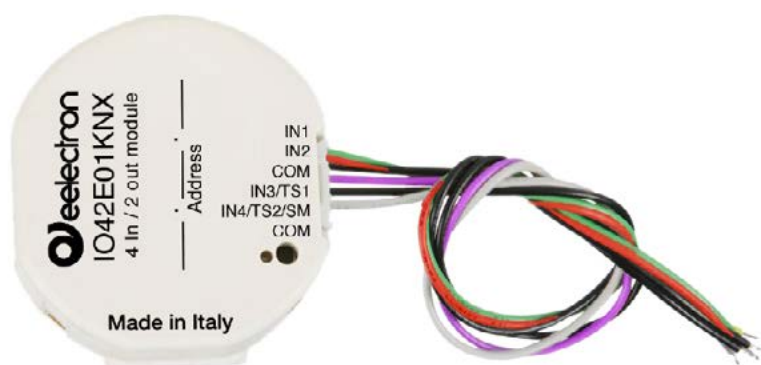


**IO42E01KNX**

**Inwall module 4 input / 2 output knx**



# **USER MANUAL**

Translation of the original instructions

Version: **1.0**

Date: **30/01/2023**

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VERSION	DATE	CHANGES
1.0	30/01/2023	-


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 centre, 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. Purpose of the manual

This manual is intended for use by KNX® installers and describes functions and parameters of the **IO42E01KNX** device and how to change settings and configurations using the ETS software tool.

For the technical characteristics of the device, please refer to the datasheet of the device itself.

## 2. Product overview

IO42E01KNX is an input and outputs interface device and can be configured with ETS® to communicate with the KNX Data Secure protocol.

Module includes:

- 2 digital inputs
- 1 analog / digital input
- 1 digital / analog / smart sensor input
- 2 relay output (bistable)

Digital inputs are intended to be connected to free potential contacts and can interface sensors, traditional buttons, etc; they can be used to on/off commands, dimming, shutter control, scene recall and control, sequences of 3 objects.

Inputs 3 and 4 can be configured as analogue for the connection of NTC temperature probes (see eelectron probes code TS01A-01ACC / TS01B01ACC/ TS01D01ACC) with which to send the temperature measurement on the bus or manage a complete thermostat module. The thermostat manages 2 stages with an integrated PI controller for controlling heating and cooling equipment, valves, 2 and 4-pipe fan coils.

Input 4 can be configured as “smart sensor” for connection of the plug-in sensors: SM03E01ACC that includes a di temperature sensor (range from -5°C to +50°C) and a CO2 sensor (range from 10 ppm to 1000 ppm) and SM03E02ACC that includes a temperature sensor (range from -5°C to +50°C) and a VOC sensor for measuring Indoor Air Quality (IAQ) and CO2 equivalent (eCO2).

Device 2 outputs on board can be configured:

- Each output can be configured independently for load control (2 independent channels).
- Outputs can be configured in pairs for the management of roller shutters and blinds; (1 channel).
- For controlling a servomotor, in pairs.
- For logic interlock control.

Moreover, 12 logic blocks are available to implement simple expressions with logical or threshold operator or complex expressions with algebraic and conditional operators; It is possible to use predefined algorithms as proportional controls of temperature and humidity or dew point calculation.

The device also integrates the “Virtual Holder Logic”; the field of application is

the hotel room: through a magnetic sensor installed on the door and connected

to a digital input, accurate presence information is managed. The presence detection solution can deduce the presence of people in the room using one or more dedicated sensors. It also detects an unexpected presence and is able to differentiate more behaviors.

## 3. Installation instructions

The device can be used for permanent internal installations in dry places.



### WARNING

- When a clear separation between the low voltage (SELV) and the dangerous voltage (230V) is NOT possible, the device must be installed maintaining a minimum guaranteed distance of 4 mm between the dangerous voltage lines or cables (230V not SELV) and the cables connected to the EIB / KNX BUS (SELV).
- 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. Always make sure that the execution of remote commands do not lead to hazardous situations, and that the user always has a warning about which commands can be activated remotely.
- Relays are always switched opened before delivering but, it is possible they get closed during transportation. It is recommended, when device is installed, to connect and supply the bus before the load voltage to ensure the opening of the contacts.

For more information: [www.eelectron.com](http://www.eelectron.com)

## 4. General parameters

Oggetti di comunicazione coinvolti:

"<General> Heartbeat"	1 Bit	CRT
"<General> Power On Event"	1 Bit	CRT
"<Temperature 1> Alarm"	1 Bit	CRT
"<Temperature 2> Alarm"	1 Bit	CRT

PARAMETRO KNX	IMPOSTAZIONI
<b>Delay to send telegrams on power-up</b>	5 ÷ 15 secondi
<p>Through this parameter it is possible to set the telegram transmission delay after switch-on by selecting the time beyond which the device is authorized to send telegrams.</p> <p>In large systems after a power outage or shutdown, this delay avoids generating excessive traffic on the bus, causing slow performance or a transmission crash.</p> <p>If there are several devices that require telegrams to be sent on the bus after a reset, these delays must be programmed to prevent traffic congestion during the initialization phase.</p> <p>Input detection and object values are updated at the end of the transmission delay time</p> <p>At the end of ETS programming, the device behaves as it did after it was switched on.</p>	
<b>Heartbeat (periodic alive notification)</b>	nothing periodic on request
<p>The parameter allows you to notify a hierarchically superior control or supervision system of your existence / correct online activity. The notification can take place spontaneously (periodically - settable period value) or following a query (upon request). The value of the 1-bit notification telegram can be set.</p>	
<b>Telegram value</b>	off / on / toggle
<p>Defines the value of the 1 bit notification telegram. The toggle value is not available for "on demand" configuration.</p>	
<b>Period - time unit</b>	seconds / minuts / hours
<p>Defines the unit of measure of the notification time interval. This parameter is not available for the "on demand" configuration.</p>	
<b>Period - time value</b>	1 ... 255
<p>Defines the notification interval time. This parameter is not available for the "on demand" configuration.</p>	
<b>Input 3</b>	digital / analog
<p>Defines the type of input to use</p>	
<b>Input 4</b>	digital analog CO <sub>2</sub> sensor VOC + CO <sub>2</sub> sensor
<p>Defines the configuration of input 4.</p>	
<b>Outputs</b>	individual / coupled
<p>Defines whether the relay outputs are managed individually or coupled.</p>	
<b>Output B1</b>	shutter interlock 2 servomotor
<p>With the coupled output management, it defines the configuration of the output.</p>	
<b>Temperature function 1</b>	temperature function disabled temperature sensor thermostat

Defines the configuration of the temperature 1 function. It is possible to connect a temperature sensor or a thermostat (see the specific manual "[Thermostat and additional probe](#)").

<b>Temperature alarm object 1</b>	disabled / enabled
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If enabled, this parameter allows you to send alarm commands to the "<Temperature 1> Alarm" object.

<b>Temperature function 2</b>	temperature function disabled temperature sensor thermostat
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Defines the configuration of the temperature 1 function. It is possible to connect a temperature sensor or a thermostat (see the specific manual "[Thermostat and additional probe](#)").

<b>Temperature alarm object 2</b>	disabled / enabled
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If enabled, this parameter allows you to send alarm commands to the "<Temperature 2> Alarm" object.

<b>Virtual Holder</b>	disabled / enabled
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By setting this parameter, it is possible to enable a "virtual pocket", i.e. a logical function that automatically recognizes the presence of a person in a room. This function can be used in hotels or similar installations and requires connection to others devices, see the specific "[Virtual Holder](#)" manual).

## 5. Beacon BLE

Please refer to the [“Beacon”](#) user manual.

## 6. Inputs

Please refer to the [“Digital input”](#) user manual.

## 7. Outputs

Please refer to the [“Single relay and Relays with interlock”](#) user manual.

## 8. Thermostat

Please refer to the [“Thermostat and additional probe”](#) user manual.

## 9. CO2 and VOC sensor

Please refer to the [“CO2 and VOC sensor”](#) user manual.

## 10. Logics

Please refer to the [“Logics”](#) user manual.



In the devices described, the logical expression can have a maximum of 24 characters.

## 11. Virtual Holder

Please refer to the [“Virtual Holder”](#) user manual.

## 12. Global Objects

The following communication objects are available for global functions:

OBJECTS RELATING TO ALL OUTPUTS	
<Global All> All Valve Closed	1 bit – On/Off   CRT
It is an object connected to the outputs that manage the valves, i.e. the servomotor. Each time a servomotor is configured, it can be subordinated to the “All valve closed” function. This object considers the state of the valves and sends the value 1 if at least one valve is open and the value 0 if they are all closed. It is possible to give consent to a delivery pump that feeds the hydraulic circuit.	
<Global All> External Valve Closed	1 bit – On/Off   CW

The “all valve closed” function can also consider the valve states on other devices. It is enough to connect the “<Global All> All Valve Closed” output object of the other device to the “<Global All> External Valve Closed” communication object, in this way it is possible to connect “in cascade” more than two devices in order to have the information “all valves are closed or not” on the last communication object output and consequently drive the hydraulic pump correctly. The input object can be enabled for a read request on power on to have a correct alignment of the data after a power down.

<Global All> Lock	1 bit – On/Off   CW
This object can be used to manage the lock function for multiple outputs, then subordinating the different blocks to this global function	
<Global All > Scene	1 Byte – 0-255   CW
Object used to manage scenarios for multiple outputs, then subordinating the various blocks to this global function	
<Global All > Dyn Scen	1 bit – En/Dis   CW
Object used to enable/disable dynamic scenarios	

### OBJECTS RELATING TO SINGLE RELAY OUTPUTS

<Global Single> Command	1 bit – On/Off   CW
Object used to manage global On/Off commands on single relays; in the parameters it is possible to associate the telegram received on this object for the logic function (if enabled) or as command.	

### OBJECTS RELATED TO SHUTTERS

<Global Shutter> Heat/Cool	1 bit – H/C   CW
Object used to communicate the state of the HVAC system to the actuator to manage automatic behaviour on roller shutters.	
<Global Shutter> Up/down	1 bit – Up/Dw   CW
Global up / down control for shutters / venetians	
<Global Shutter> Shutter %	1 Byte – 0-255   CW
Global command position % for shutters / venetians	
<Global Shutter> Louvre %	1 Byte – 0-255   CW
Global command louvres position % for venetians	
<Global Shutter> Alarm 1	1 bit   CW
Global alarm priority 1 for shutters / venetians	
<Global Shutter> Alarm 2	1 bit   CW
Global alarm priority 2 for shutters / venetians	
<Global Shutter> Alarm 3	1 bit   CW
Global alarm priority 3 for shutters / venetians	

## 13. Behaviour on bus failure, recovery and download

### Behaviour on bus voltage failure

On failure of bus voltage, it's possible to set an action to execute in case of independent relays. 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.

### 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.