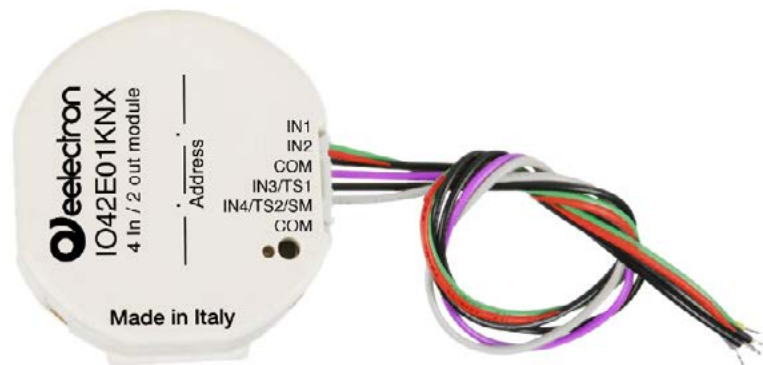| IO42E01KNX	Inwall module 4 input / 2 output knx

USER MANUAL

Translation of the original instructions

Version: **1.0**

Date: **17/02/2023**

Index

VERSION	DATE	CHANGES
1.0	17/02/2023	-

Any information inside this manual can be changed without advice.

This handbook can be download freely from the website:
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 CO_2 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 CO_2 equivalent (eCO_2).
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

4. General parameters

Communication objects involved:

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

KNX PARAMETER	SETTINGS
Delay to send telegrams on power-up	5 ÷ 15 sec
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. In large systems after a power outage or shut-down, this delay avoids generating excessive traffic on the bus, causing slow performance or a transmission crash. 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. Input detection and object values are updated at the end of the transmission delay time At the end of ETS programming, the device behaves as it did after it was switched on.	
Heartbeat (periodic alive notification)	nothing periodic on request
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.	
Telegram value	off / on / toggle
Defines the value of the 1 bit notification telegram. The toggle value is not available for "on demand" configuration.	
Period - time unit	seconds / minutes / hours
Defines the unit of measure of the notification time interval. This parameter is not available for the "on demand" configuration.	
Period - time value	1 ... 255
Defines the notification interval time. This parameter is not available for the "on demand" configuration.	
Input 3	digital / analog
Defines the type of input to use	
Input 4	digital analog CO₂ sensor VOC + CO₂ sensor
Defines the configuration of input 4.	
Outputs	individual / coupled
Defines whether the relay outputs are managed individually or coupled.	
Output B1	shutter interlock 2 servomotor
With the coupled output management, it defines the configuration of the output.	
Temperature function 1	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").

Temperature alarm object 1	disabled / enabled
If enabled, this parameter allows you to send alarm commands to the "<Temperature 1> Alarm" object.	
Temperature function 2	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").

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

Global Shutter> Alarm 3	1 bit		CW
Global alarm priority 3 for shutters / venetians			

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	