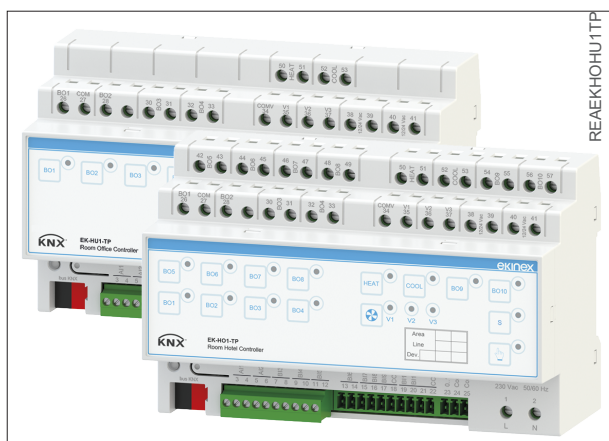


## Input/output KNX modules for hotel and office applications

Codes: EK-HO1-TP, EK-HU1-TP



Datasheet STEKHOHU1TP\_EN



KNX devices provided with input/output module to manage all functions of a hotel room, open-space or office. They have to be used in KNX installations for control of homes and buildings.

### Description

The ekinex® actuators/controllers are input/output modules to manage all functions of either a hotel room (EK-HO1-TP), or an office or an open-space room: lighting, temperature control, shades and input/output indications. The device is equipped with membrane keys for manual control and status indication LEDs; a pushbutton allows to switch mode from automatic to manual and vice versa. The device integrates a KNX bus communication module and is intended for mounting in distribution board on EN 60715 rail (8 modular units, each 18 mm). It is supplied by the KNX bus and in order to be operational it also requires a 230 Vac voltage. It has to be used in KNX installations for control of homes and buildings.

### Main functional features

- 1-2 commands for roller shutters, venetian blinds, curtains control
- 8-10 (EK-HO1-TP) or 2-4 (EK-HU1-TP) commands for lightning and ON/OFF switching
- 3 (EK-HO1-TP) or 2 (EK-HU1-TP) light dimming commands from binary coupled inputs (open/close), through communications objects over the bus
- 6 (EK-HO1-TP) or 5 (EK-HU1-TP) light dimming commands from binary single inputs (long/short press), through communications objects over the bus.
- 1 command for room door lock, managed through either a binary input or a transponder (via bus)
- 1 fan-coil zone (ventilation control with either 1-3 speeds or brushless DC 0 ... 10 V motor)
- Control of 2 or 4-pipe hydraulic distribution systems, with shutoff valve ON/OFF (2 SPST relays)

- 4 logic functions
- 2 freely configurable inputs, as analogic (for NTC temperature sensor, external probe, antistratification, heat exchange fan-coil battery probe, generic or heat exchanger fluid flow probe) or digital. These can be used individually (for commands or sequences sending, dimming, input for roller shutters or venetian blinds, integration in scenes) or coupled (switching, dimming or roller shutters/venetian blinds command input)
- 4 (EK-HO1-TP) or 2 (EK-HU1-TP) binary single inputs (for commands or sequences sending, dimming, input for roller shutters or venetian blinds, integration in scenes) or coupled (switching, dimming or roller shutters/venetian blinds command input)
- 1 single binary input (EK-HU1-TP only), to send commands and sequences, dimming, input for shutters / blinds and sending scenarios
- 1 binary input (EK-HO1-TP only), configurable as window or generic contact
- 1 binary input (EK-HO1-TP only), configurable to manage call for assistance request / emergency contact
- 1 binary input (EK-HO1-TP only), configurable as maid service contact
- 1 binary input (EK-HO1-TP only), configurable as internal card-holder contact
- 1 binary input (EK-HO1-TP only), configurable as an external access control contact
- 2 coupled outputs with 5(3) A relays for blind or shade control, or ON/OFF light control or signalling. The outputs can be activated from either the binary inputs or the communication objects over the bus
- 2 outputs with 5(3) A relays for blind or shade control (if coupled), or ON/OFF load switching (if single). The outputs can be activated from either the binary inputs or the communication objects over the bus
- 6 single with 16(10) A relays (EK-HO1-TP only) for ON/OFF load switching; the outputs can be activated from either the binary inputs or the communication objects over the bus
- door lock: 1 output with 5(3) A relays, powered at 12/24 Vac for controlling an electric lock. The activation can be configured either from a binary input, in order to connect a common transponder installed outside the room, or by a communication object over the bus
- 1 analogic 0-10 V output for fan speed control of a fan-coil unit with brushless motor, or through direct command with communication objects over the bus
- Manual commands, by membrane keys.

### Integrated temperature controller

The integrated temperature controller is used when the device gets the temperature value from bus, provided by either a KNX environmental probe or a probe connected to an analogic input.

The allowed functions are:

- Settings via bus with Setpoint Setpoint single or related activated through the way HVAC System
- ON / OFF or PWM ( pulse width modulation ) of the water flow to the heat exchange coils
- ON / OFF at 1-3 windows with hysteresis or PI ( Proportional Integral ) of the air flow of the fan
- Switching heating / cooling from the bus or automatically according to the ambient temperature or according to the temperature of the fluid at discharge
- Ability to enable a compensation curve climatic cooling
- Automatic hot-start and cold -start the fan based on the actual temperature of the heat exchanger
- Trigger fan in case of stratification in large environments
- Function monitoring condensate level
- Monitoring function operating hours with signaling replacement filter

## Control of blinds

The device can be used for switching and controlling drives dedicated to the motion of shading systems (such as roller shutters, blinds, curtains, etc.) or of doors, windows or shutters. 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
- Locking function
- 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)
- IP20 Protection degree (installed device, according to EN 60529)
- Overvoltage class III (according to EN 60664-1)
- Climatic classification 3K5 and mechanical 3M2 (according to EN 50491-2)
- Pollution degree 2 (according to IEC 60664-1)
- 8 modular units (1 unit = 18 mm)
- Weight 515 g
- Dimensions 144 x 90 x 70 mm (WxHxD)

## Technical Data

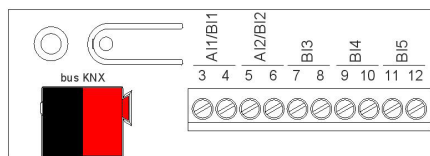
Supply

- Power supply (loads) 230 Vac 50/60 Hz (output relay command)
- Power supply (electronics) 30 Vdc from KNX bus
- Current consumption < 30 mA
- Power consumption < 900 mW

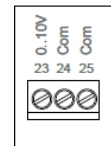
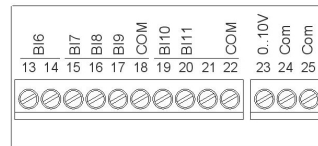
### Environmental conditions

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

## Input/Output Terminals



Nr.	Sigla	Collegamento
3-4	A11/B11	Freely configurable input, as analogic or single binary
5-6	A12/B12	Freely configurable input, as analogic or single binary
7-8	BI3	Single or coupled binary input
9-10	BI4	Single or coupled binary input
11-12	BI5	Single or coupled binary input

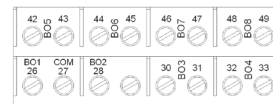


EK-HO1-TP

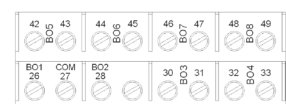
EK-HU1-TP

Terminals	Name	Signal Type
13-14	BI6	Single or coupled binary input *
15-18	BI7	Single binary input - internal badge contact *
16-18	BI8	Single binary input - external access control contact *
17-18	BI9	Single binary input - window or generic contact *
19-22	BI10	Single binary input - call for assistance/emergency contact *
20-22	BI11	Single binary input - maid service contact *
23-24-25	-	0 ... 10V analogic output

\*: EK-HO1-TP only



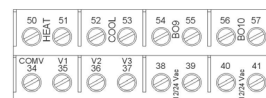
EK-HO1-TP



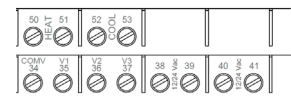
EK-HU1-TP

Terminals	Name	Signal Type
26	BO1	Single or coupled binary output with 5(3) A relais
28	BO2	Single or coupled binary output with 5(3) A relais
27	COM	Common pole for BO1 and BO2
30-31	BO3	Single or coupled binary output with 5(3) A relais
32-33	BO4	Single or coupled binary output with 5(3) A relais
42-43	BO5	Single binary output *
44-45	BO6	Single binary output *
46-47	BO7	Single binary output *
48-49	BO8	Single binary output *

\*: EK-HO1-TP only



EK-HO1-TP



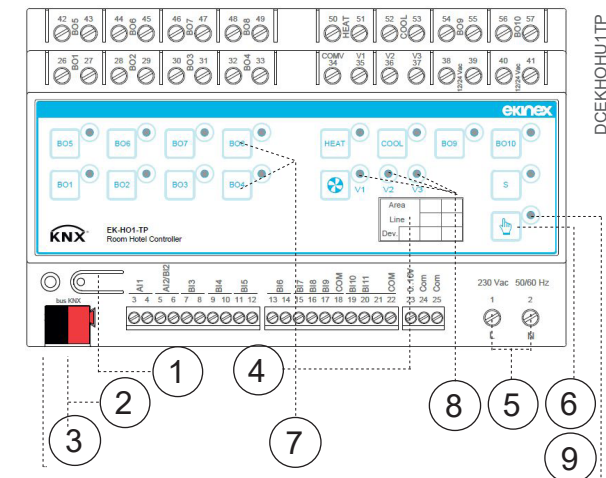
EK-HU1-TP

Terminals	Name	Signal Type
34-35	V1	Fan-coil - speed 1 command
34-36	V2	Fan-coil - speed 2 command
34-37	V3	Fan-coil - speed 3 command
38-39	-	2/24 Vac Power IN - external door contact
40-41	-	2/24 Vac Power OUT - external door contact
50-51	HEAT	Fan-coil - heating valve command
52-53	COOL	Fan-coil - cooling valve command
54-55	BO9	Binary single output *
56-57	BO10	Binary single output *

\*: EK-HO1-TP only

## 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 230Vac power supply, the inputs and outputs.



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

### Switching elements

- Pushbutton (1) for switching between the normal and programming operating mode
- Pushbutton (6) for switching between the operating modes: forced (pushbuttons on the front panel: active) or automatic (pushbuttons on the front panel: not active)
- Pushbuttons (7) for forced operation of the output channels

### Display elements

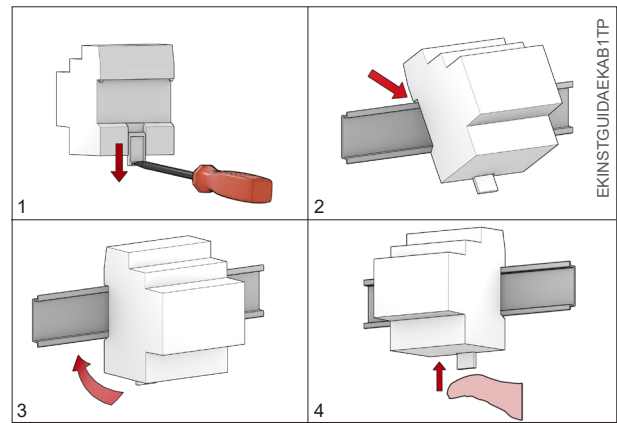
- Red LED (3) for displaying the active operating mode of the device (on = programming, off = normal operation)
- Green LEDs (8) for displaying the switching status of the output channels (on = closed contact, off = opened contact)
- Red LED (9) for displaying the operating mode (on = forced operation, 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 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.



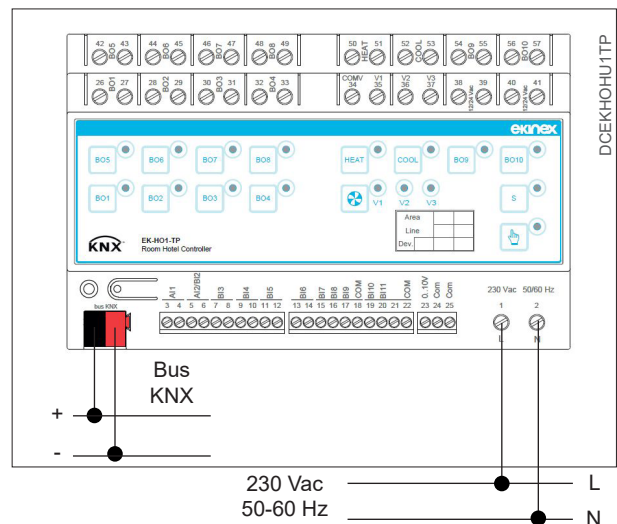
**Note.** It is recommended that the installation of the device always ensure the full accessibility of the front side to allow the operation of the pushbuttons.

## Connection of the KNX bus line

The connection of the KNX bus line 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



a Connection of KNX bus line and 230 Vac power supply



**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 230Vac 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 mm<sup>2</sup>
- recommended wire stripping approx. 6 mm
- torque max 0,5 Nm



**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.

### 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)

Product Code	Application Program (## = release)	Communication Objects (max nr.)	Group Addresses (max nr.)
EK-HO1-TP	APEKHO1TP##.knxprod	295	254
EK-HU1-TP	APEKHU1TP##.knxprod	295	254

### Commissioning

For device commissioning, the following activities are required:

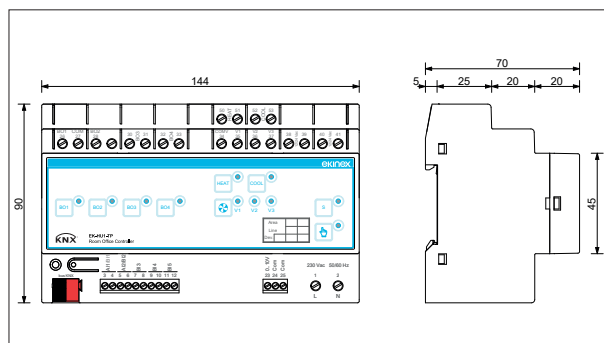
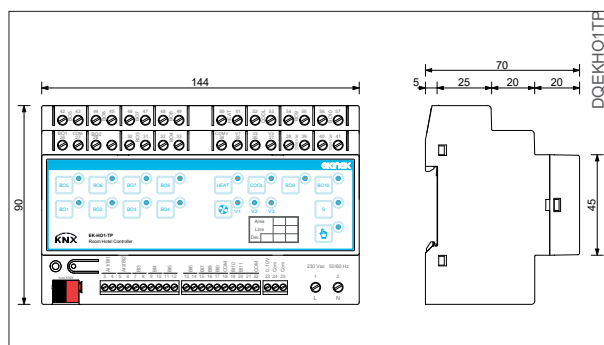
- make the electrical connections as described above;
- turn on the bus power supply;
- switch the device operation to the programming mode by pressing the programming pushbutton located on the front side of the housing. In this mode of operation, the programming LED is turned on;
- download into the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



**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.

## 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.

## Documentation

This datasheet refers to the release A1.0 of the ekinex® devices EK-HO1-TP and EK-HU1-TP. It is available for download at [www.ekinex.com](http://www.ekinex.com) as a PDF (Portable Data Format) file.

File name	Device release	Updating
STEKHOU1TP_EN.pdf	A1.0	09 / 2018

## 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
- ekinex® is a registered trademark of Ekinex S.p.A.
- KNX® and ETS® are registered trademarks of KNX Association cvba, Brussels

© Ekinex S.p.A. 2018. The company reserves the right to make changes to this documentation without notice.