ekinex
CONTROL YOUR LIVING SPACE

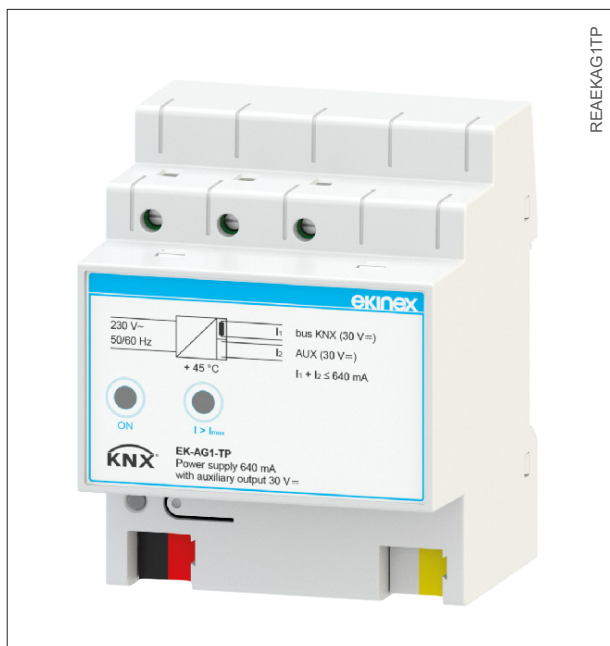## Bus power supply 640 mA with auxiliary output 30 Vdc

Product code: EK-AG1-TP

KNX   CE

KNX device with function of power supply for a bus line with auxiliary output. It has to be used in KNX installations for control of homes and buildings.

Description

The ekinex® power supply EK-AG1-TP is a KNX device for rail mounting which produces and monitors the 30 Vdc voltage required to operate the bus system. The device is equipped with an additional output 30 Vdc that may be used for the auxiliary power supply of other SELV devices. The device has an integrated choke which provides the decoupling between the power supply and the information on the bus line. On a KNX bus line can be connected up to 64 KNX bus devices. The total current absorbed from the two outputs (KNX bus and auxiliary) cannot exceed 640 mA. The output is protected from overload and short circuit. The device can support short interruptions of the mains voltage (max 200 ms).

Functions

- 30 Vdc SELV power supply for a KNX bus line with max 64 connected devices
- Auxiliary power supply 30 Vdc
- Reset of the connected bus line with a dedicated pushbutton

Main characteristics

- Housing in plastic material
- Mounting on 35 mm rail (according to EN 60715)
- Protection degree IP20 (according to EN 60529)
- Classification climatic 3K5 and mechanical 3M2 (accor-

ding to EN 50491-2)
- Pollution degree 2 (according to IEC 60664-1)
- Weight 165 g
- 4 modular units (1 UM = 18 mm)
- Dimensions 72 x 90 x 70 mm (WxHxD)

Environmental conditions

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

## Technical data

Power supply

- Voltage 230 Vac, 50/60 Hz
- Power consumption 22 W (power losses < 3 W)
- Input current 0.1 A

Outputs

- Bus line voltage: 30 Vdc +1/-2 Vdc SELV
- Auxiliary voltage: 30 Vdc SELV
- Rated current (total outputs): 640 mA
- Buffer time: 200 ms
- Bus line connection: KNX ternminal block (black/red) included in delivery
- Auxiliary output connection: dedicated terminal block (yellow/white)

Switching, display and connection elements

The device is equipped with a reset pushbutton, 3 LEDs and terminal blocks for mains voltage 230 Vac, KNX bus line and auxiliary output.
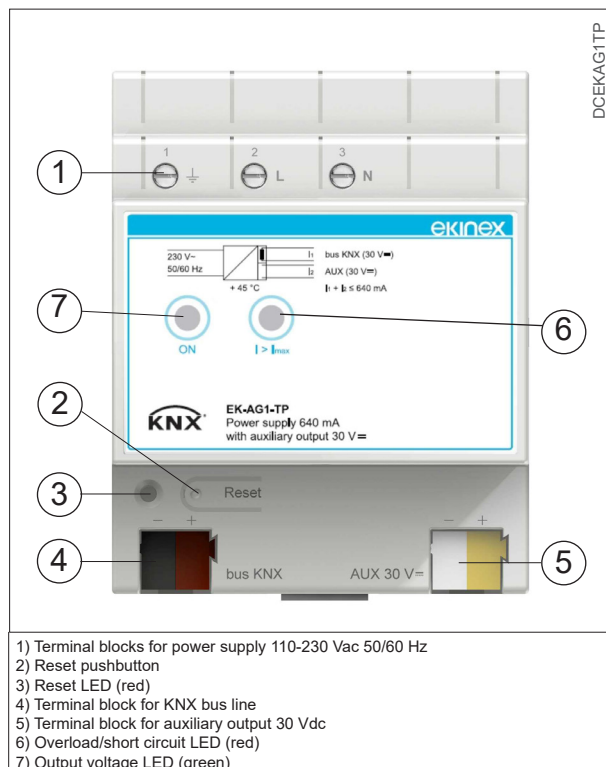
1) Terminal blocks for power supply 110-230 Vac 50/60 Hz
2) Reset pushbutton
3) Reset LED (red)
4) Terminal block for KNX bus line
5) Terminal block for auxiliary output 30 Vdc
6) Overload/short circuit LED (red)
7) Output voltage LED (green)

Planning

Planning a KNX bus installation, the use of a 640 mA power supply unit requires to take into account the following guidelines:

- the maximum number of bus devices connected is 64;
- the maximum length of a line segment is 350 m, measured along the line between the power supply and the furthest device bus;

- the maximum distance between two bus devices cannot exceed 700 m;
- the maximum length of a bus line is 1000 m, keeping into account all segments.

At the same bus line can be connected not more than two power supplies. A second power supply may be necessary when the installation in distribution boards requires a particular concentration of the bus devices (tipically more than 30 units installed within 10 m). In this case a power supply has to be installed near the group of devices. Between two power supplies installed on the same bus line a minimum distance of 200 m is required, measured along the line.

> **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.

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 terminals for KNX bus line and auxiliary output are located at the bottom and the terminals ($\perp$, L, N) for connecting the mains power supply 230 Vac 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 bus terminals have been extracted from their slots. Use a screwdriver to slide down the locking device and remove the device from the rail.
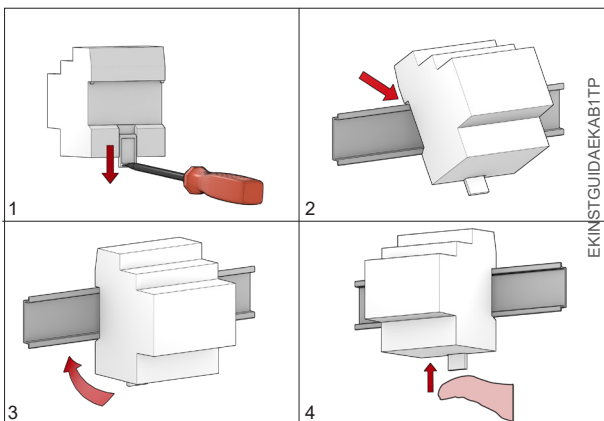
> **Note.** When mounting the device in boards and cabinets it shall be provided the necessary ventilation so that the temperature can be kept within the operating range of the device.

Electrical connections

Main supply 230 Vac

The connection to the 230 main supply Vac is made with screw terminals ($\perp$, L, N) located on the upper front of the device. Characteristics of the terminal blocks:

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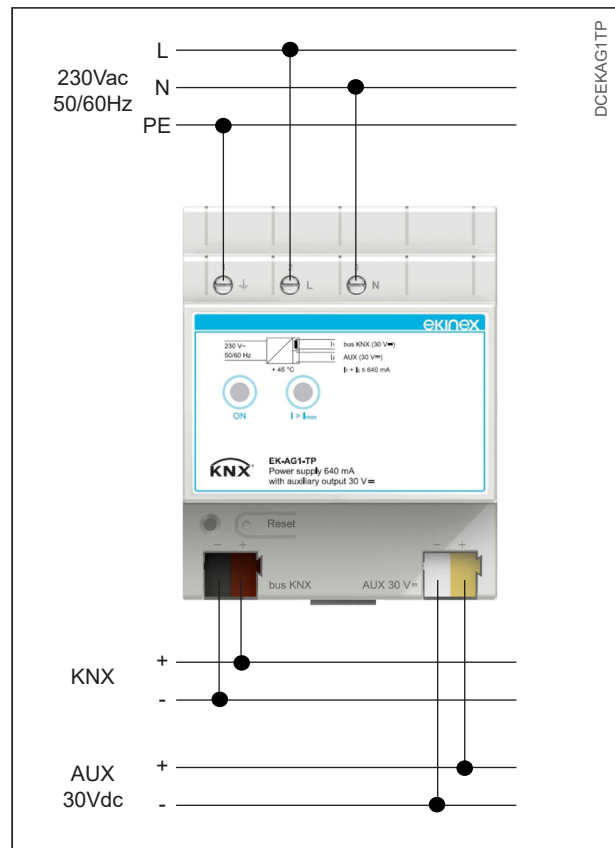
KNX bus line

The connection to the KNX bus line is made with the terminal block (black/red) included in delivery and inserted into the slot located on the bottom left part of the front. 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

Auxiliary output

The auxiliary output 30 Vdc is provided with a dedicated terminal block (yellow/white) included in the delivery and inserted into the slot located on the bottom right part of the front. The terminal block for the auxiliary output has a color codification different than that for the connection of the KNX bus. Characteristics of the 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: yellow = + (positive) AUX conductor, white = - (negative) AUX conductor

To connect the auxiliary output to the powered devices it is recommended to use a cable with a sheath of different color than that used to connect the KNX bus line.

Configuration and commissioning

Configuration

The device does not require any configuration with ETS® (Engineering Tool Software) tool. The application software APEKAG1TP##.knxprod (## = version) is available in order to add an EK-AG1-TP power supply to an ETS project.

Commissioning

For the commissioning of the device turn on the mains power supply 230 Vac to which the device is connected. The green LED marked "ON" indicates the device operating.

Reset

The device has a reset pushbutton. After a reset, the bus line is not powered for 20 seconds and the bus devices connected are restored to their original condition. During this interval of time the reset LED (red) is turned permanently on.

Failure

When the red LED, labeled "I> Imax", is turned on, this means that the KNX output is overloaded or short-circuited. The problem can be solved by removing the cause of the short circuit or by reducing the number of KNX devices connected to the line. After the removal of the problem only the green LED "ON" is turned on, at this time it is recommended to reset the line.

Dimensions [mm]
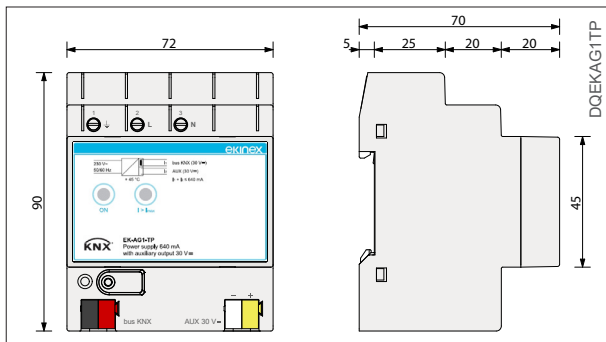
Marks

- 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.

Documentation

This datasheet refers to the release A1.0 of the ekinex® device EK-AG1-TP, and is available for download at www.ekinex.com as a PDF (Portable Data Format) file.

File name	Device release	Updating
STEKAG1TP_EN.pdf	A1.0	07 / 2014

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 power supply line to which the device is connected must be equipped with an easily accessible disconnecting device with minimum separation distance between contacts of 3 mm
- 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