units	41L
 <p>3ZY1440-1AA00</p>	Coding pins For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; they enable the mechanical coding of terminals, see Equipment Manual .		1	12 units	41L
 <p>3ZY1450-1BA00 3ZY1450-1BB00</p>	Hinged cover Replacement cover, without terminal labeling, yellow <ul style="list-style-type: none"> • 17.5 mm wide • 22.5 mm wide 		1	5 units	41L
	3ZY1450-1BA00 3ZY1450-1BB00		1	5 units	41L
Blank labels					
 <p>3RT2900-1SB20</p>	Unit labeling plates¹⁾ For SIRIUS devices <ul style="list-style-type: none"> • 17.5 mm: 10 mm x 7 mm, titanium gray • 22.5 mm: 20 mm x 7 mm, titanium gray 		100	816 units	41B
	3RT2900-1SB10 3RT2900-1SB20		100	340 units	41B
Tools for opening spring-loaded terminals					
 <p>3RA2908-1A</p>	Screwdriver For all SIRIUS devices with spring-loaded terminals 3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated	Spring-loaded terminals (push-in) 	1	1 unit	41B
<p>¹⁾ PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).</p>					

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ2 coupling relays with industrial enclosure

Overview



SIRIUS 3RQ2 coupling relay, screw terminals, 3 changeover contacts

More information

Homepage, see www.siemens.com/sirius-coupling-relays

Industry Mall, see www.siemens.com/product?3RQ2

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais

Conversion tool, see www.siemens.com/conversion-tool

3RQ2 coupling relays in their 22.5 mm industrial enclosure serve to couple control signals to and from a controller and replace the 3RS18 coupling relays. The 3RQ2 has an impressively high-quality industrial enclosure finished in modern titanium gray so that it fits in visually with the SIRIUS series of relays.

The series consists of devices with up to three changeover contacts with screw or spring-loaded terminals (push-in) and, with its wide voltage range from 24 to 240 V AC/DC, is a genuine highlight in the coupling relay market.

Thanks to terminal assignment that is identical to the previous version, existing products can easily be converted.

The reduced variety of components simplifies product selection and standardization.

Numerous accessories are available for the 3RQ2 coupling relays, for example replacement terminals, push-in lugs for wall mounting and coding pins.

Article number scheme

Product versions		Article number							
Coupling relays, standard		3RQ2000	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>
Connection methods	Screw terminals		1						
	Spring-loaded terminals (push-in)		2						
Outputs	1 CO contact			A					
	2 CO contacts			B					
	3 CO contacts			C					
Rated control supply voltage	24 ... 240 V AC/DC				W				
Material of switching contacts	0 = AgSnO ₂							0	
	1 = AgNi + Au							1	
Example		3RQ2000	-	1	C	W	0	1	

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

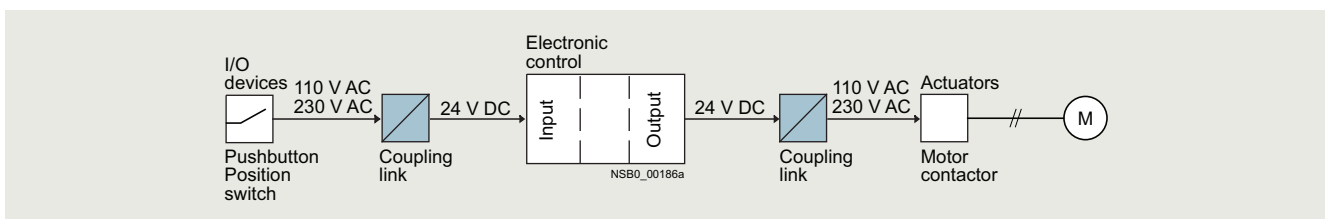
For your orders, please use the article numbers quoted in the selection and ordering data.

Benefits

- Permanent wiring thanks to removable terminals in screw or spring-loaded technology (push-in)
- Replacement of individual terminals minimizes wiring effort
- A product for all voltages from 24 to 240 V AC/DC
- Reduced costs thanks to fewer versions
- Especially high contact reliability even at low currents thanks to versions with hard gold-plated contacts
- International standards and certifications including CE, UL/CSA, EAC, railway approvals, and more

Application

- Electrical separation between the input and output circuit
- Adjustment of different signal levels
- Signal amplification
- Contact multiplication



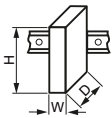


Application example motor controller

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ2 coupling relays with industrial enclosure

Technical specifications

More information		
Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25158/td	Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/ps/25158/man	
Article number	3RQ2000-AW00 3RQ2000-BW00 3RQ2000-CW00	3RQ2000-CW01
General data		
Width x height x depth	 mm	22.5 x 100 x 90
Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3	V	300
Max. permissible voltage for protective separation between control circuit and auxiliary circuit according to IEC 60947-1	V	300
Ambient temperature		
• During operation	°C	-40 ... +60
• During storage	°C	-40 ... +80
Degree of protection IP	IP20	
Control circuit		
Control supply voltage	V	24 ... 240 AC/DC; 50/60 Hz
Operating range factor of control supply voltage	0.7 ... 1.1	
Load circuit		
Thermal current of the non-solid-state contact blocks, maximum	A	5
Current-carrying capacity of the output relay		
• At AC-15 at 250 V	A	3
• At DC-13 at 24 V	A	1
• At DC-13 at 125 V	A	0.2
• At DC-13 at 250 V	A	0.1
Mechanical endurance (operating cycles) typical	10 000 000	
Electrical endurance (operating cycles) for AC-15 at 230 V, typical	100 000	
Material of switching contacts	AgSnO ₂	AgNi + Au
Article number	3RQ2000-1	3RQ2000-2
Type of electrical connection	 Screw terminals	 Spring-loaded terminals (push-in)
Type of connectable conductor cross-sections		
• Solid	1x (0.5 ... 4 mm ²), 2x (0.5 ... 2.5 mm ²)	1x (0.5 ... 4 mm ²)
• Finely stranded with end sleeve	1x (0.5 ... 4 mm ²), 2x (0.5 ... 1.5 mm ²)	1x (0.5 ... 2.5 mm ²)
• Solid for AWG cables	1x (20 ... 12), 2x (20 ... 14)	1x (20 ... 12)
Tightening torque	Nm	--

Switching devices – Contactors and contactor assemblies – Contactor relays and relays



Coupling relays

SIRIUS 3RQ2 coupling relays with industrial enclosure

Selection and ordering data

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

Multi-unit packaging, see page 16/7.

Control supply voltage at AC at 50 Hz	Control supply voltage at DC	Number of CO contacts for auxiliary contacts	Material of switching contacts	Screw terminals 		Spring-loaded terminals (push-in) 	
				Article No.	Price per PU	Article No.	Price per PU
V	V	W					

Coupling relays with industrial enclosure, 22.5 mm



3RQ2000-1CW00

3RQ2000-2CW00

24 ... 240	24 ... 240	1	AgSnO ₂	3RQ2000-1AW00	3RQ2000-2AW00
		2	AgSnO ₂	3RQ2000-1BW00	3RQ2000-2BW00
		3	AgSnO ₂	3RQ2000-1CW00	3RQ2000-2CW00
		3	AgNi + Au	3RQ2000-1CW01	3RQ2000-2CW01

Accessories

More information

Operating Instructions, see <https://support.industry.siemens.com/cs/ww/en/ps/25158/man>

Conversion tool, see www.siemens.com/conversion-tool

Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Terminals for SIRIUS devices in the industrial DIN-rail enclosure



3ZY1122-1BA00

Removable terminals

- 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm²
- 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve)

Screw terminals

3ZY1122-1BA00	1	6 units	41L
Spring-loaded terminals (push-in) 			
3ZY1122-2BA00	1	6 units	41L

Accessories for enclosures



3ZY1450-1AB00

Hinged cover

Replacement cover, without terminal labeling, titanium gray, 22.5 mm wide

3ZY1450-1AB00	1	5 units	41L
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3ZY1311-0AA00

Push-in lugs

For wall mounting

3ZY1311-0AA00	1	10 units	41L
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3ZY1440-1AA00

Coding pins

For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; they enable the mechanical coding of terminals

3ZY1440-1AA00	1	12 units	41L
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Blank labels



3RT2900-1SB20

Unit labeling plates

For SIRIUS devices 20 mm x 7 mm, titanium gray¹⁾

3RT2900-1SB20	100	340 units	41B
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Tools for opening spring-loaded terminals



3RA2908-1A

Screwdriver

For all SIRIUS devices with spring-loaded terminals
 3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated

Spring-loaded terminals (push-in)

3RA2908-1A	1	1 unit	41B
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¹⁾ PC labeling system for individual inscription of unit labeling plates available from:

murrplastik Systemtechnik GmbH (see page 16/18).

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ2 coupling relays with industrial enclosure

More information

Code conversion table

SIRIUS 3RS18 coupling relays				Comparison type SIRIUS 3RQ2 coupling relays			
Screw terminals	Spring-loaded terminals	Version	Contacts	Screw terminals	Spring-loaded terminals (push-in)	Version	Contacts
3RS1800-1AQ00	3RS1800-2AQ00	24 V AC/DC; 110 ... 120 V AC	1 CO contact	3RQ2000-1AW00	3RQ2000-2AW00	24 ... 240 V AC/DC	1 CO contact
3RS1800-1AP00	3RS1800-2AP00	24 V AC/DC; 220 ... 240 V AC	2 CO contacts	3RQ2000-1BW00	3RQ2000-2BW00	24 ... 240 V AC/DC	2 CO contacts
3RS1800-1BW00	3RS1800-2BW00	24 ... 240 V AC/DC					
3RS1800-1BQ00	3RS1800-2BQ00	24 V AC/DC; 110 ... 120 V AC	3 CO contacts	3RQ2000-1CW00	3RQ2000-2CW00	24 ... 240 V AC/DC	3 CO contacts
3RS1800-1BP00	3RS1800-2BP00	24 V AC/DC; 220 ... 240 V AC					
3RS1800-1HW00	3RS1800-2HW00	24 ... 240 V AC/DC	3 CO contacts, hard gold-plated	3RQ2000-1CW01	3RQ2000-2CW01	24 ... 240 V AC/DC	3 CO contacts, hard gold-plated
3RS1800-1HQ00	3RS1800-2HQ00	24 V AC/DC; 110 ... 120 V AC					
3RS1800-1HP00	3RS1800-2HP00	24 V AC/DC; 220 ... 240 V AC					
3RS1800-1HW01	3RS1800-2HW01	24 ... 240 V AC/DC					
3RS1800-1HQ01	3RS1800-2HQ01	24 V AC/DC; 110 ... 120 V AC					
3RS1800-1HP01	3RS1800-2HP01	24 V AC/DC; 220 ... 240 V AC					

Overview



SIRIUS 3RQ3 coupling relays

More information

Homepage, see www.siemens.com/sirius-coupling-relays

Industry Mall, see www.siemens.com/product?3RQ3

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais

Conversion tool, see www.siemens.com/conversion-tool

SIRIUS 3RQ3 coupling relays in narrow design are used for coupling control signals from and to a controller, and they are available in different versions:

- Coupling relays with relay output (not plug-in)
- Coupling relays with plug-in relays
- Coupling relays with semiconductor output (not plug-in)

Coupling relays with relay output (not plug-in)

AC and DC operation

IEC 60947-5-1

The input and output coupling relays differ with regard to the positioning of the terminals and the LEDs.

Coupling relays with plug-in relays

AC and DC operation

IEC 60947-1

The coupling relays are plug-in, so the relay can be replaced quickly at the end of its service life without detaching the wiring.

Coupling relays with semiconductor output (not plug-in)

AC and DC operation

IEC 60947-1, EN 60664-1 and EN 50005;
coupling relays with semiconductor output: EN 60747-5;
programmable logic controllers: IEC 61131-2

The input and output coupling relays differ with regard to the positioning of the terminals and the LEDs.

The coupling relays with semiconductor output have extremely high contact reliability, so they are especially suitable for solid-state systems.

For test purposes, versions are available with manual-off-automatic switches.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Article number schemes

Product versions		Article number			
Coupling relays with relay output (not plug-in)		3RQ30 □ 8 – □ A □ 0 □			
Design and type of output	Output coupler, without manual-off-automatic switch	1			
	Input coupler	3			
Type of electrical connection	Screw terminals		1		
	Spring-loaded terminals (push-in)		2		
Control supply voltage	24 V AC/DC			B	
	115 V AC/DC			E	
	230 V AC/DC			F	
Material of switching contacts	e.g.				
	0 = AgSnO ₂				□
	1 = AgSnO ₂ hard gold-plated				□
Example		3RQ30 1 8 – 1 A B 0 1			

Product versions		Article number			
Coupling relays with relay output (not plug-in)		3RQ30 1 8 – 2 A □ 0 8 – 0 A □ 0			
Railway version with extended operating range 0.7 ... 1.2 x U_s					
Control supply voltage	24 V DC			M	
	110 V DC			N	
Standard printed circuit board					A
Protective coating on printed circuit board					X
Example		3RQ30 1 8 – 2 A M 0 8 – 0 A A 0			

Product versions		Article number			
Coupling relays with plug-in relays		3RQ31 1 8 – □ A □ 0 □			
Type of electrical connection	Screw terminals	1			
	Spring-loaded terminals (push-in)	2			
Control supply voltage	24 V AC/DC			B	
	115 V AC/DC			E	
	230 V AC/DC			F	
	24 V DC			M	
Material of switching contacts	AgSnO ₂				0
	AgSnO ₂ hard gold-plated				1
Example		3RQ31 1 8 – 1 A B 0 1			

Product versions		Article number					
Coupling relays with semiconductor output (not plug-in)		3RQ30 □ □ – □ S □ □ 0					
	Current-carrying capacity of the semiconductor output				Control supply voltage	Switching voltage of the semiconductor output	
Output coupler	• Without manual-off-automatic switch	1 mA ... 0.5 A	5 0	□	M 5	11 ... 30 V DC	10 ... 60 V DC
		5 mA ... 2 A	5 2	□	M 3	11 ... 30 V DC	10 ... 30 V DC
		1 mA ... 2 A	5 2	□	M 4	11 ... 30 V DC	10 ... 60 V DC
		5 mA ... 2 A	5 2	□	M 5	11 ... 30 V DC	20 ... 264 V AC
	• With manual-off-automatic switch	1 mA ... 3 A	5 3	□	G 3	110 ... 230 V AC/DC	10 ... 30 V DC
		5 mA ... 5 A	5 5	□	M 3	11 ... 30 V DC	10 ... 30 V DC
		5 mA ... 5 A	6 5	□	M 3	11 ... 30 V DC	10 ... 30 V DC
Input coupler	10 mA ... 0.5 A	7 0	□	B 3	11 ... 30 V AC/DC	10 ... 30 V DC	
		7 0	□	G 3	110 ... 230 V AC/DC	10 ... 30 V DC	
Type of electrical connection	Screw terminals			1			
	Spring-loaded terminals (push-in)			2			
Example		3RQ30 7 0 – 1 S B 3 0					

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Benefits

General

- All versions with screw terminals or spring-loaded terminals (push-in technology)
- TOP wiring with spring-loaded terminals (push-in) for quick and reliable wiring
- Low space requirements in the control cabinet thanks to a consistent width of 6.2 mm
- Reduced stock-keeping due to fewer variants
- Clearly visible functional state of the coupling relay by green LED
- Integrated reverse polarity protection and EMC suppressor diode
- Standardized accessories across the entire 3RQ3 series
- Universal bridging option using connecting combs for all terminals
- Galvanic isolation plate for isolating different voltages for neighboring units
- Clip-on labels available as set for individual labeling

Coupling relays with relay output (not plug-in)

- Relays fixed in enclosure for increased contact reliability
- Device variants with hard gold-plated contacts, hence high contact reliability at low currents

Coupling relays with plug-in relays

- Fast replacement of the relays with existing wiring
- Shorter installation times thanks to certified complete units
- Individual relays available as spare parts
- Device variants with hard gold-plated contacts, hence high contact reliability at low currents

Coupling relays with semiconductor output (not plug-in)

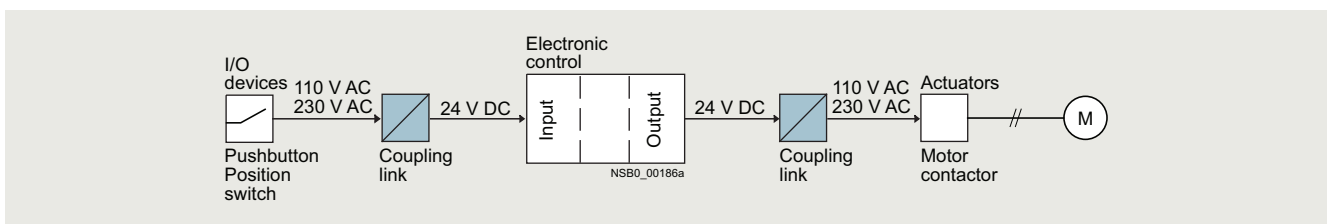
- Long service life since there is no mechanical wear
- High switching frequency thanks to short make-break times
- Vibration-resistant
- No contact bounce
- Extremely high contact reliability
- Noise-free switching
- Low control power required
- Switching of DC and capacitive loads

Note:

With semiconductors, the switching current is not dependent on the inductance of the load, i.e. the switching current for an inductive DC-13 load is the same as that for a 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 the number of operating cycles, because this does not affect the endurance of the semiconductor, provided it is not overheated.

Application

- Electrical separation between the input and output circuit
- Adjustment of different signal levels
- Signal amplification



Application example motor controller

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

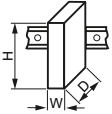
Technical specifications

More information

Technical specifications, see
<https://support.industry.siemens.com/cs/ww/en/ps/16198/td>

Operating Instructions, see
<https://support.industry.siemens.com/cs/ww/en/ps/16198/man>
 FAQs, see <https://support.industry.siemens.com/cs/ww/en/ps/16198/faq>

Coupling relays with relay output (not plug-in)

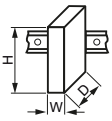
Article number	3RQ30.8- .AB00	3RQ30.8- .AB01	3RQ30.8- .AE00	3RQ30.8- .AE01	3RQ30.8- .AF00	3RQ30.8- .AF01	3RQ3018- 2AM08-0A.0	3RQ3018- 2AN08-0A.0
General technical specifications								
Width x height x depth			mm	6.2 x 93 x 72.5				
Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3	V	300						
Max. permissible voltage for protective separation between control circuit and auxiliary circuit	V	300						
Ambient temperature								
• During operation	°C	-25 ... +60			-40 ... +70			
• During storage	°C	-40 ... +85						
Degree of protection IP		IP20						
Version of the fuse link required for short-circuit protection of the auxiliary switch		Fuse gG: 4 A						
Operational current of the auxiliary contacts								
• At AC-15								
- At 24 V	A	3						
- At 250 V	A	3						
• At DC-13								
- At 24 V	A	1						
- At 125 V	A	0.2						
- At 250 V	A	0.1						
Contact reliability of the auxiliary contacts (one contact failure per 100 million)		17 V, 5 mA	5 V, 1 mA	17 V, 5 mA	5 V, 1 mA	17 V, 5 mA	5 V, 1 mA	17 V, 5 mA
Mechanical endurance (operating cycles) typical		10 000 000						
Electrical endurance (operating cycles) for AC-15 at 250 V typical		100 000						
Operating range factor of the control supply voltage, rated value								
• At AC								
- At 50 Hz		0.8 ... 1.25		0.8 ... 1.1		--		
- At 60 Hz		0.8 ... 1.25		0.8 ... 1.1		--		
• At DC		0.8 ... 1.25		0.8 ... 1.1		0.7 ... 1.25		
Active power input	W	0.3		0.5		1		0.3 0.6
Thermal current	A	6						
• Note		--						Derating, see characteristic curves

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Coupling relays with plug-in relays

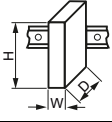


Article number		3RQ3118- .AB00	3RQ3118- .AB01	3RQ3118- .AE00	3RQ3118- .AE01	3RQ3118- .AF00	3RQ3118- .AF01	3RQ3118- .AM00	3RQ3118- .AM01
General technical specifications									
Width x height x depth	mm	6.2 x 93 x 76							
									
Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3	V	300							
Max. permissible voltage for protective separation between control circuit and auxiliary circuit	V	300							
Ambient temperature									
• During operation	°C	-25 ... +60							
• During storage	°C	-40 ... +85							
Degree of protection IP		IP20							
Version of the fuse link required for short-circuit protection of the auxiliary switch		Fuse gG: 4 A							
Operational current of the auxiliary contacts									
• At AC-15									
- At 24 V	A	3							
- At 250 V	A	3							
• At DC-13									
- At 24 V	A	1							
- At 125 V	A	0.2							
- At 250 V	A	0.1							
Contact reliability of the auxiliary contacts (one contact failure per 100 million)		17 V, 5 mA	5 V, 1 mA	17 V, 5 mA	5 V, 1 mA	17 V, 5 mA	5 V, 1 mA	17 V, 5 mA	5 V, 1 mA
Mechanical endurance (operating cycles) typical		10 000 000							
Electrical endurance (operating cycles) for AC-15 at 250 V typical		100 000							
Operating range factor of the control supply voltage, rated value									
• At AC									
- At 50 Hz		0.8 ... 1.25		0.8 ... 1.1				--	
- At 60 Hz		0.8 ... 1.25		0.8 ... 1.1				--	
• At DC		0.8 ... 1.25		0.8 ... 1.1				0.8 ... 1.25	
Active power input	W	0.3		0.5		1		0.3	
Thermal current	A	6							

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Coupling relays with semiconductor output (not plug-in)

Article number	3RQ3050- .SM50	3RQ3052- .SM30	3RQ3052- .SM40	3RQ3052- .SM50	3RQ3053- .SG30	3RQ3055- .SM30	3RQ3065- .SM30	3RQ3070- .SB30	3RQ3070- .SG30
General technical specifications									
Width x height x depth	 mm 6.2 x 93 x 72.5						6.2 x 93 x 75	6.2 x 93 x 72.5	
Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3	V	50		300		50			--
Ambient temperature									
• During operation	°C	-25 ... +60							
• During storage	°C	-40 ... +85							
Degree of protection IP		IP20							
Switching voltage of the semiconductor output									
• At AC	V	--		20 ... 264	--				
• At DC	V	10 ... 60	10 ... 30	10 ... 60	--	10 ... 30			
Current-carrying capacity of the semiconductor output									
• At AC		--		5 mA ... 2 A	--				
• At DC		1 mA ... 0.5 A	5 mA ... 2 A	1 mA ... 2 A	--	1 mA ... 3 A	5 mA ... 5 A		10 mA ... 0.5 A
Operating range factor of the control supply voltage, rated value									
• At AC									
- At 50 Hz		--				0.7 ... 1.1	--		1 ... 1
- At 60 Hz		--				0.7 ... 1.1	--		1 ... 1
• At DC		1 ... 1				0.7 ... 1.1	1 ... 1		0.7 ... 1.1
Active power input	W	0.3		0.25		0.3			0.5
Thermal current	A	0.5	2			3	5		0.5
Article number	3RQ3...-1....				3RQ3...-2....				
Type of electrical connection for auxiliary and control circuits	 Screw terminals				 Spring-loaded terminals (push-in)				
Type of connectable conductor cross-sections									
• Solid	1x (0.25 ... 2.5 mm ²)								
• Finely stranded									
- Without end sleeves	--				1x (0.25 ... 2.5 mm ²)				
- With end sleeves	1x (0.25 ... 1.5 mm ²)								
• Solid for AWG cables	1x (20 ... 14)								

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Selection and ordering data

Type of voltage	Control supply voltage at AC		Number of CO contacts for auxiliary contacts	Material of switching contacts	Protective coating on printed circuit board	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	at 50 Hz	at 60 Hz								

Coupling relays with relay output (not plug-in)



Output coupling links

AC/DC	24	24	24	1	AgSnO2	--	3RQ3018-□AB00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				
	115	115	115	1	AgSnO2	--	3RQ3018-□AE00	1	5 units	41H
					AgSnO2	--				
DC	--	--	24	1	AgSnO2	--	3RQ3018-2AM08-0AA0	1	5 units	41H
					AgSnO2	Yes NEW				
			110	1	AgSnO2	--	3RQ3018-2AN08-0AA0	1	5 units	41H
					AgSnO2	Yes NEW				

Input coupling links

AC/DC	24	24	24	1	AgSnO2	--	3RQ3038-□AB00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				
	115	115	115	1	AgSnO2	--	3RQ3038-□AE00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				
	230	230	230	1	AgSnO2	--	3RQ3038-□AF00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				

Coupling relays with plug-in relays



Output coupling links

AC/DC	24	24	24	1	AgSnO2	--	3RQ3118-□AB00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				
	115	115	115	1	AgSnO2	--	3RQ3118-□AE00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				
	230	230	230	1	AgSnO2	--	3RQ3118-□AF00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				
DC	--	--	24	1	AgSnO2	--	3RQ3118-□AM00	1	5 units	41H
					AgSnO2 Hard gold-plated	--				

Type of electrical connection

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Type of voltage	Control supply voltage			Current-carrying capacity of the semiconductor output		Operating mode selectable via switch position	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	at AC at 50 Hz	at 60 Hz	at DC	at AC	at DC						

Coupling relays with semiconductor output (not plug-in)

Output coupling links

DC	--	--	11 ... 30 V	--	1 mA ... 0.5 A	--	3RQ3050-□SM50	1	5 units	41H	
					5 mA ... 2 A	--	3RQ3052-□SM30	1	5 units	41H	
					1 mA ... 2 A	--	3RQ3052-□SM40	1	5 units	41H	
					5 mA ... 2 A	--	3RQ3052-□SM50	1	5 units	41H	
					--	5 mA ... 5 A	--	3RQ3055-□SM30	1	5 units	41H
					--	5 mA ... 5 A	--	3RQ3065-□SM30	1	5 units	41H

Manual/
Off/
Automatic

3RQ3050-
2SM50

AC/DC	110 ... 230 V	110 ... 230 V	110 ... 230 V	--	1 mA ... 3 A	--	3RQ3053-□SG30	1	5 units	41H
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Input coupling links

AC/DC	11 ... 30 V	11 ... 30 V	11 ... 30 V	--	10 mA ... 0.5 A	--	3RQ3070-□SB30	1	5 units	41H
	110 ... 230 V	110 ... 230 V	110 ... 230 V	--	10 mA ... 0.5 A	--	3RQ3070-□SG30	1	5 units	41H

Type of electrical connection

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

SIRIUS 3RQ3 coupling relays, narrow design

Accessories

Version	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Galvanic isolation plates



3RQ3900-0A

For electrical separation of different potentials when devices of different types are installed side by side

3RQ3900-0A 1 10 units 41H

Connecting combs



3RQ3901-0B

For linking the same potentials, current carrying capacity for infeed max. 6 A

- 2-pole
- 4-pole
- 8-pole
- 16-pole

3RQ3901-0A 1 10 units 41H
 3RQ3901-0B 1 10 units 41H
 3RQ3901-0C 1 10 units 41H
 3RQ3901-0D 1 10 units 41H

Clip-on labels¹⁾



3RQ3902-0A

For terminal and equipment labeling, white

- 5 x 5 mm
- 6 x 12 mm (for 3RQ31 only)

3RQ3902-0A 100 2000 units 41H
 3RQ3902-0B 100 1200 units 41H

Tools for opening spring-loaded terminals



3RA2908-1A

Screwdriver

For all SIRIUS devices with spring-loaded terminals

3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated

Spring-loaded terminals (push-in)



3RA2908-1A 1 1 unit 41B

¹⁾ PC labeling system for individual inscription of unit labeling plates available from: Conta-Clip Verbindungstechnik GmbH (see page 16/18).

Coupling relays with plug-in relays	Control supply voltage	Material of switching contacts	Number of CO contacts for auxiliary contacts	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Type V

Replacement modules for 3RQ3118 coupling relays with plug-in relays

3RQ3118-.AM00 24 DC	AgSnO2	1	3TX7014-7BM00	1 15 units	41H
3RQ3118-.AM01	AgSnO2 Hard gold-plated		3TX7014-7BM02	1 15 units	41H
3RQ3118-.AB00 24 AC/DC	AgSnO2	1	3TX7014-7BM00	1 15 units	41H
3RQ3118-.AB01	AgSnO2 Hard gold-plated		3TX7014-7BM02	1 15 units	41H
3RQ3118-.AE00 115 AC/DC	AgSnO2	1	3TX7014-7BP00	1 20 units	41H
3RQ3118-.AF00 230 AC/DC	AgSnO2				
3RQ3118-.AE01 115 AC/DC	AgSnO2 Hard gold-plated	1	3TX7014-7BP02	1 20 units	41H
3RQ3118-.AF01 230 AC/DC	AgSnO2 Hard gold-plated				

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

Overview

More information

Homepage, see www.siemens.com/sirius-coupling-relays
 Industry Mall, see www.siemens.com/product?3RQ_3RS_LZ
 TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais

LZS coupling relays with plug-in relays can be ordered as complete units or as individual modules for customer assembly.

Function

The coupling relays with semiconductor output have low power consumption and are therefore particularly well-suited to solid-state systems. In the versions equipped with LEDs, these indicate the switching state. The LZS:PT/MT coupling relays have a test button. This can be used to force the relays into the switching state and to lock it without electrical control. This is indicated by a raised petrol-colored lever.

Control with solid-state output

In the case of solid-state outputs (e.g. proximity switch) 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 coupling relay with plug-in relay.

Surge suppression

The 24 V DC relays LZX:RT and LZX:PT with LEDs can be supplied with, all others without integral surge suppression (freewheeling 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 DIN rail according to IEC 60715.

A fixing bracket can be ordered for the MT series that additionally fixes the relay into a plug-in socket (under conditions of increased mechanical stress). For the RT and PT series, a combined fixing and ejection bracket is available which can be used to disassemble the relays when they 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 protective separation, 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 Annex N).

Notes on the previous LZX series

The lower-cost complete units of the LZS series are fully compatible with the corresponding complete units of 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 sockets, fixing brackets and labels can be combined and/or used only in 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).

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

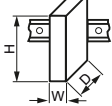


LZX coupling relays with plug-in relays

Technical specifications

More information

Technical specifications, see
<https://support.industry.siemens.com/cs/ww/en/ps/16204/td>

Manuals, see
<https://support.industry.siemens.com/cs/ww/en/ps/16204/man>

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						
General data											
Dimensions (W x H x D)											
• LZS:RT.A4/LZS:PT.A5		mm	15.5 x 78 x 71					28 x 74 x 72			
• LZS:RT.B4/LZS:PT.B5		mm	15.5 x 77 x 71					28 x 77 x 79			
• LZS:RT.D4/LZS:PT.D5		mm	15.5 x 98 x 71					28 x 98 x 79			
Rated control supply voltage U_s¹⁾	V		24 DC	24 AC	115 AC	230 AC		24 DC	24 AC	115 AC	230 AC
Rated insulation voltage U_i	V		250								
(Pollution degree 3)											
Overvoltage category	III										
According to IEC 60664-1											
Protective separation	Up to 250 V (with plug-in socket LZS:RT78726) No										
Between coil and contacts									No (for complete units with standard socket)		
According to IEC 60947-1, Annex N											
Degree of protection											
• Relays	IP67					IP50					
• Bases	IP20										
Permissible ambient temperature											
• During operation	°C	-40 ... +70									
• During storage	°C	-40 ... +80									
Conductor cross-sections											
Connection type		 Screw terminals									
• Solid	mm ²	2 x 2.5									
• Finely stranded with end sleeve	mm ²	2 x 1.5									
Corresponding opening tool		Screwdriver, size 3.0 ... 3.5 mm x 0.5 mm (3RA2908-1A)									
Connection type		 Plug-in terminals (push-in)									
• Solid	mm ²	1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5									
• Finely stranded without end sleeve	mm ²	1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5									
• Finely stranded with end sleeve	mm ²	1 x (0.75 ... 1.0), 2 x 0.75, 1 x 1.5									

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

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			
Rated control supply voltage U_s ¹⁾	V	24 DC	24 AC	115 AC	230 AC	24 DC	24 AC	115 AC	230 AC
Control side									
Operating range factor		0.9 ... 1.4				0.9 ... 1.1			
Power consumption at U_s									
• AC	VA	--	0.75			--	1		
• DC	W	0.4	--			0.75	--		
Release voltage	V	2.4	3.6	17.3	34.5	2.4	7.2	34.5	69
Protection circuit		Freewheeling diode for complete unit				Freewheeling diode in LED module			
Load side									
Switching voltage									
AC/DC	V	24 ... 250							
Rated currents²⁾									
• Conventional thermal current I_{th}									
- 1 CO contact	A	16				--			
- 2 CO contacts	A	8				12			
- 3 CO contacts	A	--				10			
- 4 CO contacts	A	--				6			
• Rated operational current $I_{gr}/AC-15$ according to utilization categories (IEC 60947-5-1)									
- 1 CO contact	A	6	3			4	2		
- 2 CO contacts	A	3	--			4	2		
- 3 CO contacts	A	--	--			4	2		
- 4 CO contacts	A	--	--			4	2		
• Rated operational current $I_{gr}/DC-13$ with suppressor diode according to utilization categories (IEC 60947-5-1)	A	2 at 24 V, 0.27 at 230 V				PT2, PT3, 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 according 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 V/1 mA			
Mechanical endurance									
• 1 CO contact	Operating cycles	30 x 10 ⁶	10 x 10 ⁶	1 x 10 ⁵	7 x 10 ⁴	30 x 10 ⁶	20 x 10 ⁶		
• 2 CO contacts	Operating cycles	30 x 10 ⁶	5 x 10 ⁶	1 x 10 ⁵	8 x 10 ⁴	30 x 10 ⁶	20 x 10 ⁶		
• 3 CO contacts	Operating cycles	--	--			30 x 10 ⁶	20 x 10 ⁶		
• 4 CO contacts	Operating cycles	--	--			30 x 10 ⁶	20 x 10 ⁶		
Electrical endurance (resistive load at 250 V AC)									
• 1 CO contact	Operating cycles	1 x 10 ⁵	7 x 10 ⁴			--			
• 2 CO contacts	Operating cycles	1 x 10 ⁵	8 x 10 ⁴			180 x 10 ³			
• 3 CO contacts	Operating cycles	--	--			180 x 10 ³			
• 4 CO contacts	Operating cycles	--	--			250 x 10 ³			

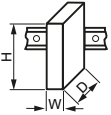
¹⁾ AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10%; the power loss will decrease slightly.

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

Relay type		LZS industrial relay: MT, 11-pole (35.5 mm) 3 CO contacts			
General data					
Dimensions (W x H x D)		mm	36 x 69 x 36		
Rated control supply voltage U_s¹⁾	V	24 DC	24 AC	115 AC	230 AC
Rated insulation voltage U_i (Pollution degree 3)	V	250			
Overvoltage category According to IEC 60664-1		III			
Protective separation Between coil and contacts According to IEC 60947-1, Annex N		No			
Degree of protection of relays/bases					
• Relays		IP50			
• Bases		IP20			
Permissible ambient temperature					
• During operation	°C	-40 ... +60		-45 ... +50	
• During storage	°C	-45 ... +80			
Conductor cross-sections					
Connection type		⊕ Screw terminals			
• Solid	mm ²	2 x 2.5			
• Finely stranded with or without end sleeve	mm ²	2 x 1.5			
• Corresponding opening tool		Screwdriver, size 1 or Pozidriv 1			
Control side					
Operating range	V	18 ... 38	19.2 ... 38	92 ... 137	184 ... 264
Power consumption					
• AC	VA	--	2.3		
• DC	W	1.2	--		
Release voltage	V	2.4	9.6	46	92
Protection circuit		--			
Load side					
Switching voltage					
• AC/DC	V	24 ... 250			
Rated currents²⁾					
• Conventional thermal current I_{th}	A	10			
• Rated operational current $I_{th}/DC-13$ according to utilization categories (IEC 60947-5-1)	A	2 at 24 V, 0.27 at 230 V			
• Rated operational current $I_{th}/AC-15$ according 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 according to IEC 60947-5-1					
• DIAZED, type 5SB	A	10			
Min. contact load (reliability: 1 ppm)		12 V DC/10 mA			
Mechanical endurance	Operat- ing cycles	20 x 10 ⁶			
Electrical endurance (resistive load at 250 V AC)	Operat- ing cycles	3 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 decrease slightly.

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

Selection and ordering data

Version	Rated control supply voltage U_s at 50/60 Hz AC	Contacts, number of CO contacts	Width mm	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
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Complete units, 11- and 14-pole, PT series



LZS:PT3A5L24

Complete units with plug-in socket

For snap-on mounting on TH 35 DIN rail

Comprising:

- Coupling relays with plug-in relays
- Standard plug-in socket with screw terminals
- LED module (24 V DC version: LED module with freewheeling diode)
- Fixing/ejection brackets
- Labels

3 CO contacts	24 DC	3	28					
	24 AC							
	115 AC							
	230 AC							
4 CO contacts	24 DC	4	28					
	24 AC							
	115 AC							
	230 AC							

Screw terminals



LZS:PT3A5L24	1	5 units	41H
LZS:PT3A5R24	1	5 units	41H
LZS:PT3A5S15	1	5 units	41H
LZS:PT3A5T30	1	5 units	41H
LZS:PT5A5L24	1	5 units	41H
LZS:PT5A5R24	1	5 units	41H
LZS:PT5A5S15	1	5 units	41H
LZS:PT5A5T30	1	5 units	41H

Complete units with plug-in socket

With logical separation

For snap-on mounting on TH 35 DIN rail

Comprising:

- Coupling relays with plug-in relays
- Plug-in socket with logical separation and screw terminals
- LED module (24 V DC version: LED module with freewheeling diode)
- Fixing/ejection brackets
- Labels

4 CO contacts	24 DC	4	28					
	24 AC							
	115 AC							
	230 AC							

LZS:PT5B5L24	1	5 units	41H
LZS:PT5B5R24	1	5 units	41H
LZS:PT5B5S15	1	5 units	41H
LZS:PT5B5T30	1	5 units	41H

Complete units, 8- and 14-pole, PT series



LZS:PT5D5L24

Complete units with plug-in socket

With logical separation

For snap-on mounting on TH 35 DIN rail

Comprising:

- Coupling relays with plug-in relays
- Plug-in socket with logical separation and plug-in terminals (push-in)
- LED module (24 V DC version: LED module with freewheeling diode)
- Fixing/ejection brackets
- Labels

2 CO contacts	24 DC	2	28					
	230 AC							
4 CO contacts	24 DC	4	28					
	24 AC							
	115 AC							
	230 AC							

Plug-in terminals

(push-in)



LZS:PT2D5L24	1	5 units	41H
LZS:PT2D5T30	1	5 units	41H
LZS:PT5D5L24	1	5 units	41H
LZS:PT5D5R24	1	5 units	41H
LZS:PT5D5S15	1	5 units	41H
LZS:PT5D5T30	1	5 units	41H

Note:

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

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

Version	Rated control supply voltage U_s at 50/60 Hz AC	Contacts, number of CO contacts	Width	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		LZX:PT370524	1	1 unit	41H		
	4		LZX:PT570524	1	1 unit	41H		
115 AC	2	22.5	LZX:PT270615	1	1 unit	41H		
	3		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			LZX:PT520730	1	1 unit	41H		

Plug-in sockets for PT relays

Standard plug-in sockets

For mounting on TH 35 DIN rail



LZS:PT78740

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

Plug-in sockets with logical separation

For mounting on TH 35 DIN rail



LZS:PT78722

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

Plug-in sockets with logical separation

For mounting on TH 35 DIN rail



LZS:PT7874P

				Plug-in terminals (push-in)			
--	2	28	LZS:PT7872P	1	1 unit	41H	
	4		LZS:PT7874P	1	1 unit	41H	

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

Note:







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

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays


LZS coupling relays with plug-in relays

Version	Rated control supply voltage U_s at 50/60 Hz AC	Contacts, number of CO contacts	Width	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 freewheeling diode	24 DC	--	12.5	LZS:PTML0024	1	1 unit	41H
LZS:PTML0024	- Without freewheeling diode	24 AC/DC 110 ... 230 AC			LZS:PTML0524 LZS:PTML0730	1 1	1 unit 1 unit	41H 41H
• Green								
	- With freewheeling diode	24 DC	--	12.5	LZS:PTMG0024	1	1 unit	41H
LZS:PT17021	- Without freewheeling diode	24 AC/DC 110 ... 230 AC			LZS:PTMG0524 LZS:PTMG0730	1 1	1 unit 1 unit	41H 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 socket								
Without logical separation								
	Screw terminals	--	--	26	LZS:PT17024	100	10 units	41H
LZS:PT17024								
		--	--	26	LZS:PT17040	100	10 units	41H
LZS:PT17040								
RC elements								
	6 ... 60 AC	--	--	26	LZS:PTMU0524	1	1 unit	41H
	110 ... 230 AC				LZS:PTMU0730	1	1 unit	41H
Freewheeling diodes with connection to A1								
	6 ... 230 DC	--	--	26	LZS:PTMT00A0	1	1 unit	41H
LZS:PTMU0730								
Connecting combs for PT screw base								
	6-pole, 10 A current-carrying capacity, natural-colored	--	--	--	LZS:PT170R6	1	10 units	41H
Connecting brackets for PT push-in base								
	2-pole, 10 A current-carrying capacity, natural-colored	--	--	--	LZS:PT170P1	1	10 units	41H

Individual modules for customer assembly, MT series

Industrial relays, 11-pole

Industrial relays with test bracket

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

Plug-in sockets

For mounting on TH 35 DIN rail

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

Fixing 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).

SITOP DC power supplies such as 6EP1331-5BA00 or 6EP1331-5BA10 can be used for unavailable coil voltages, see page 15/1 or Catalog KT 10.1.

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

Version	Rated control supply voltage U_s at 50/60 Hz AC	Contacts, number of CO contacts	Width mm	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG						
Complete units, 8-pole, 5 mm pinning, RT series														
 LZS:RT4A4T30	Complete units with standard plug-in socket				Screw terminals 									
	For snap-on mounting on TH 35 DIN rail													
	Comprising:													
	<ul style="list-style-type: none"> • Coupling relays with plug-in relays • Standard plug-in socket with screw terminals • LED module (24 V DC version: LED module with freewheeling diode) • Fixing/ejection brackets • Labels 													
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5	LZS:RT3A4L24 LZS:RT3A4R24 LZS:RT3A4S15 LZS:RT3A4T30		1	5 units	41H					
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	LZS:RT4A4L24 LZS:RT4A4R24 LZS:RT4A4S15 LZS:RT4A4T30		1	5 units	41H					
 LZS:RT4B4T30	Complete units with plug-in socket With logical separation													
	For snap-on mounting on TH 35 DIN rail													
	Comprising:													
	<ul style="list-style-type: none"> • Coupling relays with plug-in relays • Plug-in socket with logical separation and screw terminals • LED module (24 V DC version: LED module with freewheeling diode) • Fixing/ejection brackets • Labels 													
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5						LZS:RT3B4L24 LZS:RT3B4R24 LZS:RT3B4S15 LZS:RT3B4T30		1	5 units	41H
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5						LZS:RT4B4L24 LZS:RT4B4R24 LZS:RT4B4S15 LZS:RT4B4T30		1	5 units	41H
 LZS:RT3D4L24	Complete units with plug-in socket With logical separation				Plug-in terminals (push-in) 									
	For snap-on mounting on TH 35 DIN rail													
	Comprising:													
	<ul style="list-style-type: none"> • Coupling relays with plug-in relays • Plug-in socket with logical separation and plug-in terminals (push-in) • LED module (24 V DC version: LED module with freewheeling diode) • Fixing/ejection brackets • Labels 													
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5	LZS:RT3D4L24 LZS:RT3D4R24 LZS:RT3D4S15 LZS:RT3D4T30		1	5 units	41H					
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	LZS:RT4D4L24 LZS:RT4D4R24 LZS:RT4D4S15 LZS:RT4D4T30		1	5 units	41H					

Note:

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

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

Switching devices – Contactors and contactor assemblies – Contactor relays and relays

Coupling relays

LZS coupling relays with plug-in relays

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

Individual modules for customer assembly, RT series

Print relays, 8-pole, 5 mm pinning

	Print relays With hard gold-plating								
	Version with 1 CO contact								
LZX:RT314024	24 DC	1	12.7	LZX:RT315024		1	1 unit	41H	
	230 AC			LZX:RT315730		1	1 unit	41H	
	Print relays Version with 1 CO contact								
	24 DC	1	12.7	LZX:RT314024		1	1 unit	41H	
	24 AC			LZX:RT314524		1	1 unit	41H	
	115 AC			LZX:RT314615		1	1 unit	41H	
	230 AC			LZX:RT314730		1	1 unit	41H	
LZX:RT78725	Version with 2 CO contacts								
	12 DC	2	12.7	LZX:RT424012		1	1 unit	41H	
	24 DC			LZX:RT424024		1	1 unit	41H	
	24 AC			LZX:RT424524		1	1 unit	41H	
	115 AC			LZX:RT424615		1	1 unit	41H	
	230 AC			LZX:RT424730		1	1 unit	41H	
	Standard plug-in sockets For mounting on TH 35 DIN rail				Screw terminals				
	--	--	15.5	LZX:RT78725		1	1 unit	41H	
LZX:RT78726	Plug-in sockets with logical separation For mounting on TH 35 DIN rail								
	--	--	15.5	LZX:RT78726		1	1 unit	41H	
	Plug-in sockets with logical separation For mounting on TH 35 DIN rail				Plug-in terminals (push-in)				
	--	--	15.5	LZX:RT7872P		1	1 unit	41H	
LZX:PTML0024	LED modules								
	• Red								
	With freewheeling diode	24 DC	--	15.5	LZX:PTML0024		1	1 unit	41H
	Without freewheeling diode	24 AC/DC	--		LZX:PTML0524		1	1 unit	41H
		110 ... 230 AC	--		LZX:PTML0730		1	1 unit	41H
LZX:PTMG0024	• Green								
	With freewheeling diode	24 DC	--	15.5	LZX:PTMG0024		1	1 unit	41H
	Without freewheeling diode	24 AC/DC	--		LZX:PTMG0524		1	1 unit	41H
		110 ... 230 AC	--		LZX:PTMG0730		1	1 unit	41H
LZX:RT17016	Fixing/ejection brackets For RT base								
	--	--	15.5	LZX:RT17016		100	10 units	41H	
LZX:RT17040	Labels								
	--	--	15.5	LZX:RT17040		100	10 units	41H	
LZX:PTMU0730	RC elements								
	6 ... 60 AC	--	15.5	LZX:PTMU0524		1	1 unit	41H	
	110 ... 230 AC			LZX:PTMU0730		1	1 unit	41H	
LZX:PTMT00A0	Freewheeling diodes with connection to A1								
	6 ... 230 DC	--	15.5	LZX:PTMT00A0		1	1 unit	41H	
LZX:RT170R8	Connecting combs for RT screw base								
	8-pole, 10 A current-carrying capacity, natural-colored	--	--	LZX:RT170R8		1	10 units	41H	
LZX:RT170P1	Connecting brackets for push-in base								
	2-pole, 10 A current-carrying capacity, natural-colored	--	--	LZX:RT170P1		100	10 units	41H	

Note:

SITOP DC power supplies such as 6EP1331-5BA00 or 6EP1331-5BA10 can be used for unavailable coil voltages, see page 15/1 or Catalog KT 10.1.