

## Dimming actuator 2-fold

Code: EK-GA1-TP



Datasheet STEKGA1TP\_EN

Dimming actuator for the independent switching and dimming of max. 2 groups of lighting devices. It has to be used in KNX installations for control of homes and buildings.



### Description

The ekinex® dimming actuator EK-GA1-TP is a S-mode KNX rail mounting modular device for independent switching and dimming of 2 groups of lighting devices. The device is equipped with an integrated bus communication module and is designed for rail mounting in distribution boards and cabinets. 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 the corresponding relay or the dimming of the light intensity emitted by the lamp of the connected lighting device. It is possible the manual switching/dimming of an output channel with the membrane pushbuttons on the front of the device. The device is powered by the KNX bus line with SELV voltage 30 Vdc and requires a 230 Vac auxiliary power supply.

### Main characteristics

- ON/OFF switching and dimming of the light intensity of single or groups of lighting devices
- Logical gates and forced mode for each channel
- Manual switching with membrane pushbuttons
- Status feedback of the output channels through LEDs
- Pushbutton for switching between manual and automatic operation
- Block 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

### Other characteristics

- Housing in plastic material
- Mounting on 35 mm rail (according to EN 60715)
- Protection degree IP20 (according to EN 60529)

- 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 160 g
- Dimensions 72 x 90 x 70 mm (WxHxD)

### Technical data

#### Power supply

- 30 Vdc voltage from KNX bus line
- Current consumption < 13 mA
- Power consumption 360 mW

#### Outputs

- Number: 2
- Rated voltage (Un): 230 Vac
- Rated current (In): 2,6 A
- Switched power (min.): 2x10 W
- Switched power (max.): 2x300 W (1x600 W with parallel switching of the 2 channels)

#### Lighting sources connectable

- 230 Vac incandescent lamps
- 230 Vac halogen lamps
- Low-voltage halogen lamps (with conventional or electronic transformer)
- LED lamps (with conventional or electronic transformer)

#### Environmental conditions

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



**Warning!** Connect to the dimmer/actuator only dimmerable lighting sources. Verify on the technical documentation of the manufacturer the presence among the characteristics of the indication "dimmerable lamp".

### Switching, display and connection elements

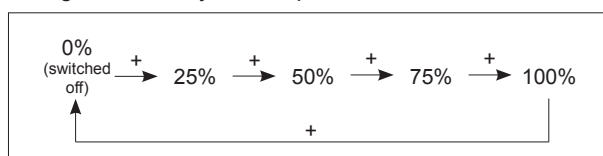
The device is equipped with a programming pushbutton and a programming LED, membrane pushbuttons, LED for status indication and terminals for connecting the KNX bus line, the 230 Vac power supply and the outputs.

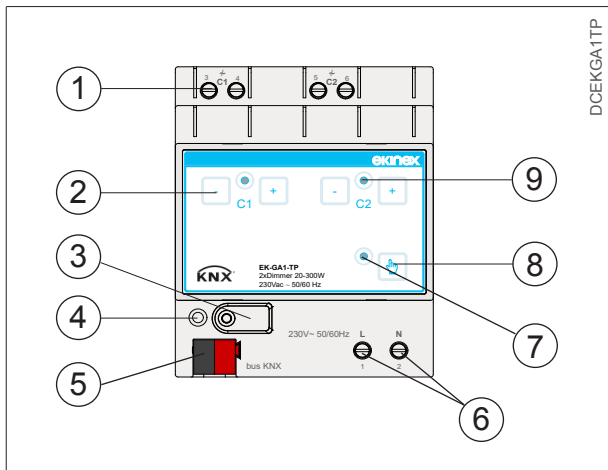
#### Switching elements

- Pushbutton (3) for switching between the normal and programming operating mode
- Pushbutton (8) 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

Thanks to the pushbuttons located on the front of the device, the connected loads can be manually controlled in the absence of voltage on the KNX bus or when the programming has not yet been carried out, and in this way it is possible to check the functioning of the loads. In these conditions, however, it is not possible to have the status feedback through the LEDs.

The pressure of the pushbuttons (+, -) for manual control of the output increases or decreases by 25% at each step the light emitted by the lamps.





- 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) LED for indication forced / automatic operation mode
- 8) Pushbutton for switching between manual and automatic operation
- 9) LED for status indication of the outputs



**Note.** The status of the device in case of fall and recovery of the bus is configurable separately for each channel.

### 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
- Red LED (7) for displaying the operating mode (on = forced operation, off = automatic operation)

### Mounting

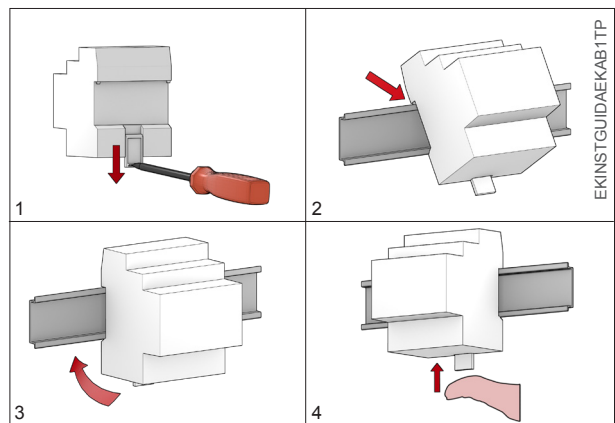
The device has degree of protection IP20, and is therefore suitable for use in dry interior rooms. The housing is made for rail mounting according to EN 60715 in boards or cabinets for electrical distribution. The installation is in horizontal position, the correct position is when the KNX bus terminal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

### Connection of the KNX bus line

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



**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.

### 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

### Connection of the loads

The connection of the loads is made with screw terminals (3-4, 5-6) located on the upper front of the device.

### Characteristics of the terminals

- screw clamping of conductors
- maximum cross section of conductor 2.5 mm<sup>2</sup> (single-wire) or 1.5 mm<sup>2</sup> (multi-wire)
- recommended wire stripping approx. 6 mm
- torque max 0.8 Nm



**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 other power supplies can compromise the communication and damage the devices connected to the bus.

### Connection of the 230 Vac power supply

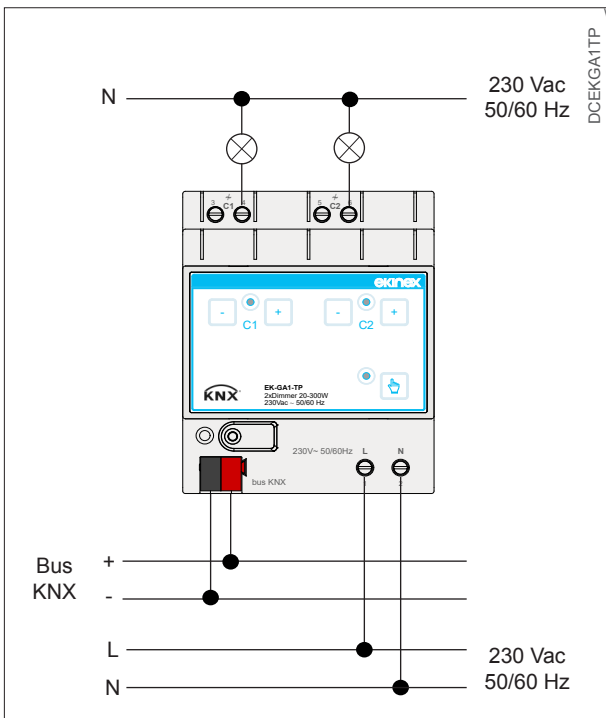
The connection of the 230 Vac power supply is made with screw terminals (1, 2) located on the lower front of the device.

### Characteristics of the terminals

- screw clamping of conductors
- maximum cross section of conductor 2.5 mm<sup>2</sup>
- recommended wire stripping approx. 6 mm
- torque max 0.5 Nm

Load type	Maximum power		Mode
	Single channel	Coupled channels	
Incandescent or halogen lamps (230V~ 50/60Hz)	300 W	600 W	RC
Halogen lamps (12/24V~ 50/60Hz) with electronic transformers	60 W	100 W	RC
Halogen lamps (12/24V~ 50/60Hz) with magnetic transformers	60 W	100 W(*)	L
Dimmable LED lamps (230V~ 50/60Hz)	60 W	100 W	L
	120 W	200 W	RC
Dimmable LED drivers (230V~ 50/60Hz)	60 W	100 W	RC/L
Compact Fluorescent Lamps (ESL/CFL)	60 W	100 W	L

RC = Trailing edge  
L = Leading edge  
(\*): **DO NOT CONNECT THE TRANSFORMER WITHOUT CONNECTING THE LAMP ON THE SECONDARY WINDING TO THE AVOID OVERVOLTAGE THAT MAY CAUSE DAMAGING TO THE DEVICE.**



**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.

Product code	Application program (## = version)	Communication objects (max. nr.)	Group addresses (max. nr.)
EK-GA1-TP	APEKGA1TP##.knxprod	46	46



**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](http://www.ekinex.com).

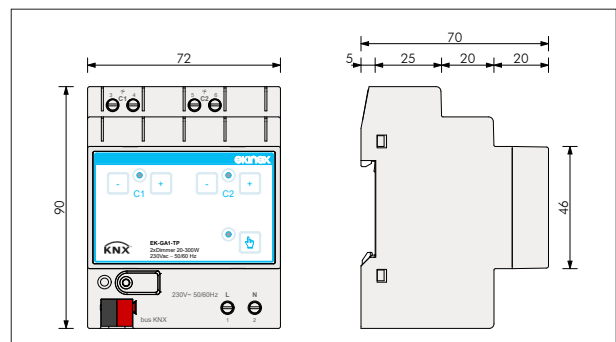
### Commissioning

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 (2006/95/EC) and the Electromagnetic Compatibility Directive (2004/108/EC). 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 2002/96/EC (WEEE), 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.

## Document

This datasheet refers to the release A1.0 of the ekinex® device EK-GA1-TP, and is available for download at [www.ekinex.com](http://www.ekinex.com) as a PDF (Portable Data Format) file.

File name	Device release	Updating
STEKGA1TP_EN_v.1.0.pdf	A1.0	02 / 2022

## 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
- 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 SpA 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](mailto:support@ekinex.com) or visit the website [www.ekinex.com](http://www.ekinex.com)
- KNX® and ETS® are registered trademarks of KNX Association cvba, Brussels

© Ekinex S.p.A. 2014. The company reserves the right to make changes to this documentation without notice.