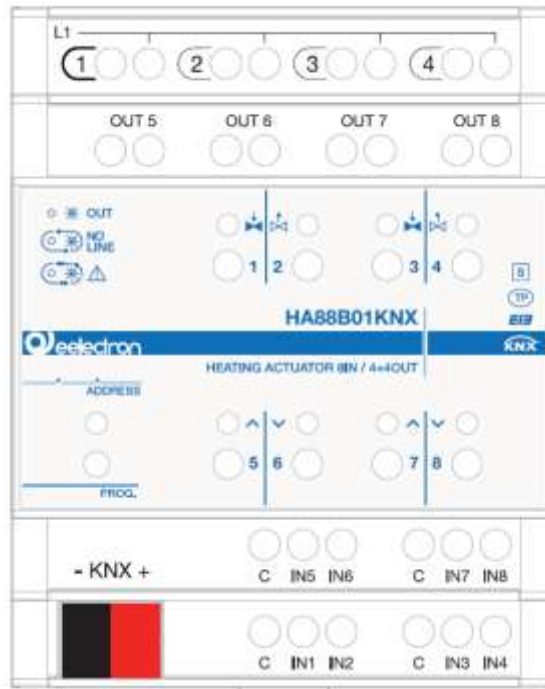


## Product Handbook

HA88B01KNX

DIN Module valves / loads 8 inputs / 4+4 outputs



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Any information inside this manual can be changed without advice.

This handbook can be download freely from the website: [www.eelectron.com](http://www.eelectron.com)

**Exclusion of liability:**

Despite checking that the contents of this document match the hardware and software; deviations cannot be completely excluded. We therefore cannot accept any liability for this.

Any necessary corrections will be incorporated into newer versions of this manual.

Symbol for relevant information



Symbol for warning



**DISPOSAL:** The crossed-out bin symbol on the equipment or packaging means the product must not be included with other general waste at the end of its working life. The user must take the worn product to a sorted waste center or return it to the retailer when purchasing a new one. An efficient sorted waste collection for the environmentally friendly disposal of the used device, or its subsequent recycling, helps avoid the potential negative effects on the environment and people's health, and encourages the re-use and/or recycling of the construction materials

## 1. General introduction

This manual is intended for use by KNX® installers and describes the functions and parameters of the HA88B01KNX DIN module and how to change settings and configurations using the ETS software tool.

HA88B01KNX device is an EIB / KNX DIN rail actuator with 4 Triac outputs for electrothermal valves from 24 V AC to 230 V AC and with 4 relays of 16A-230VAC to control loads such as lights, shutters, solenoid valves, etc.

Also included are 8 inputs for dry contacts (potential-free).

## 2. Product overview

HA88B01KNX is designed to be installed in Home and Building installations (i.e. offices, hotels, private houses, etc...).

### Main functions of outputs

Triac outputs can be configured as:

- 4 channels for valve control in ON/OFF or PWM
- 2 channels for 3-points valve control

Relay outputs can be configured as:

- 4 outputs for light / load control
- 4 channels for PWM valves (solenoid actuators)
- 2 channels for roller shutter / venetian control
- 2 channels for 3-point valve control
- Combinazioni di 2,3,4 uscite per funzioni speciali con interblocco logico

### Main functions of inputs

The inputs can be connected to pushbuttons, switches, or be configured as outputs (function related to input from 1 to 4 only) to activate individual signaling LEDs (see LED eelectron code LD00A01ACC / LD00A11ACC) and can be used for:

- 1-bit commands: loads activation / deactivation commands (ON / OFF / TOGGLE) with short pressure or with long and short pressure differentiation
- 1-byte commands (0-255 or HVAC commands or % value commands).
- Sending long action telegrams to the same short action address or to a different group address
- Commands for cyclic sending

- Sequences (3 commands that mix 1 bit / 1-byte objects) with different group addresses - in short and long press mode or in switching mode
- Dimmer management (with single button or with double button)
- Roller shutters and blinds management (with single button or with double button)
- Control sequences with 1 bit to manage switching on / off lights or rows of lights
- RGB color setting with fixed value (short pressure) or color change (long pressure); 1 byte datapoint or 3 byte selectable
- MUR / DND (Make Up Room - / Do Not Disturb), function with built-in logics
- Loop function between values to send step by step a sequence of values of 1 byte

Furthermore, 4 inputs (out of the 8 available) can be configured as analogue for the connection of NTC temperature probes in order to send 4 temperature measurements on the bus and manage a simple on / off control (e.g. towel-heater).

It is also possible to enable 4 complete thermostat modules; each thermostat module manages 2 stages with integrated PI controller for driving heating and cooling equipment and valves.

### NTC probes:

For NTC temperature probe the following eelectron code accessories must be used:



TS01A01ACC (from -20°C to +100°C)

TS01B01ACC (from -50°C to +60°C)

### NTC probes main functions:

Configured as temperature sensors (4 sensors) - main functions:

- 2 different temperature thresholds to activate alarms / warnings with 1-bit telegrams
- Enable / disable alarms / alerts via 1-bit objects

Configured as thermostats (4 thermostats) - main functions:

- Different Control Algorithms: 2-point on / off; PWM; continuous control
- Different modes of operation mode setting: Automatic HVAC / HVAC Manual / Setpoint
- Additional command for 2nd stage management
- Window contact management
- Additional external probe (optional)

## 3. Installation instructions

The device can be used for permanent internal installations in dry places and is intended for DIN rail mounting in LV distribution cabinets.



**WARNING**

- Device must be installed at a minimum distance of 4 mm between electrical power line (mains) and input cables or red / black bus cable.
- The device must not be connected to 230V cables
- The device must be mounted and commissioned by an authorized installer.
- The applicable safety and accident prevention regulations must be observed
- The device must not be opened. Any faulty devices should be returned to manufacturer
- For planning and construction of electric installations, the relevant guidelines, regulations, and standards of the respective country are to be considered.
- KNX bus allows you to remotely send commands to the system actuators. Do not lead to hazardous situations, and that the user always has a warning about which commands can be activated remotely.
- Before configuring the device using ETS, the triac output channels are configured as linked to manage 3-way valves to avoid improper control of this type of load. Frontal buttons are configured to switch the outputs with logical interlock.
- Before configuring the device via ETS the relay output channels are configured with logic interlocking, only one relay at a time can be closed



**WARNING**

- **Outputs 1,2,3,4 are a group and must be connected to 24V AC or 230V AC; it is not possible to connect 2 different voltages on outputs of the same group!**
- **When Triac outputs are used, outputs 1 must be used first, other outputs 2,3,4 cannot be used if output 1 is not connected.**

For further information please visit:  
[www.eelectron.com](http://www.eelectron.com)

#### 4. Frontal led signalling

| SYMBOL | STATUS     | DESCRIPTION               |
|--------|------------|---------------------------|
|        | On/off     | Out ON / OFF status       |
|        | Slow Blink | No Line                   |
|        | Fast Blink | Overcurrent or Line Error |

**No line:**

KNX parameter is configured for 230V AC valves but voltage on channel 1 is not detected.

**Overcurrent:**

Connections problems on outputs or the number of connected valves is too high.

**Line error:**

The 230V AC voltage is detected but the KNX parameter is set to 24V AC: outputs are not activated.

#### 5. Parameters related to the Triac outputs

The parameters of the Triac outputs, i.e. outputs 1,2,3,4 are the same as those of the HA04A01KNX and HA08A01KNX devices.

Refer to the User Manual of the HA04A01KNX / HA08A01KNX devices published on the website [www.eelectron.com](http://www.eelectron.com), on the page of these products, in the "USER MANUAL" section

#### 6. Parameters related to Relay outputs

The parameters of the Relay outputs i.e outputs 5,6,7,8 are the same as those of the BO04F01KNX device

Refer to the User Manual of the devices belonging to the F series actuator range, in particular the manual dedicated to the product: BO04F01KNX published on the website [www.eelectron.com](http://www.eelectron.com), on the page of this product, in the "USER MANUAL" section

#### 7. Inputs

Inputs on HA88B01KNX module input are 8; each input can be set as digital input for dry contacts (potential free) and inputs number 1 to 4 can be set as output for signaling LEDs (see LED eelectron code LD00A01ACC / LD00A11ACC) or can be set as analog inputs for reading temperature probes:

| IN | FUNCTION      |            |                   |
|----|---------------|------------|-------------------|
| 1  | DIGITAL INPUT | OUTPUT LED | TEMPERATURE PROBE |
| 2  | DIGITAL INPUT | OUTPUT LED | TEMPERATURE PROBE |
| 3  | DIGITAL INPUT | OUTPUT LED | TEMPERATURE PROBE |
| 4  | DIGITAL INPUT | OUTPUT LED | TEMPERATURE PROBE |
| 5  | DIGITAL INPUT | -          | -                 |
| 6  | DIGITAL INPUT | -          | -                 |
| 7  | DIGITAL INPUT | -          | -                 |
| 8  | DIGITAL INPUT | -          | -                 |

## 8. Parameters relating to digital inputs

The parameters of the inputs are the same as for the HA08A01KNX device.  
 Refer to the HA08A01KNX device user manual published on the website [www.eelectron.com](http://www.eelectron.com), on the page of these products, in the "USER MANUAL" section

## 9. Parameters related to inputs as led outputs

The parameters of the inputs configured as LED outputs are the same as those of the HA08A01KNX device.  
 Refer to the HA08A01KNX device user manual published on the website [www.eelectron.com](http://www.eelectron.com), on the page of these products, in the "USER MANUAL" section

## 10. Analog Inputs

For inputs 1, 2, 3 and 4, if configured as analog inputs for temperature probe, the NTC probes code eelectron must be used:



TS01A01ACC (da -20°C a +100°C)  
 TS01B01ACC (da -50°C a +60°C)

Maximum connection cable length: ≤ 30 m (twisted cable)

| <b>TS01A01ACC</b>  |  |
|--|--|
|  |  |
| Dimensions in millimetres<br>NTC resistance tolerance: ± 3%<br>Measure range: -20°C ÷ +100°C<br>Cable: 2 wire single insulation<br>Cable colour: Black<br>NTC colour: Black<br>Warning: keep at least 6 mm from all live parts |  |

| <b>TS01B01ACC</b>   |  |
|---|--|
|   |  |
| D1 = 9 mm D2 = 4 mm L2 = 49 mm L1 = 1250 mm<br>NTC resistance tolerance: ± 2%<br>Measure range: -50°C ÷ +60°C<br>Cable: 2 wire double insulation<br>Cable colour: White<br>NTC colour: White<br>Warning: keep at least 3 mm from all live parts |  |

The parameters of the analog inputs, i.e. inputs 1,2,3,4 are the same as those of the HA08A01KNX device.  
 Refer to the HA08A01KNX device user manual published on the website [www.eelectron.com](http://www.eelectron.com), on the page of these products, in the "USER MANUAL"

## 11. Thermostat and temperature sensor function.

The temperature function can be configured as a thermostat to control the temperature of a room or area by operating the heating or air conditioning, fan coils, air conditioning valves or via on / off controls for the heating / cooling elements such as radiators, heat pumps, split, etc ...

The configuration as a temperature sensor allows, with a simplified parameter selection, the control of ON / OFF thermoregulation devices such as a towel heater.

The HA88B01KNX device includes up to 4 thermostat or temperature sensor functions; the related parameters are the same as those of the HA08A01KNX device.  
 Refer to the HA08A01KNX device user manual published on the website [www.eelectron.com](http://www.eelectron.com), on the page of these products, in the "USER MANUAL" section

## 12. Thermostat behaviour on bus failure, recovery and download

### Behaviour on bus voltage failure


On failure of bus voltage, no actions are executed by the device; behaviour of controlled actuators must be set using their own parameters.

### Behaviour on bus voltage recovery

On bus voltage recovery all the communication objects are set to 0 except for objects for which a parameter is defined for the initial value; thermostat keeps these values in memory and restore them after recovery:

- Heat / Cool mode
- HVAC Mode
- Base Setpoint
- Setpoint Adjustment
- Force value in manual mode
- Ventilation

Control values (i.e. commands to actuators) are calculated using actual setpoint and temperature.

 After power on device recalculates the commands to actuators and switch them on, if necessary, otherwise does not carry out any action;

you are recommended to set the behaviour of actuator in order to switch the heating / cooling equipment off after bus power on.

### Behaviour on ETS Download

After download it's possible to set initial value of:  
Heat / Cool mode  
HVAC Mode  
Ventilation

For other communications objects the behaviour is identical to bus voltage recovery.

### Wrong application download

If the wrong ETS application is downloaded, then KNX/EIB led starts blinking and device is not operative on the bus. A power reset must be done or the correct ETS application must be downloaded.

## 13. Logics

For a complete description of the logic functions included in the device, refer to the dedicated Application Note.