

Overview

The LZX complete units and accessory parts previously available are no longer listed in this catalog. They can still be supplied however in limited quantities. In their place you will now find the new LZS types. LZS complete units are fully compatible with their predecessors, the LZX complete units. The LZX plug-in relays have not been changed and are used accordingly in both the LZS and the LZX series.

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

List for converting from LZX to LZS relay couplers:

Complete units	
Previous Order No.	New Order No.
LZX:PT3A5L24	LZS:PT3A5L24
LZX:PT3A5R24	LZS:PT3A5R24
LZX:PT3A5S15	LZS:PT3A5S15
LZX:PT3A5T30	LZS:PT3A5T30
LZX:PT5A5L24	LZS:PT5A5L24
LZX:PT5A5R24	LZS:PT5A5R24
LZX:PT5A5S15	LZS:PT5A5S15
LZX:PT5A5T30	LZS:PT5A5T30
LZX:PT5B5L24	LZS:PT5B5L24
LZX:PT5B5R24	LZS:PT5B5R24
LZX:PT5B5S15	LZS:PT5B5S15
LZX:PT5B5T30	LZS:PT5B5T30
LZX:RT3A4L24	LZS:RT3A4L24
LZX:RT3A4R24	LZS:RT3A4R24
LZX:RT3A4S15	LZS:RT3A4S15
LZX:RT3A4T30	LZS:RT3A4T30
LZX:RT3B4L24	LZS:RT3B4L24
LZX:RT3B4R24	LZS:RT3B4R24
LZX:RT3B4S15	LZS:RT3B4S15
LZX:RT3B4T30	LZS:RT3B4T30
LZX:RT4A4L24	LZS:RT4A4L24
LZX:RT4A4R24	LZS:RT4A4R24
LZX:RT4A4S15	LZS:RT4A4S15
LZX:RT4A4T30	LZS:RT4A4T30
LZX:RT4B4L24	LZS:RT4B4L24
LZX:RT4B4R24	LZS:RT4B4R24
LZX:RT4B4S15	LZS:RT4B4S15
LZX:RT4B4T30	LZS:RT4B4T30

Prices for the new LZS series are lower than for the previous LZX series. In addition the LZS series offers not only service-proven screw connections but also variants with push-in terminals.

The following conversion list will help you to change over from the LZX types previously sold to the new LZS types. Please contact your regional adviser if you have any questions.

List for converting from LZX to LZS accessories for individual modules:

Accessories for individual modules	
Previous Order No.	New Order No.
LZX:MT28800	LZS:MT28800
LZX:MT78750	LZS:MT78750
LZX:PT16016	LZS:PT17024
LZX:PT16040	LZS:PT17040
LZX:PT78702	LZS:PT78720
LZX:PT78703	LZS:PT78730
LZX:PT78704	LZS:PT78740
LZX:PT78802	LZS:PT78722
LZX:PT78804	LZS:PT78742
LZX:RPMG0024	LZS:PTMG0024
LZX:RPMG0524	LZS:PTMG0524
LZX:RPMG0730	LZS:PTMG0730
LZX:RPML0024	LZS:PTML0024
LZX:RPML0524	LZS:PTML0524
LZX:RPML0730	LZS:PTML0730
LZX:RPMT00A0	LZS:PTMT00A0
LZX:RPMU0548	LZS:PTMU0524
LZX:RPMU0730	LZS:PTMU0730
LZX:RT16016	LZS:RT17016
LZX:RT78625	LZS:RT78725
LZX:RT78626	LZS:RT78726
LZX:RY16040	LZS:RT17040



LZS, LZX Plug-In Relays

Relay couplers

Design

Plug-in relay coupling links can be ordered complete or as single modules.

Mounting

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

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

They can be mounted as required.

Function

In accordance with the technical specifications of electronic systems, the coupling links have a lower power consumption. In the versions equipped with LEDs, these indicate the switching state. The LZS: PT/MT relay couplers have a test button. This can be used to force the relay coupler into the tripped state and to lock it. This is indicated by a raised petrol-colored lever.

Surge suppression

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

Logical disconnection

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 isolation is not necessarily safe isolation.

Safe isolation

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

Control with solid-state output

In the case of solid-state outputs (e.g. BERO) 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 relay coupler.

Technical specifications

Relay type		LZX:RT print relay, 8-pole, (12.7 mm) 1 CO/2 CO				LZX:PT industrial relay, 8-, 11- and 14-pole, (22.5 mm) 2 CO/3 CO/4 CO			
General data									
Rated control supply voltage U_s ¹⁾	V	24 DC	24 AC	115 AC	230 AC	24 DC	24 AC	115 AC	230 AC
Rated insulation voltage U_i	V	250				250			
Degree of pollution		3				3			
Overvoltage category		III				III			
Acc. to EN 60947-1, Appendix N									
Safe isolation		Up to 250 V (with plug-in base LZS:RT78726) No (for complete units with standard socket)				No			
Between the coil and the contacts acc. to EN 60947-1, Appendix N									
Degree of protection of relay/base		IP67/IP20				IP50/IP20			
Permissible ambient temperature									
• During operation	°C	-40 ... +70				-40 ... +70 (+50 for base assembly)			
• During storage	°C	-40 ... +80				-40 ... +80			
Conductor cross-sections									
• Solid									
- LZS:RT.A..../LZS:RT.B....	mm ²	2 x 2.5				2 x 2.5			
- LZS:RT.D....	mm ²	2 x 0.75 ... 1.5				2 x 0.75 ... 1.5			
• Finely stranded with or without end sleeve									
- LZS:PT.A..../LZS:PT.B....	mm ²	2 x 1.5				2 x 1.5			
- LZS:PT.D....	mm ²	2 x 0.75 ... 1.5/1.0				2 x 0.75 ... 1.5/1.0			
• Permissible opening tool		Screwdriver for slotted screws, 3.0 ... 3.5 mm x 0.5 mm							
Control side									
Operating range									
• At 20 °C	V	16.8 ... 52	18 ... 52	86.3 ... 127	172 ... 264	18 ... 40.8	19.2 ... 39.6	92 ... 190	184 ... 380
Power consumption at U_s		0.4 W	0.75 VA	0.75 VA	0.75 VA	0.75 W	1 VA	1 VA	1 VA
Release voltage	V	2.4	7.2	34.5	69	3.6	7.2	34.5	69
Protection circuit		Freewheel diode for complete unit	No			Freewheel diode in LED module	No		
Max. permissible cable length at U_s ²⁾ (min. cross-section: 0.75 mm ²)	m	> 2000	30 (with LED), 20 (without LED)			> 2000	500	200	50
Load side									
Switching voltage									
• AC/DC	V	24 ... 250				24 ... 250			
Rated currents ³⁾									
• Continuous thermal current I_{th}	A	16/8 (1 CO/2 CO)				12/10/6 (2 CO/3 CO/4 CO)			
• Rated operational current I_e AC-15 acc. to utilization categories (EN 60947)	A	6/3				5/5/4			
• Rated operational current I_e DC-13 acc. to utilization categories (EN 60947)	A	2 at 24 V 0.27 at 230 V				5 at 24 V 0.5 at 230 V			
Short-circuit protection	A	10				6			
$I_k \geq 1$ kA acc. to IEC 60947-5-1 Fuse links gL/gZ operational class DIAZED									
Shock resistance	g/ms	10/11				9/11			
Half-sine acc. to IEC 60028-2-27									
Vibration resistance									
Floating sine acc. to IEC 60068-2-6; 30 ... 150 Hz									
• Opening the normally-closed contacts along the critical axis	g	5				Approx. 7			
• Closing the normally-open contacts	g	> 20				> 20			
Min. contact load (reliability: 1 ppm)		Standard 17 V, 10 mA; hard gold-plated 17 V/0.1 mA				Standard 17 V, 10 mA; hard gold-plated 20 mV/1 mA			
Mechanical endurance	Operating cycles	30 x 10 ⁶	10 x 10 ⁶			10 x 10 ⁶			
Electrical endurance (resistive load at 250 V AC)	Operating cycles	1 x 10 ⁵				1 x 10 ⁵			
Switching frequency (operating cycles)									
• Without load	1/min 1/h	1200 72000				600 36000			
• With load	1/min 1/h	6 360				6 360			
Make-time	ms	7				15			
Break-time	ms	3				10			
Bounce time	ms	2				5			
Contact material		AgNi 90/10							

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

²⁾ The max. cable length depends on the conductor capacity and the cable installation. It can be increased by means of parallel load on A1/A2.

³⁾ Capacitive loads can result in micro-weldings on the contacts.

LZS, LZX Plug-In Relays

Relay couplers

Relay type	MT industrial relay, 11-pole (35.5 mm) 3 CO				
AC and DC operation					
Rated control supply voltage $U_s^{1)}$	V	24 DC	24 AC	115 AC	230 AC
Rated insulation voltage U_i	V	250			
Degree of pollution		3			
Overvoltage category		III			
Acc. to EN 60664-1					
Safe isolation		No			
Between the coil and the contacts					
acc. to EN 60947-1, Appendix N					
Degree of protection of relay/base		IP50/IP20			
Permissible ambient temperature					
• During operation	°C	-45 ... +60	-45 ... +50	-45 ... +50	-45 ... +50
• During storage	°C	-45 ... +80	-45 ... +80	-45 ... +80	-45 ... +80
Conductor cross-sections					
• Screw terminals					
- solid	mm ²	2 x 2.5			
- finely stranded with or without end sleeve	mm ²	2 x 1.5			
- permissible opening tool		Screwdriver size 1 or Pozidriv 1			
Control side					
Operating range					
• At 20 °C	V	18 ... 38	19.2 ... 38	92 ... 137	184 ... 264
Power consumption at U_s		1.2 W	2.3 VA	2.3 VA	2.3 VA
Release voltage	V	2.4	9.6	46	92
Protection circuit		No			
Max. permissible cable length at $U_s^{2)}$	m	> 2000	On request	On request	80
(min. cross-section: 0.75 mm ²)					
Load side					
Switching voltage					
• AC/DC	V	24 ... 250			
Rated currents ³⁾					
• Conventional thermal current I_{th}	A	10			
• Rated operational current I_o /DC-13	A	2 at 24 V			
acc. to utilization categories (EN 60947)		0.27 at 230 V			
• Rated operational current I_o /AC-15	A	5 at 24 V and 230 V			
acc. to utilization categories (EN 60947)					
Short-circuit protection	A	10			
$I_k \geq 1$ kA acc. to IEC 60947-5-1					
Fuse links gL/gZ operational class					
DIAZED					
Shock resistance	g/ms	13/11			
Half-sine acc. to IEC 60028-2-27					
Vibration resistance					
Floating sine acc. to IEC 60068-2-6					
30 ... 150 Hz					
• Opening the normally-closed contacts along the critical axis	g	2			
• Closing the normally-open contacts	g	> 20			
Min. contact load		12 V DC/10 mA			
(reliability: 1 ppm)					
Mechanical endurance	Operating cycles	20 x 10 ⁶			
Electrical endurance	Operating cycles	4 x 10 ⁵			
(resistive load at 250 V AC)					
Switching frequency (operating cycles)					
• Without load	1/min	100			
	1/h	6000			
• With load	1/min	20			
	1/h	1200			
Make-time	typ./ms	12			
Break-time	typ./ms	5			
Bounce time	typ./ms	4			
Contact material		AgNi 90/10			

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

2) The max. cable length depends on the conductor capacity and the cable installation. It can be increased by means of parallel load on A1/A2.

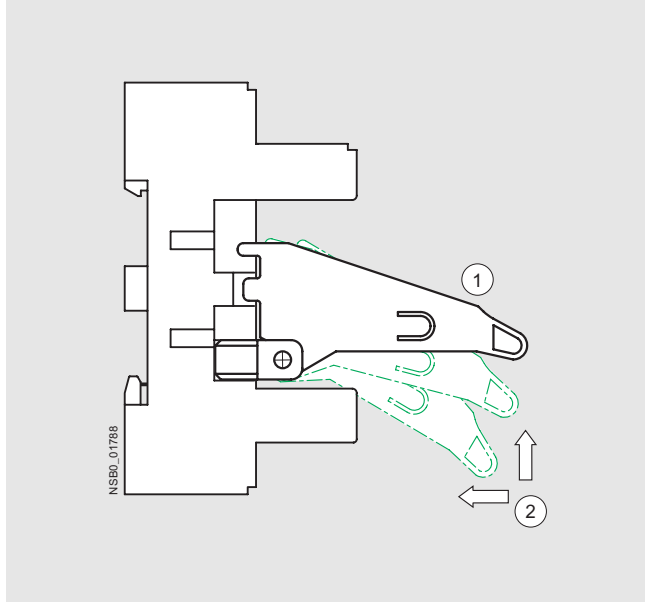
3) Capacitive loads can result in micro-weldings on the contacts.

More information

Notes on configuration

PT series

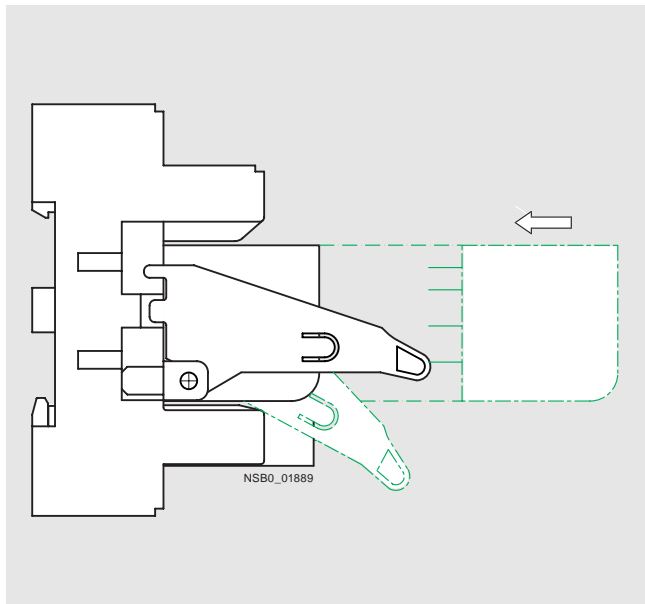
Mounting the LZS:PT17024 fixing/ejection bracket on the LZS:PT787.0 standard plug-in base with screw terminals:



Legend:

- ① Locking position
- ② Mounting direction

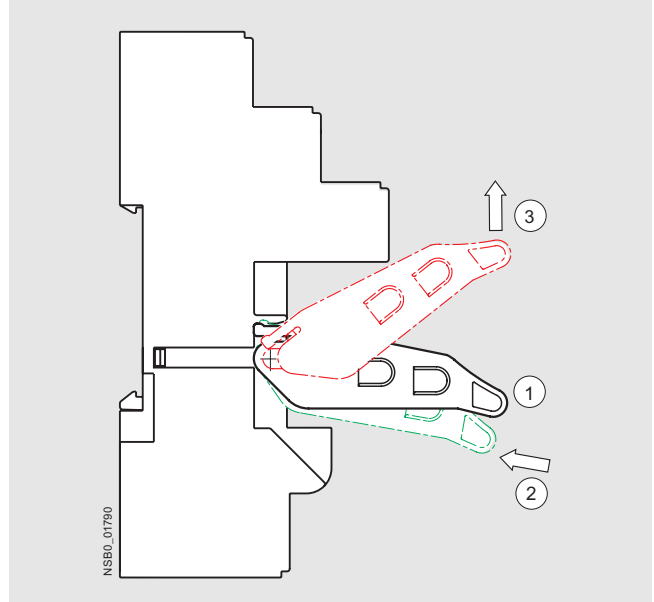
Plug-in relay mounting



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

RT series

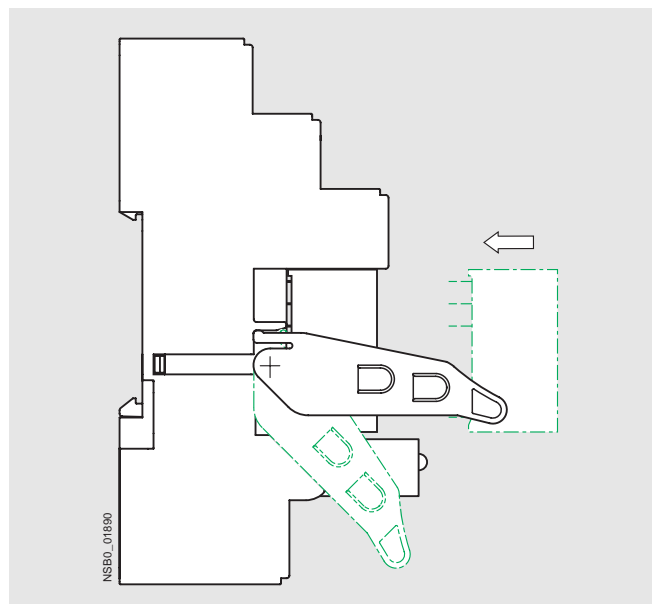
Mounting the LZS:RT17016 fixing/ejection bracket on the LZS:RT7872 plug-in base



Legend:

- ① Locking position
- ② Mounting direction
- ③ Demounting direction

Plug-in relay mounting



Important:
The LZS:RT17016 ejection bracket of the plug-in relays are not status displays!



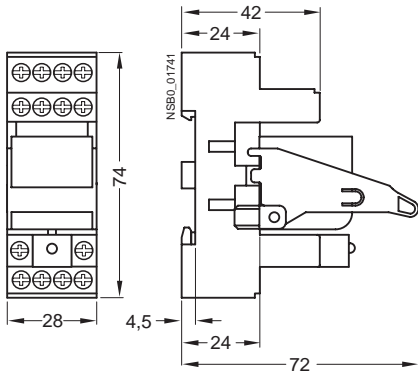
LZS:PT relay couplers

Complete units, 11- and 14-pole, PT series

LZS:PT3A5

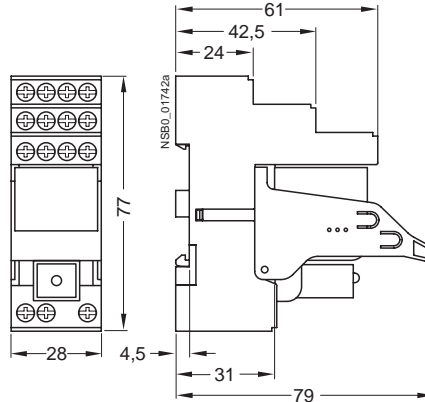
LZS:PT5A5

Standard plug-in base with screw terminals



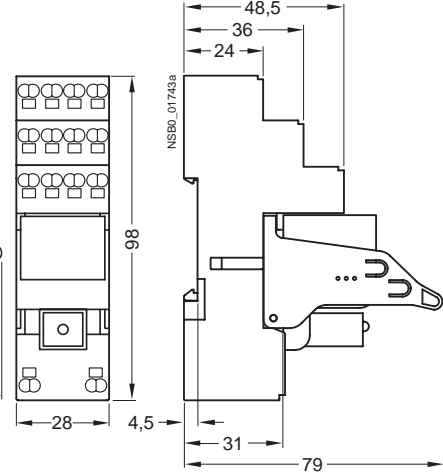
LZS:PT5B5

Plug-in base with logical isolation and screw terminals



LZS:PT5D5

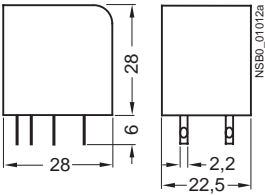
Plug-in base with logical isolation and spring-loaded terminals



LZX industrial relays, 8-, 11-, and 14-pole, PT series

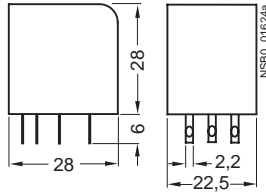
LZX:PT270, 8-pole

2 CO



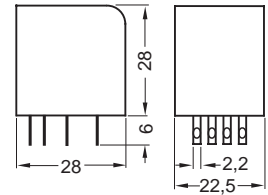
LZX:PT370, 11-pole

3 CO



LZX:PT520, LZX:PT570, LZX:PT580, 14-pole

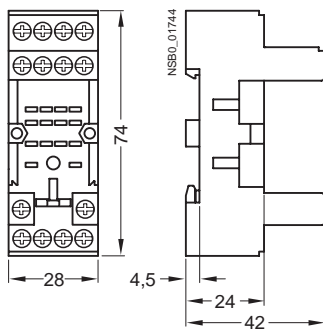
4 CO



Plug-in bases for PT series

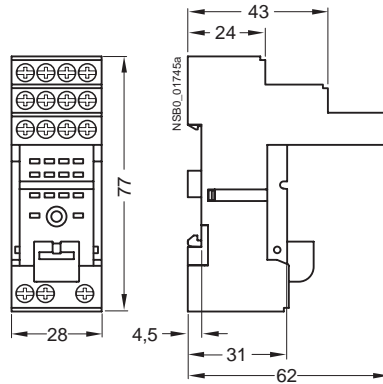
LZS:PT78740

With screw terminals



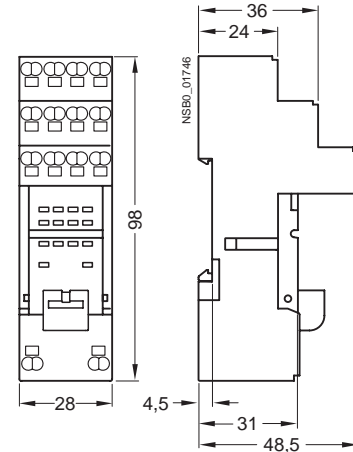
LZS:PT78742

with logical isolation and screw terminals



LZS:PT7874P

with logical isolation and spring-loaded terminals



Controls – Contactors and Contactor Assemblies

Project planning aids

LZS:RT relay couplers

Complete units, 8-pole, 5 mm pinning, RT series

LZS:RT3A4;

LZS:RT4A4

Standard plug-in base with screw terminals

LZS:RT3B4;

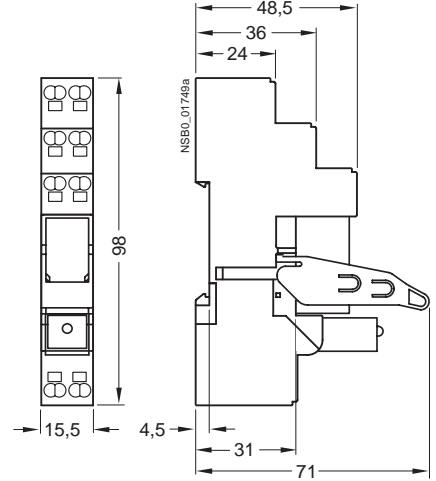
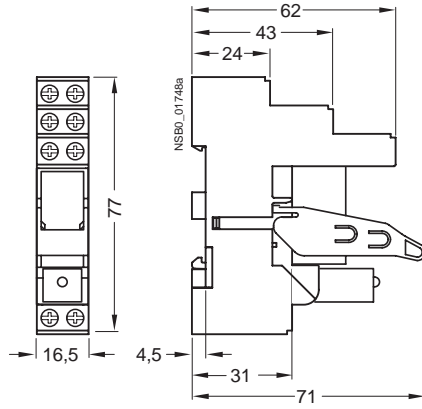
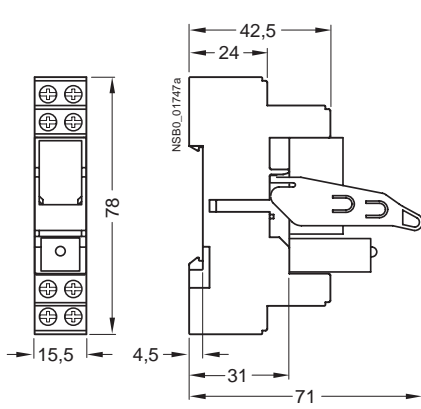
LZS:RT4B4

Plug-in base with logical isolation and screw terminals

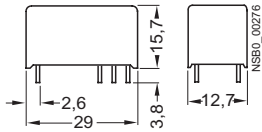
LZS:RT3D4;

LZS:RT4D4

Plug-in base with logical isolation and spring-loaded terminals



LZX:RT3; LZX:RT4 print relays



Plug-in bases for RT series

LZS:RT78725

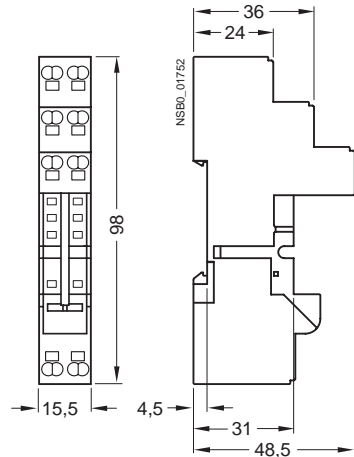
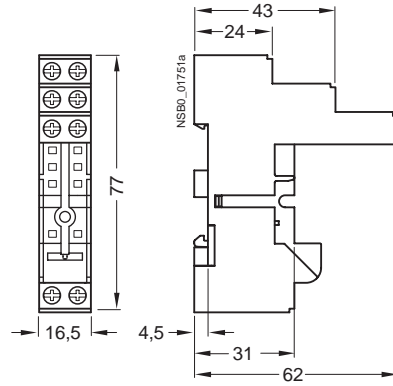
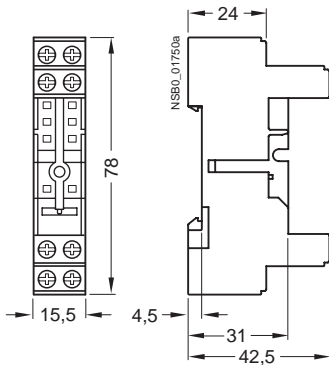
With screw terminals

LZS:RT78726

with logical isolation and screw terminals

LZS:RT7872P

with logical isolation and spring-loaded terminals

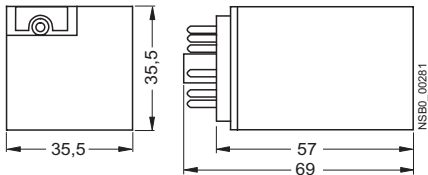


Project planning aids

LZX:MT relay couplers

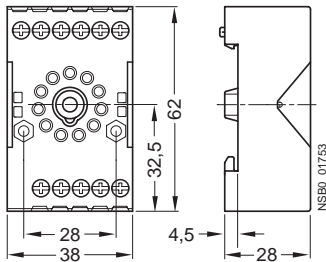
Industrial relays, 11-pole, MT series

LZX:MT32



LZS:MT78750 plug-in bases

For industrial relays

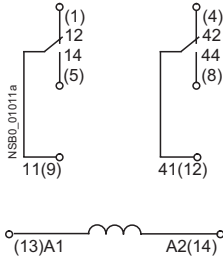


Controls – Contactors and Contactor Assemblies

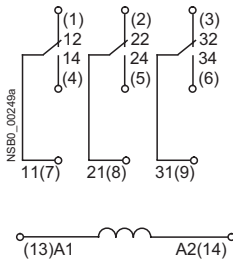
Project planning aids

LZX plug-in relays – relay couplers

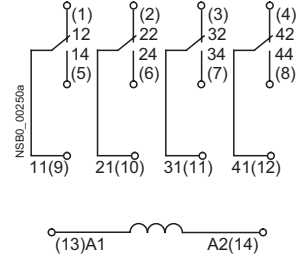
LZX:PT270
2-pole



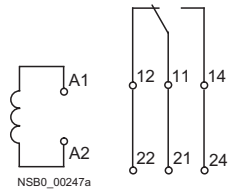
LZX:PT370
3-pole



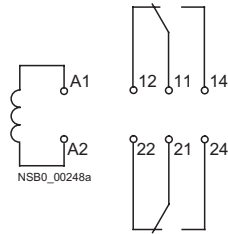
LZX:PT520, LZX:PT570, LZX:PT580
4-pole



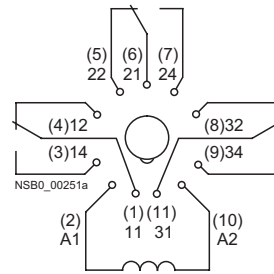
LZX:RT3
1-pole



LZX:RT4
2-pole



LZX:MT32
3-pole

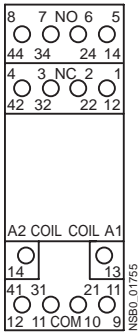


Values in brackets: socket designations.
Without brackets: contact/coil designations.

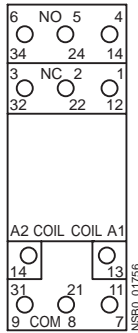
Position of the connection terminals

Standard plug-in bases for PT series

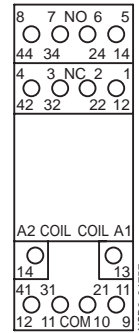
LZS:PT78720
for 2 CO contacts, with screw terminals



LZS:PT78730
for 3 CO contacts, with screw terminals



LZS:PT78740
for 4 CO contacts, with screw terminals

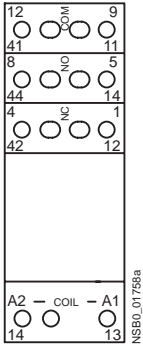


Controls – Contactors and Contactor Assemblies

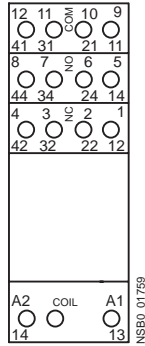
Project planning aids

Plug-in bases with logical isolation for PT series

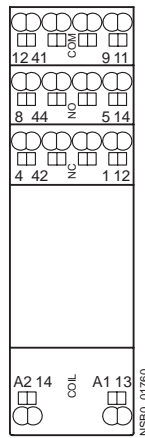
LZS:PT78722
for 2 CO contacts,
with screw terminals



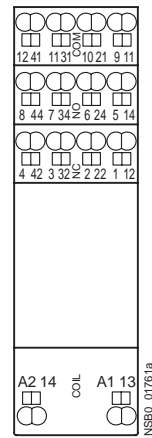
LZS:PT78742
for 4 CO contacts,
with screw terminals



LZS:PT7872P
for 2 CO contacts,
with spring-loaded terminals



LZS:PT7874P
for 4 CO contacts,
with spring-loaded terminals



Plug-in bases for RT series

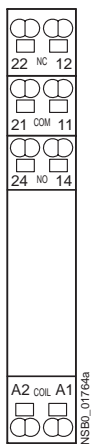
LZS:RT78725
With screw terminals



LZS:RT78726
with logical isolation and screw
terminals



LZS:RT7872P
with logical isolation and spring-loaded
terminals



Plug-in bases for MT series

LZS:MT78750
for industrial relays

