

Line/area coupler

Product code: EK-BA1-TP



Datasheet STEKBA1TP_EN

KNX device with function of line/area coupler. It has to be used in KNX installations for control of homes and buildings.



REA/EKBA1TP

Description

The ekinex® EK-BA1-TP line/area coupler allows the coupling of a KNX bus main line with a KNX bus secondary line. The device provides the galvanic isolation between the two connected lines. Thanks to its flexibility, the coupler can be used as a line coupler to connect a secondary line with a main line or as an area coupler to connect a main line with a backbone line. The main task of the device is filtering the traffic according to the installation place in the hierarchy or according to the built-in filter tables for group oriented communication. The device provides support for long messages (up to 250 bytes) and a configurable pushbutton for the activation of special functions which are helpful during installation, run time operation and troubleshooting. 6 LEDs accurately display the bus status on each line. This helps identifying common communication problems due to bus load or retransmissions on both lines. The device is powered by the KNX bus line with SELV voltage 30 Vdc and does not require any auxiliary power supply.

Functions

- Suppress device configuration on the sub line
- Enable or disable filtering of group messages
- Suppress device oriented messages
- Trace the traffic on the sub line
- Reduced number of retransmissions
- Auxiliary power supply not necessary

Main characteristics

- Housing in plastic material
- Mounting on 35 mm rail (according to EN 60715)
- Protection degree IP20 (according to EN 60529)
- Safety class II
- Weight 100 g
- 2 modular units (1 unit = 18 mm)

- Dimensions 36 x 90 x 70 mm (WxHxD)

Technical data

Power supply

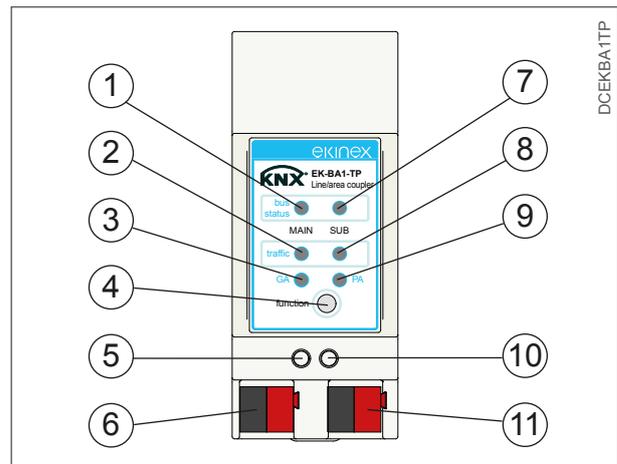
- 30 Vdc from KNX bus line
- Current consumption (from main bus line) ca.10 mA

Environmental conditions

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

Switching, display and connection elements

The device is equipped with 6 LEDs, a function pushbutton, 2 terminals for connecting the KNX bus lines, a programming LED and a programming pushbutton.



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- 1) Status LED main KNX bus line (green/red)
- 2) Traffic LED main KNX bus line (green/red)
- 3) Status LED filter table group addresses (green/red)
- 4) Function pushbutton
- 5) Programming LED (red)
- 6) Terminal block for main KNX bus line
- 7) Status LED secondary KNX bus line (green/red)
- 8) Traffic LED secondary KNX bus line (green/red)
- 9) Status LED filter table physical addresses (green/yellow)
- 10) Programming pushbutton
- 11) Terminal block for secondary KNX bus line

Switching elements

- Pushbutton (10) for switching between the normal and programming operating mode
- Function pushbutton (4)
 - Long press (3 sec)
 - Switch to manual overwrite, configuration is done via ETS
 - Status LED main bus line red:
 - On: switch on manual overwrite
 - Off: switch to configured routing

Very long press (15 sec)

LED: Bus Status Main (1), Bus Status Sub (7), Group Address (3), Physical Address (9) on red. Release button and press again for some seconds: resets all the parameter to factory default (incl. physical address).

Display elements

- Status LED main bus line (1)
 - off: error
 - on (green): main line ok
 - on (red): manual override active
- Status LED secondary bus line (7)
 - off: secondary line error or not connected
 - on (green): secondary line ok

- Traffic LED main bus line (2)
 - blinking (green): traffic on main bus line
 - off: no traffic on main bus line
 - blinking (red): transmission error
- Traffic LED secondary bus line (8)
 - blinking (green): traffic on secondary bus line
 - off: no traffic on secondary bus line
 - blinking (red): transmission error
- Status LED group addresses (3)
 - Routing of group telegrams
 - off: main and sub different
 - on (green): filter table active
 - on (green+red): route all
 - on (red): block
- Status LED physical addresses (9)
 - Routing of physical telegrams
 - off: main and sub different
 - on (green): filter table active
 - on (green+yellow): route all
 - on (yellow): block
- LED red (5) for displaying the active operating mode (on = programming mode, off = normal operation mode). After receiving the physical address, the line/area coupler automatically returns from programming mode to the normal operating mode.

Mounting

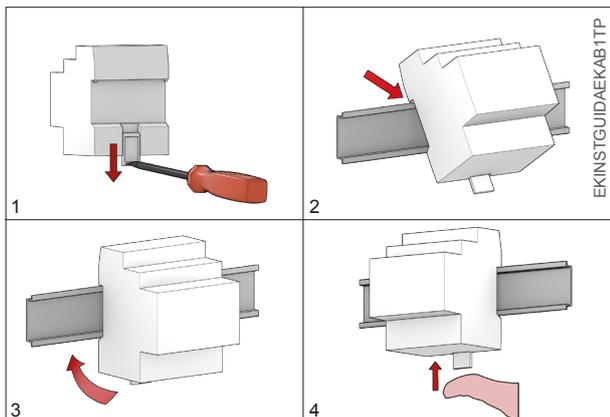
The device has degree of protection IP20, and is therefore suitable for use in dry interior rooms. The housing is made for rail mounting according to EN 60715 in boards or cabinets for electrical distribution. The installation is in horizontal position, the correct position is when the KNX bus terminals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



Connection of the KNX bus line

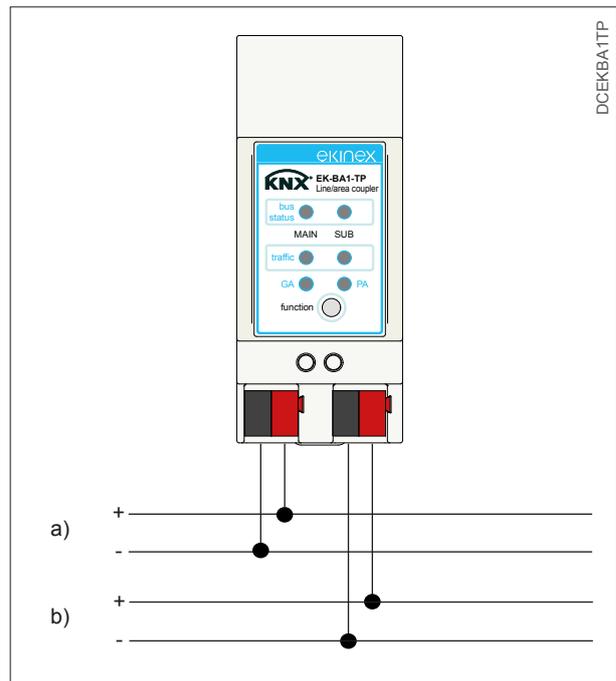
The connection to the main and secondary KNX bus lines is made with the terminal blocks (black/red) included in delivery and inserted into the slots located on the bottom part of the front.

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



Warning! In order to supply the KNX bus lines use only a KNX bus power supply (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.



a) Main KNX bus line
b) Secondary knx bus line



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 V3 or later releases. These activities must be carried out according to the design of the building automation system done by a qualified planner.

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)
EK-BA1-TP	APEKBA1TP##.vd4



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.

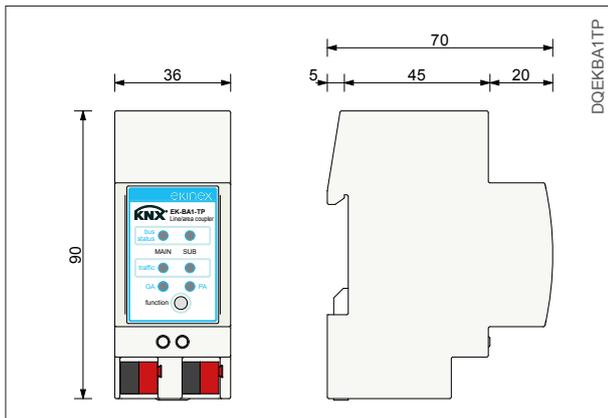
Commissioning

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)

Maintenance

The device is maintenance-free. To clean it 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 (RAEE), 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.

Documentation

This datasheet refers to the release A1.0 of the ekinex® device EK-BA1-TP, and is available for download at www.ekinex.com as a PDF (Portable Data Format) file.

Filename	Device release	Updating
STEKBA1TP_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
- 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
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