ekinex

CONTROL YOUR LIVING SPACE
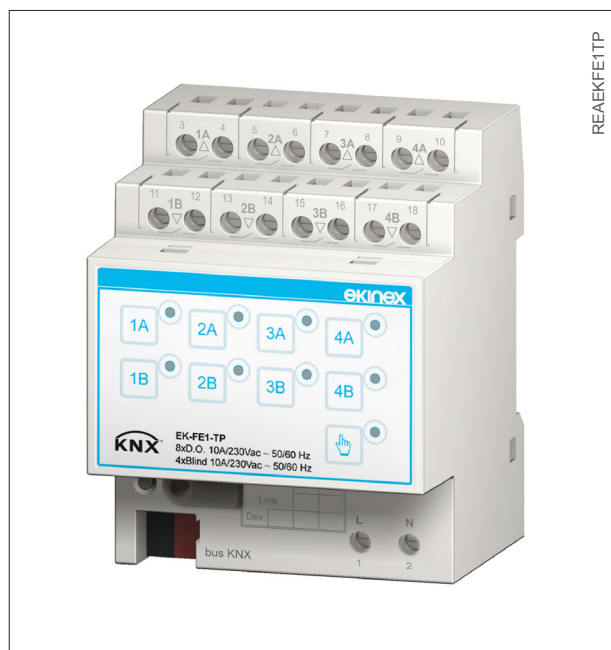
Binary output 8-fold / blind actuator 4-fold

Product code: EK-FE1-TP

KNX   CE

KNX device for independent switching of max. 8 groups of electrical loads (as binary output) or independent controlling of max. 4 drives (as blind actuator). It has to be used in KNX installations for control of homes and buildings.

REAEKFE1TP

Description

The binary output / blind actuator ekinex® EK-FE1-TP is a S-mode KNX rail mounting modular device for independent switching electrical loads (single or groups) and controlling motor drives for blinds. To operate the device receives a telegram from the bus, sent by a KNX device (such as a pushbutton, a sensor or another switching or control device), that causes the opening or the closing of one or more relays. The device requires an auxiliary 100-230 Vac power supply.

Main functional characteristics

- Manual switching with membrane pushbuttons
- Status feedback of the output channels through LEDs
- Configuration as normally opened or normally closed switch
- Logic gates and forced operation mode
- Status feedback (only at bus operating)
- Locking function for each channel
- Time programming: delay for switching on and off, staircase lighting function with prewarning signal
- Integration in scenes
- Counter of operating hours configurable by bus

Control of blinds

The device can be used for switching and controlling motor drives dedicated to the motion of shading systems (such as roller shutters, blinds, curtains, etc.) or of doors, windows or shutters. In this case, the number of inde-

pendent channels reduces to 4. In addition to the manual control with KNX pushbuttons, the actuator can be programmed to carry out a fully automatic control depending on information such as daytime, intensity of the solar radiation, temperature, presence of rain or windspeed; such information is contained in telegrams sent by other devices connected to the KNX bus, such as timers, sensors or weather stations. The operation as actuator for motor drives offers additional features.

- Complete up and down run
- Partial run with stop in position from 0 to 100 % of the run length
- Setting of position (change during the operation of the preset position)
- Adjustment of the slats inclination (for venetian blinds)
- Integration in scenes
- Automatic control for protection against direct sunlight
- Automatic control for protection against weather conditions (wind, rain, frost)
- Locking funcion
- Forced operation
- Status feedback

The time interval between the change of direction can be set in the planning stage through a corresponding parameter.

Other characteristics

- Housing in plastic material
- Mounting on 35 mm rail (according to EN 60715)
- Protection degree IP20 (installed device)
- Overvoltage class III (according to EN 60664-1)
- Classification climatic 3K5 and mechanical 3M2 (according to EN 50491-2)
- Pollution degree 2 (according to IEC 60664-1)
- 4 modular units (1 unit = 18 mm)
- Weight 315 g
- Dimensions 72 x 90 x 70 mm (WxHxD)

⚠️ *Warning! Motor drives can be damaged by sudden and repeated changes of the direction of motion. In order to set the correct time interval for reversing the direction of motion, refer to the technical documentation of the drive.*

Symbol	Load type	Current [A]
☀	Incandescent lamps	16(10)
▭	Fluorescent lamps	10
Ⓜ	Drives (cosφ ≥ 0,6)	10
◹⊗	Electronic transformer for low voltage incandescent lamps (e.g. halogen lamps)	10
⊏⊢⊗	Magnetic-core transformer for low voltage incandescent lamps (e.g. halogen lamps) (cosφ ≥ 0,6)	10

Technical data

Supply

- Auxiliary power supply: 100-230 Vac 50/60 Hz
- Control section power supply: 30 Vdc control section via KNX bus
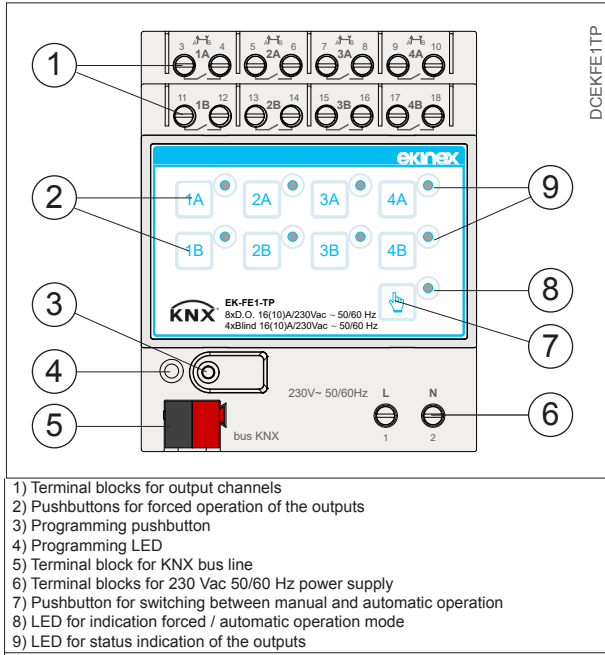- Current consumption from the bus <10 mA
- Power on the bus <240 mW

Outputs

- Number: 8 independent channels - 4 combined (depending on the use)

- Rated voltage (U_n): 100-230 Vac 50 / 60Hz
- Rated current (I_n): max 16 (10) A (both @ 100Vac and @ 230Vac)
- Max switched power: max 4000 VA @ 250Vac
- Inrush current: 88 A 20 ms

Environmental conditions

- Operating temperature: - 5 ... + 45°C
- Storage temperature: - 25 ... + 55°C
- Transport temperature: - 25 ... + 70°C
- Relative humidity: 95% not condensing

1) Terminal blocks for output channels
2) Pushbuttons for forced operation of the outputs
3) Programming pushbutton
4) Programming LED
5) Terminal block for KNX bus line
6) Terminal blocks for 230 Vac 50/60 Hz power supply
7) Pushbutton for switching between manual and automatic operation
8) LED for indication forced / automatic operation mode
9) LED for status indication of the outputs

Switching, display and connection elements

The device is equipped with a programming pushbutton and a programming LED, membrane pushbuttons, LED for status indication and terminals for connecting the KNX bus line, the 100-230 Vac power supply and the outputs.

Switching elements

- Pushbutton (3) for switching between the normal and programming operating mode
- Pushbutton (7) for switching between the operating modes: forced (pushbuttons on the front panel: active) or automatic (pushbuttons on the front panel: not active)
- Pushbuttons (2) for forced operation of the output channels

Display elements

- Red LED (4) for displaying the active operating mode of the device (on = programming, off = normal operation)
- Green LEDs (9) for displaying the switching status of the output channels (on = closed contact, off = opened contact)
- Red LED (8) for displaying the operating mode (on = forced operation, off = automatic operation)

Mounting

The device has degree of protection IP20, and is therefore suitable for use in dry interior rooms. The housing is made for rail mounting according to EN 60715 in boards or cabinets for electrical distribution. The installation is in horizontal position, the correct position is when the KNX bus terminal and the 100-230 Vac terminals are located at the bottom and the terminals for the outputs are located at the top.

For the installation of the device on the rail proceed as follows:

- with the aid of a tool bring the locking device in the fully lowered position (1);
- place the upper edge of the rear inner profile on the upper edge of the rail (2);
- rotate the device towards the rail (3);
- push the locking device upward until it stops (4).

Before removing the device, be sure the inputs have been disconnected and the bus terminal has been extracted from its slot. Use a screwdriver to slide down the locking device and remove the device from the rail.
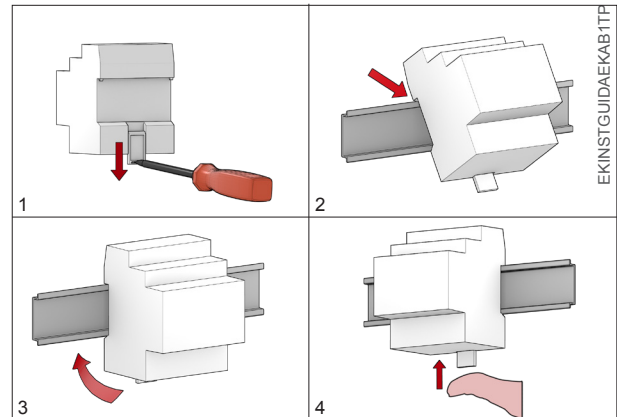
Note. *It is recommended that the installation of the device always ensure the full accessibility of the front side to allow the operation of the pushbuttons.*

Connection of the KNX bus line

The connection of the KNX bus line (fig. a) is made with the terminal block (black/red) included in delivery and inserted into the slot of the housing.

Characteristics of the KNX terminal block

- spring clamping of conductors
- 4 seats for conductors for each polarity
- terminal suitable for KNX bus cable with single-wire conductors and diameter between 0.6 and 0.8 mm
- recommended wire stripping approx. 5 mm
- color codification: red = + (positive) bus conductor, black = – (negative) bus conductor

Warning! *In order to supply the KNX bus lines use only KNX bus power supplies (e.g. ekinex EK-AB1-TP or EK-AG1-TP). The use of different power suppliy units can compromise the communication and damage the devices connected to the bus.*

Connection of the 100-230 Vac power supply

The connection of the 100-230 Vac power supply (fig. a) is made with the screw terminals located on the lower front of the device.

Characteristics of the terminals

- screw clamping of conductors
- maximum cross section of conductor 2.5 mm²
- ecommended wire stripping approx. 6 mm
- torque max 0.5 Nm

| a | Connection of the KNX bus network and 230 Vac power supply |
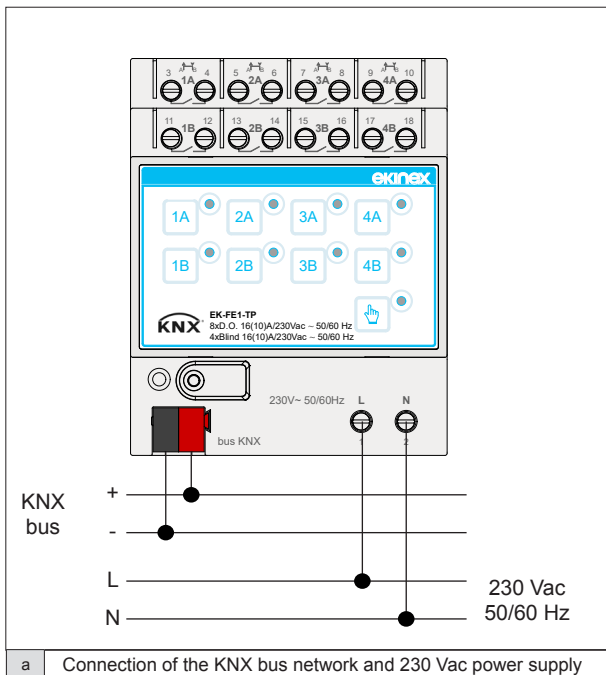
Connection of the loads

The connection of the controlled loads (fig. b, fig. c) is made with the screw terminals located at the top. In case the device is used as 4-fold blind actuator, the terminals must be connected coupling the channels as follows: 1A-1B, 2A-2B, 3A-3B, 4A-4B.

Characteristics of the terminals

- screw clamping of conductors
- maximum cross section of conductor 2.5 mm² (single-wire) or 1.5 mm² (multi-wire)
- recommended wire stripping approx. 6 mm
- torque max 0.8 Nm

| b | Connection of the loads (device used as 8-fold binary output) |

| c | Connection of the loads (device used as 4-fold blind actuator) |
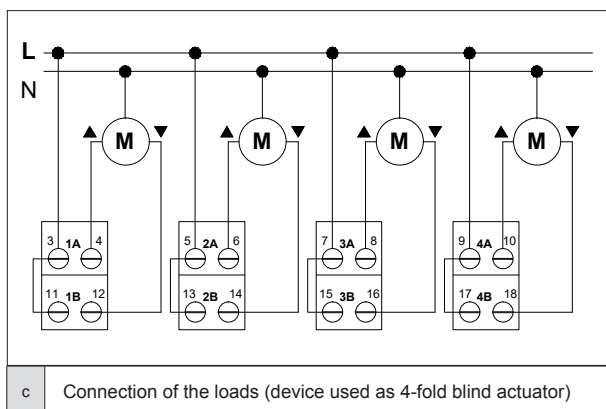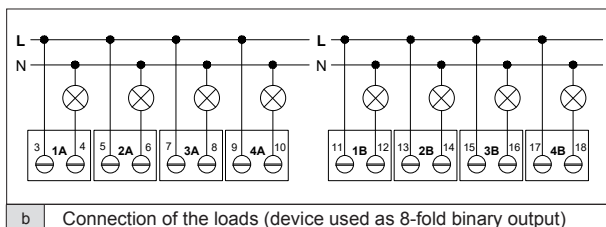
Warning! *Sockets controlled via bus must be clearly identified. Controlling loads with mobile installation (e.g. household appliances connected to mains sockets) must be planned and realized with a careful evaluation of the risks that may arise in the case of control without direct visual contact with the load (remote control). Connecting loads different than those planned, remote controlling without direct verification of the current conditions of the connected load or automatic controlling based on scenes or time-scheduling can cause serious damage to people and objects.*

Use as a blind actuator

The output contacts for the up / down directions are interlocked so that no voltage is applied simultaneously on both contacts.

Warning! *The electrical connection of the device can be carried out only by qualified personnel. The incorrect installation may result in electric shock or fire. Before making the electrical connections, make sure the power supply has been turned off.*

Configuration and commissioning

Configuration and commissioning of the device require the use of the ETS® (Engineering Tool Software) program V4 or later releases. These activities must be carried out according to the design of the building automation system done by a qualified planner.

Note. *The configuration and commissioning of KNX devices require specialized skills. To acquire these skills, you should attend the workshops at KNX certified training centers.*

Configuration

For the configuration of the device parameters the corresponding application program or the whole ekinex® product database must be loaded in the ETS program. For detailed information on configuration options, refer to the application manual of the device available on the website www.ekinex.com

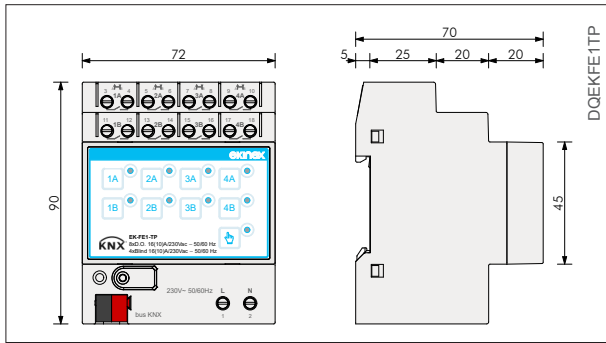| Product code	Application program (## = release)	Communication objects (max nr.)	Group adresses (max nr.)
EK-FE1-TP	APEKFE1TP##.knxprod	222	254

Commissioning

For commissioning the device the following activities are required:

- make the electrical connections as described above;
- turn on the bus power supply;
- switch the device operation to the programming mode by pressing the programming pushbutton located on the front side of the housing. In this mode of operation, the programming LED is turned on;
- download into the device the physical address and the configuration with the ETS® program.

At the end of the download the operation of the device automatically returns to normal mode; in this mode the programming LED is turned off. Now the bus device is programmed and ready for use.

Dimensions [mm]

Marks

- KNX
- CE: the device complies with the Low Voltage Directive (2014/35/UE) and the Electromagnetic Compatibility Directive (2014/30/UE). Tests carried out according to EN 50491-2:2010, EN 50491-3:2009, EN 50491-4-1:2012, EN 50491-5-1:2010, EN 50491-5-2:2010, EN 50428:2005 +A1:2007 + A2:2009

Maintenance

The device is maintenance-free. To clean use a dry cloth. It must be avoided the use of solvents or other aggressive substances.

Disposal

At the end of its useful life the product described in this datasheet is classified as waste from electronic equipment in accordance with the European Directive 2012/19/UE (WEEE recast), and cannot be disposed together with the municipal undifferentiated solid waste.

Warning! Incorrect disposal of this product may cause serious damage to the environment and human health. Please be informed about the correct disposal procedures for waste collecting and processing provided by local authorities.

Warnings

- Installation, electrical connection, configuration and commissioning of the device can only be carried out by qualified personnel in compliance with the applicable technical standards and laws of the respective countries
- The use of the device in security applications is not allowed.The device may however be used for auxiliary signaling functions
- Opening the housing of the device causes the immediate end of the warranty period
- In case of tampering, the compliance with the essential requirements of the applicable directives, for which the device has been certified, is no longer guaranteed
- ekinex® KNX defective devices must be returned to the manufacturer at the following address: EKINEX S.p.A. Via Novara 37 I-28010 Vaprio d'Agogna (NO) Italy

Other information

- This datasheet is aimed at installers, system integrators and planners

- For further information on the product, please contact the ekinex® technical support at the e-mail address: support@ekinex.com or visit the website www.ekinex.com
- Each ekinex® device has a unique serial number on the label. The serial number can be used by installers or system integrators for documentation purposes and has to be added in each communication addressed to the EKINEX technical support in case of malfunctioning of the device
- KNX® and ETS® are registered trademarks of KNX Association cvba, Brussels