

Z45FK, Z46FK, Z47FK, Z60FK Coupling Relays

Application

These coupling relays are used to control plant components in the DDC system. They serve as switching coupling components between the DDC switching outputs and the device inputs; they can be used to control valve actuators, pumps, burners or fans, for example.

These coupling relays are fitted with spring terminals which make it possible to connect wires quickly and easily. It is not necessary to use a tool to connect solid wires and litz wires with conductor end sleeves; an ordinary screwdriver is sufficient to connect litz wires without conductor end sleeves.

Connected wires can be quickly disconnected again with a screwdriver. Terminal slots provided for the A1 and A2 connections enable the simple and quick connection of up to 10 analog encoders or coupling relays through connecting bridges (Z43).



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Product Description

Z45FK, Z46FK, Z47FK, Z60FK

Important Information on Product Safety

Safety instructions

This document contains information on installing and commissioning the product “Z45FK, Z46FK, Z47FK, Z60FK”. Each person who carries out work on this product must have read and understood this document. If you have any questions that are not resolved by this document, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this document, the protection provided could be impaired.

The applicable regulations must be observed when installing and using the devices. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (German Association for Electrical, Electronic & Information Technologies). If the device is used outside of the EU, it is the responsibility of the plant engineer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers based on their technical training, knowledge and experience, as well as their knowledge of the applicable regulations.

Symbol meanings



WARNING

Indicates a hazard of medium risk which can result in death or serious bodily injury if not avoided.



CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if not avoided.



CAUTION

Indicates a hazard which can result in material damage or malfunctions if not avoided.



NOTE

Indicates additional information that can simplify working with the product.

Notes on disposal

In accordance with the applicable laws and directives of the European Union countries, the product should not be disposed of with household waste. This ensures environmental protection and sustainable recycling or raw materials.

Commercial users should contact their supplier and observe the conditions of the purchase agreement. This device may not be disposed of together with other commercial waste.

The local and currently applicable laws must be observed.



Item

Z45FK	Coupling relay with one changeover switch
Z46FK	Coupling relay with two changeover switches
Z47FK	Coupling relay with one changeover switch und a manual switch at field level
Z60FK	Coupling relay with one changeover switch und a manual switch at field level with a potential-free feedback contact

Technical data

Nominal voltage	Z45FK/Z47FK/Z60FK	AC/DC 24 V $\pm 10\%$, 13 mA
	Z46FK	AC/DC 24 V $\pm 10\%$, 20 mA
Output contact	Z45FK/Z47FK/Z60FK	1 changeover switch, max. AC 250 V, 6 A, 1500 VA
	Z46FK	2 changeover switches, each with max. AC 230 V, 0.25 A, 60 VA
Feedback contact	Z60FK	Max. AC/DC 24 V; 50 mA
Electrical service life	Z45FK, Z47FK, Z60FK	200,000 switching cycles
	Z46FK	2,000,000 switching cycles
Display	LED operating display	
Manual switch	Z45FK/Z46FK	None
	Z47FK	Manual switch at field level
	Z60FK	Manual switch at field level with a potential-free feedback contact
Connection	Solid wire	0.08 .. 2.5 mm ²
	Litz wire without conductor end sleeve	0.08 .. 2.5 mm ²
	Litz wire with conductor end sleeve	0.5 .. 1.5 mm ²
Overvoltage category	III	
Rated impulse voltage	4000 V	
Level of contamination	2	
Automatic action	Type 1	
Degree of protection	Housing	IP20
Insulation in accordance with VDE 0110	Z45FK, Z47FK, Z60FK	Rated voltage 250 V
	Z46FK	Rated voltage 230 V
Ambient temperature	-20 .. +55 °C	
Weight	43 g	
Mounting	Control panel installation on standard top-hat rail TH 35-7.5; can be snapped open without there having to be free space to the left/right; installation position can be chosen freely	

Accessories (not included in delivery)

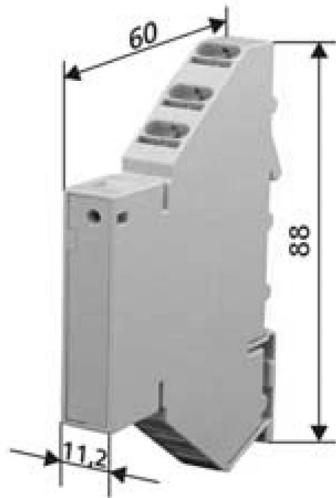
Z43	Connecting bridge for connecting up to 10 analog encoders or coupling relays using terminal slots for the "A1" and "A2" connections (power). Maximum 2 A total current.
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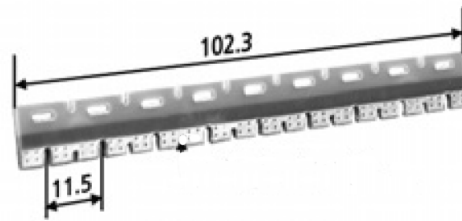
Product Description

Z45FK, Z46FK, Z47FK, Z60FK

Dimensions



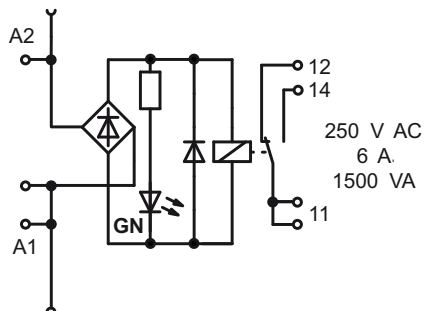
ZxxFK



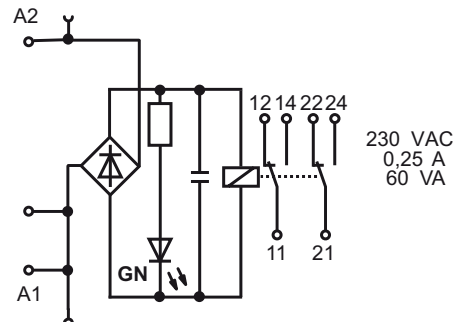
Z43

Connection

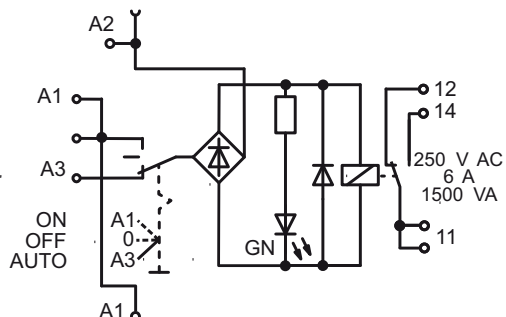
Z45FK



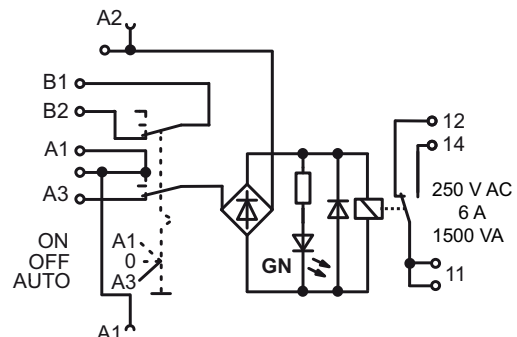
Z46FK



Z47FK



Z60FK





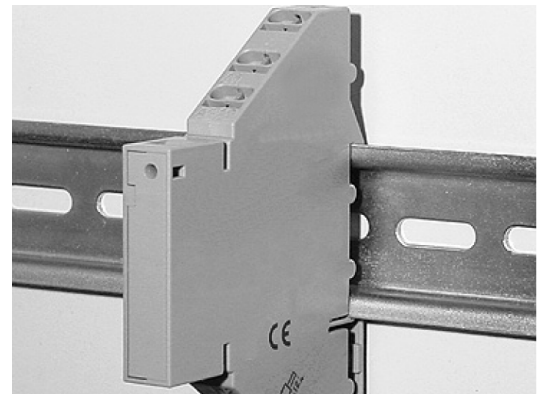
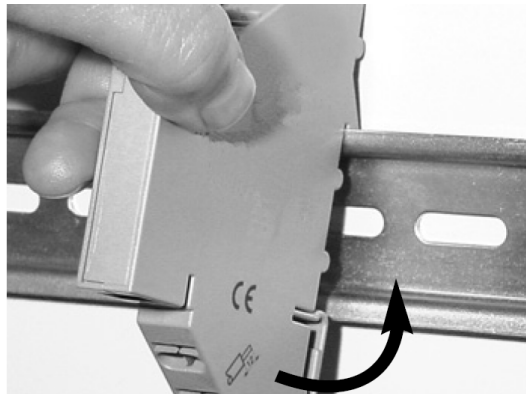
Mounting and Installation



WARNING

Contact with live parts of electrical domestic installation can cause death due to electric shock. Mounting/removal may only be carried out when power is switched off. Comply with VDE guidelines and local wiring regulations when mounting/removing.

Control cabinet installation on TH 35-7.5 top-hat rail can be snapped open with no need for free space to the left/right. Installation position can be chosen freely.

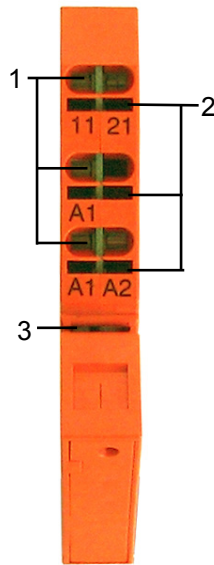




Product Description

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Cable connection



- Disconnect unit from power supply.

- Strip the insulation from 10 mm of the wire. Cross-sectional area of connection:

Solid wire 0.08 .. 2.5 mm²

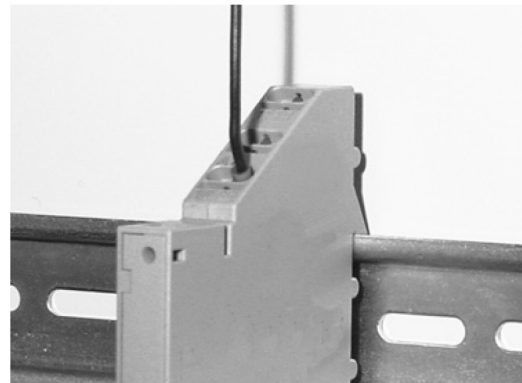
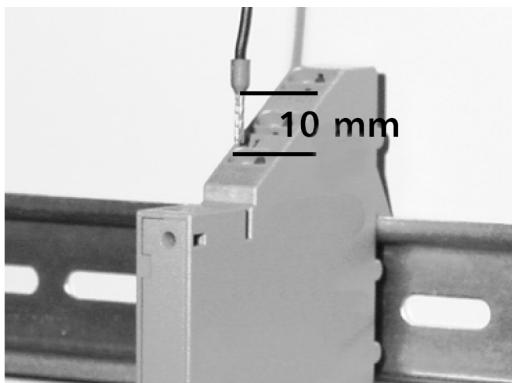
Litz wire without conductor end sleeve 0.08 .. 2.5 mm² Litz wire with conductor end sleeve 0.5 .. 1.5 mm²

Solid wires and litz wires with conductor end sleeves can be inserted into the spring terminals (1) directly. Insert the wire straight and press it in until the wire will not go any further and it clicks into place in the spring terminal.

In the case of litz wires without conductor end sleeves, the spring terminal must be opened using a slotted screwdriver. Insert the screwdriver into the test socket (2) under the contact in order to open it, insert the litz wire straight, and then remove the screwdriver.

- "Terminal slot (3) for Z43 connecting bridge.

- "Device connection - see wiring diagram.

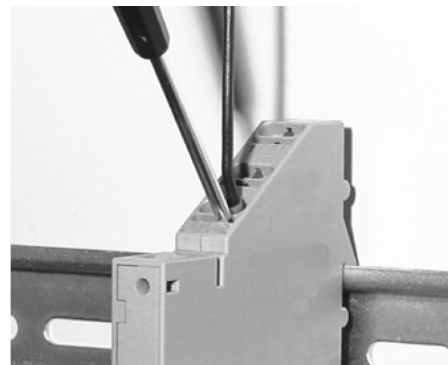


Removing a Wire

Insert a slotted screwdriver (max. blade width 3 mm) into the test socket (2) under the contact to open the spring terminal (1), then remove the wire.

Removing the Module from the Standard Rail

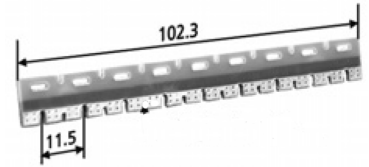
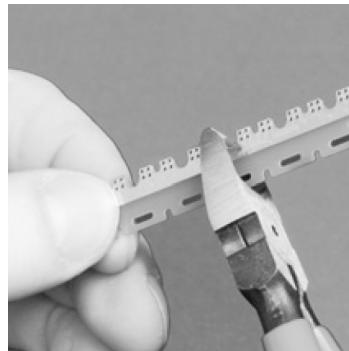
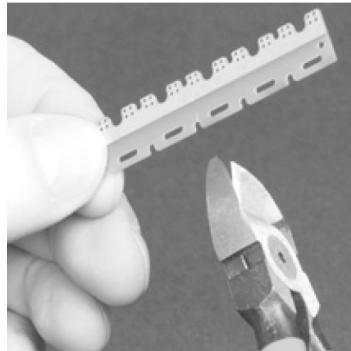
Gently press in the spring under the module with a slotted screwdriver and remove the module upward.





Z43 connecting bridge

The Z43 connecting bridge (not included in the delivery) can be used to connect up to 10 analog encoders or coupling relays (max. 2 A total current).



Z43 connecting bridge

Use a side-cutting pliers to cut off the required number of contacts at the corresponding notch that indicates the proper place to make the cut. Then insert the connecting bridge (Z43) from the top or from the bottom into the contact slot and press it down.



WARNING

Contact with live components of the building's electrical system can cause death due to electric shock.

- The ends of the connecting bridge are live during operation.
- The connecting bridge must be placed so that it cannot be touched (i.e. in the center).

Switch position for Z47FK and Z60FK

ON, OFF and AUTO



Coupling relay Z60FK also has a feedback contact for the "Auto" message (switch position A3, B1/B2 closed).



Product Description

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Connection example with input-output modules



CAUTION

Previously, the binary outputs of the GND were switched in our devices.

The implemented new device concept provides that the +24V DC are switched at the output terminals.

In secondary earthed systems (PELV), this prevents any unwanted connection to ground or the reference potential and prevents an active signal from being generated at the input/output module.

- Connection example BMD3216 new device concept
- Connection example BMD4032 old device concept

