

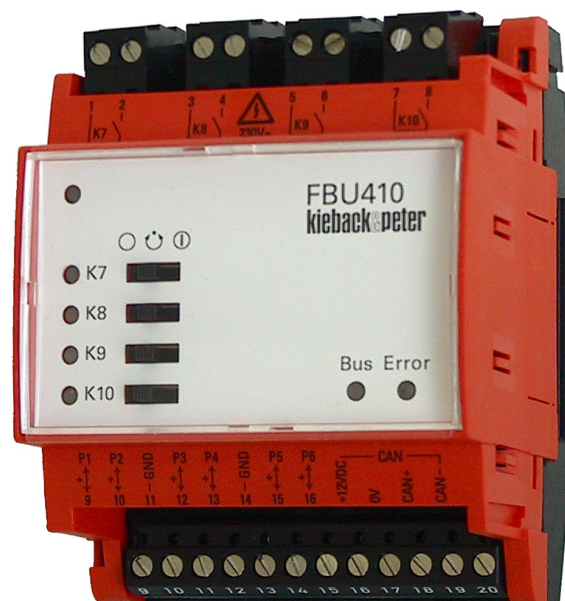
FBU410 Input/ Output Module

Application

The FBU410 Ein-Ausgabe-Modul with 4 relay outputs and 6 universal inputs/outputs controls and records the signals of remote devices in the DDC4000 system and on the BMR.

Data is transferred between the DDC controller and the input/output module via the fieldbus.

The function of the 6 universal inputs/outputs can be individually configured and defined for each connection.



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Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Zmeny vyhradené - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

Important Information Regarding Product Safety

Safety Instructions

This data sheet contains information on installing and commissioning the product "FBU410". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer 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 due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

Legend



WARNING

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



CAUTION

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



CAUTION

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.



NOTE

Indicates additional information that can simplify the work with the product for you.

Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

Product Description**FBU410****Item**

FBU410 Input/ output module

Technical Data

Nominal voltage	DC 12 V \pm 20%, 1.8 W	
Inputs and outputs	4 binary outputs; potential-free relay contact max. AC 230 V / 5 (3) A 6 universal inputs/outputs that can be independently configured as:	
	- Binary output	Transistor output DC 24 V; max. 80 mA
	- Binary input	Contact input (potential-free; with pulse counting up to 80 Hz)
	- Analog output	DC 0(2) to 10 V; max. 2.5 mA
	- Analog input	
Interface	CAN	Fieldbus 2000 m; 20 kBd
Address switch	Addressing from 01 to 63 by means of 2 rotary switches (under the front panel)	
Displays and Controls	4 LED	Outputs K7 to K10
	2 LED	Fieldbus
	1 LED	Freely configurable
	4 manual switches	Off / Automatic mode / On
Overvoltage category	III	
Rated impulse voltage	4000 V	
Level of contamination	2	
Automatic action	Type 1	
Degree of protection	IP20	
Housing	Plastic housing, 4 HP	
Ambient temperature	0 to 45 °C	
Ambient humidity	20 to 80% r.h., non-condensing	
Mounting	On standard rail TH 35-7.5	
	Plug-in screw terminal	
	This device is intended for installation in a wall-mounted enclosure/switch cabinet having protection class II.	
Weight	191 g	

Sensor types

Sensor type	Measuring range
0(2) V..10 V	0%..100%
KP10	-50 °C..+150 °C
KP250	-50 °C..+150 °C
ML2	-50 °C..+150 °C
Ni100	-50 °C..+150 °C
Ni1000 (DIN)	-50 °C..+150 °C
Ni1000 (L&G)	-50 °C..+150 °C
NTC1,8K	-50 °C..+150 °C
NTC5K	-50 °C..+150 °C
NTC10K	-40 °C..+150 °C
NTC10KPRE	-50 °C..+150 °C
NTC20K	-30 °C..+150 °C
PT100	-50 °C..+850 °C
PT1000	-50 °C..+850 °C
Balco500	-40 °C..+150 °C
Satchwell DC1100	-20 °C..+120 °C
Satchwell DC1400	-40 °C..+120 °C
Resistor (potentiometer)	0..10 kΩ

**NOTE**

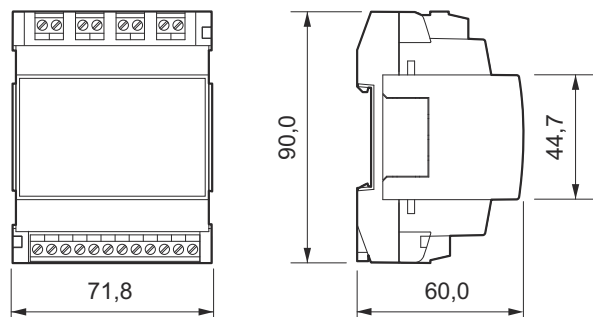
You can find more information on the sensor types in the “Temperature Sensor Tables” product description (1.10-90.100-01).

Accessories (not included in delivery)**Cascade plug Z179**

Different fieldbus or switch cabinet bus modules can be connected using the cascade plug. Modules are supplied even when there are inactive modules within the chain.

Connected lines: all supply voltages, CAN bus (+, -, GND)

A maximum of 5 modules can be connected in cascade.

Dimensions

Product Description**FBU410**

Installation

**CAUTION**

This product description describes specific settings and functions of the FBU410. In addition to these instructions, observe the product descriptions of other system components, such as DDC controller DDC4000, BMR or DDC420.

**CAUTION**

Switching on the power supply of unparameterized products can lead to unforeseen consequences such as malfunctions or material damage.

Switch on the power only after the device has been configured by the commissioning technician.

Fieldbus

When connecting the fieldbus, use a cable of at least type JY(St)Y 2x2x0.8 Lg: two x two wires, twisted to a pair with plastic insulation and an electrostatic shield with a wire diameter of at least 0.8 mm. Use a stranded pair of wires for the data lines (+ and -) and another free wire for the ground connection (0).

At the end of the fieldbus (furthest point from the DDC controller), install a terminating resistor of about 180 ohms between both data lines (+ and -). The terminating resistor is included with the DDC controller.

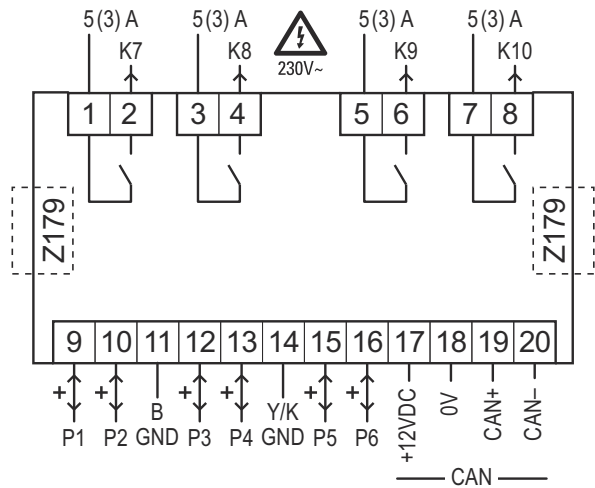
The maximum cable length for the Fieldbus is 2000 m.

Connection

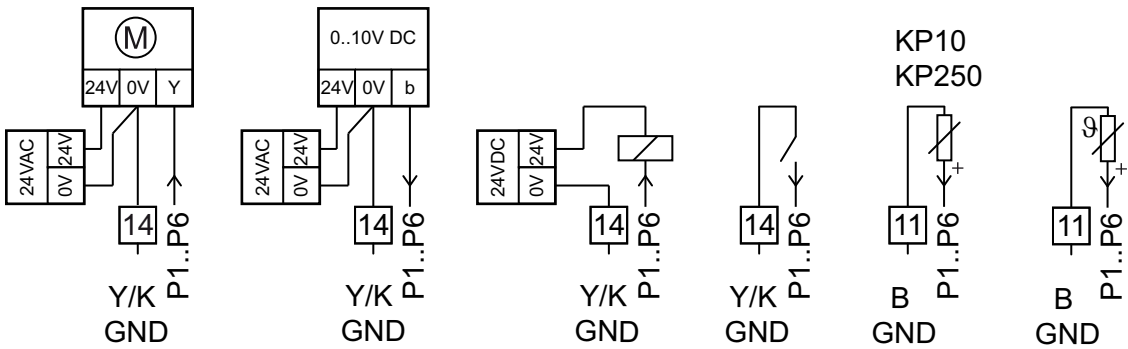


CAUTION

The GND wiring specified in the wiring diagram (Y GND, K GND, B GND) must be observed. Incorrect GND wiring may lead to errors in measurement.



Sensor and actuator connections



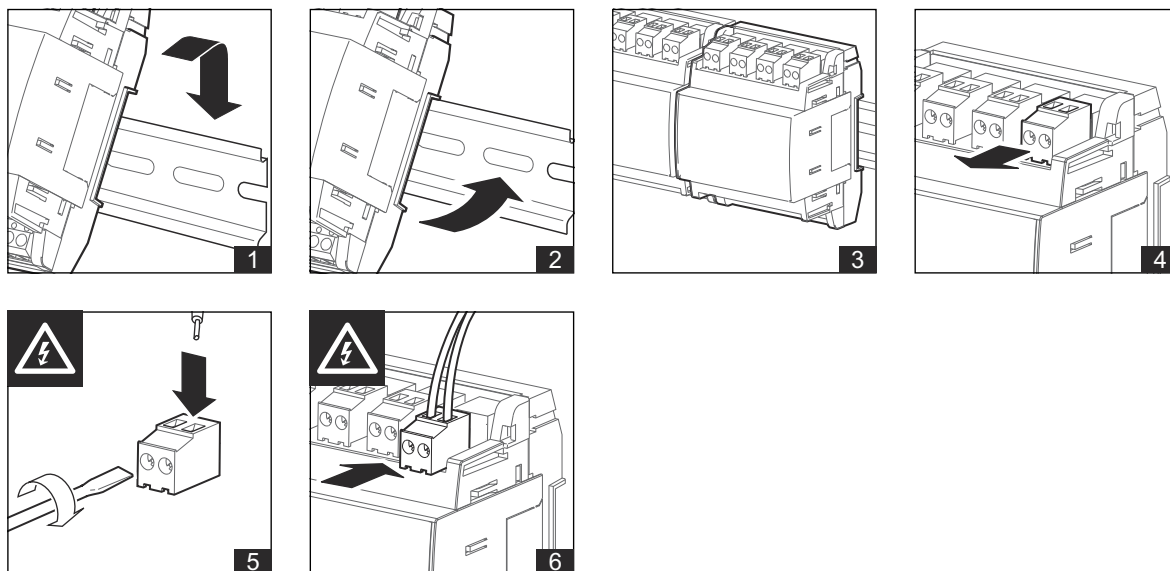
Mounting



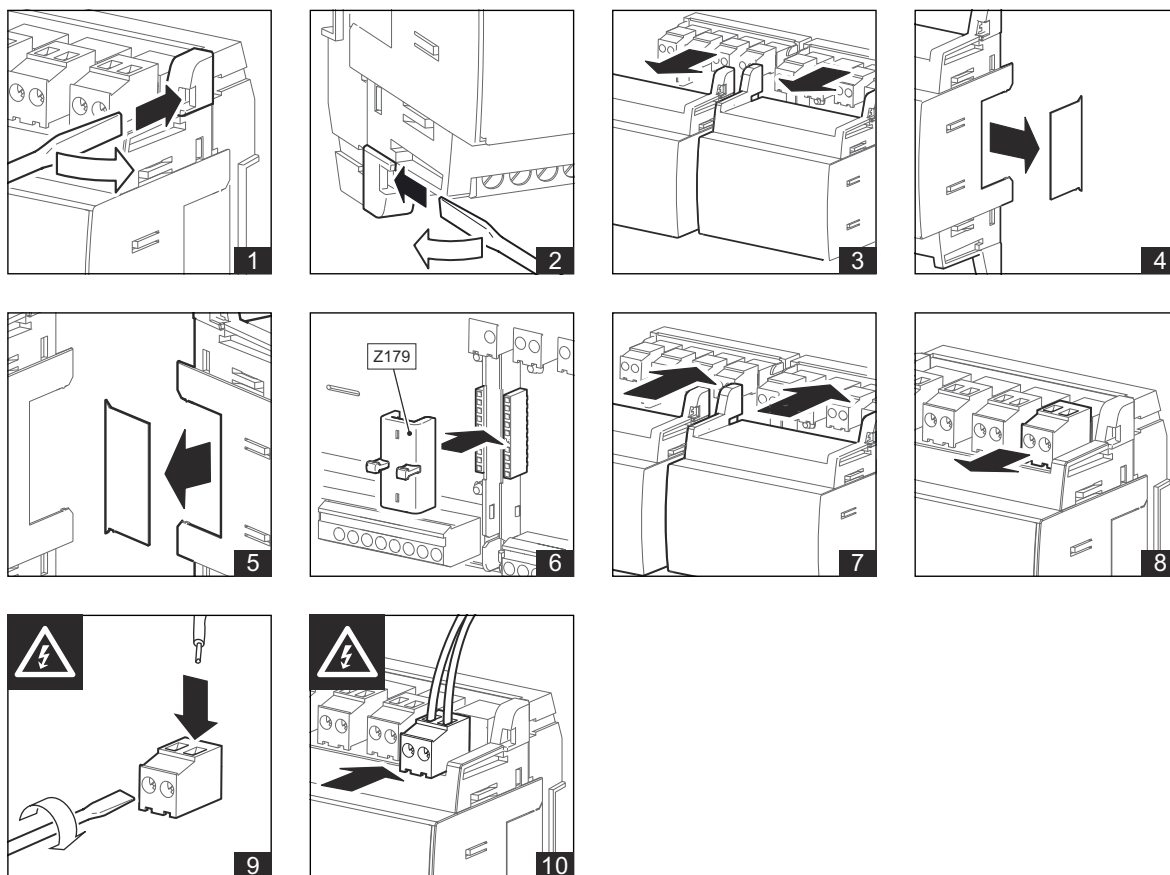
WARNING

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.

Mounting without cascade plug



Installation with Z179 cascade plug accessory (not included in the scope of delivery)

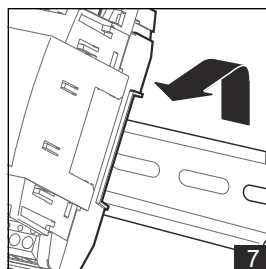
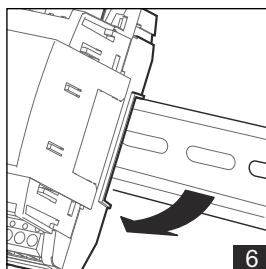
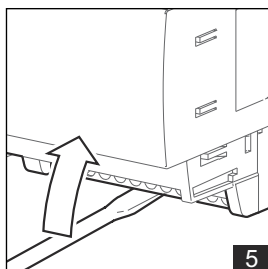
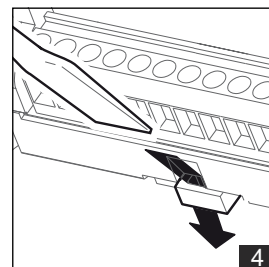
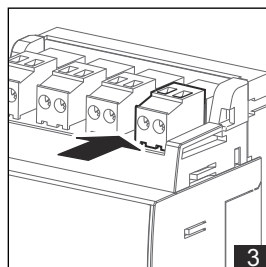
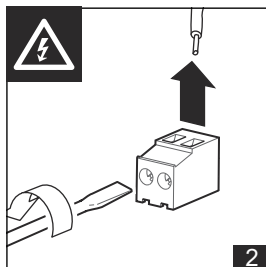
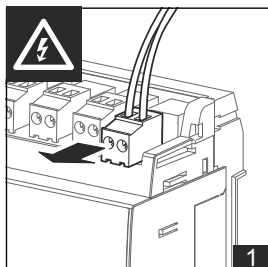


Removal



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.



Commissioning



CAUTION

Commissioning by switching on the supply voltage may occur only after the commissioning technician/engineer has finished configuring the DDC and has set the fieldbus address.

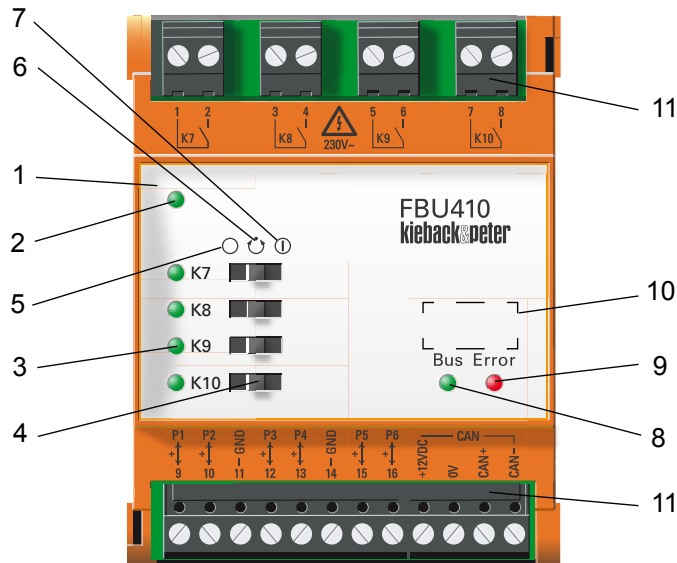
- Configuration is described in the DDC controller project planning documentation.
- Before switching on the supply voltage, check the electric installation and the device connections.
- After configuring the device and switching on the supply voltage, check the functions of the module and the connected inputs and outputs.

Product Description

FBU410

Function/Operation

Operating and display elements under the transparent cover (transparent cover not shown in the figure)



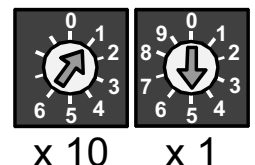
- 1 Front panel
- 2 LED red/green/yellow (solid/flashing), can be freely configured
- 3 4 green LEDs for indicating outputs K7 to K10
- 4 4 manual switches for the digital outputs K7 to K10
Settings: Off / Automatic mode / On
- 5 Off
- 6 Automatic mode
- 7 On
- 8 LED bus
- 9 LED error
- 10 Address switch (under the front panel (1))
- 11 Plug-in screw terminal

Setting the Fieldbus Address

Permitted range for the fieldbus address: 01 to 63.

The rotary switches for setting the fieldbus are located under the Front panel (1).

- ▶ Remove the transparent cover by pulling lightly.
- ▶ Lift off the Front panel (1) using a screwdriver (blade width < 3 mm), laterally at the bottom corners.
- ▶ Set the first number of the fieldbus address on the first rotary switch the second number on the second rotary switch.
The example shows the address "15".
- ▶ Lightly snap the Front panel (1) and the transparent cover back into place.



FBU410

Product Description

LED Display for Bus/Error

LED bus (8) Green	LED error (9) Red	Meaning	Cause
Off	Off	Module not in operation	■ No operating voltage or operating voltage too low
On	On	Module in operation, but there is a bus error	<ul style="list-style-type: none"> ■ Bus line short circuit (with respect to ground or each other) ■ Bus lines mixed up ■ Bus line(s) interrupted ■ Module not registered
Flickers	Flashes	Address error	<ul style="list-style-type: none"> ■ Outside of address range (01 to 63) ■ Address multiply assigned
Flickers	On	Module logging on	
Flickers	Off	Module OK, bus activity	