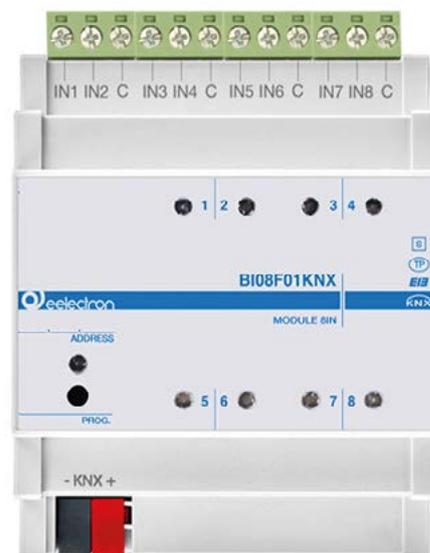


BI04F01KNX **Universal DIN Module 4 Digital Inputs**

BI08F01KNX **Universal DIN Module 8 Digital Inputs**



USER MANUAL

Translation of the original instructions

Version: 1.0

Date: 18/07/2023

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VERSION	DATE	CHANGES
1.0	18/07/2023	-

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.



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1. Introduction to the user manual

This manual is intended for use by KNX installers and describes functions and parameters of the **BI04F01KNX** and **BI08F01KNX** devices and how the settings and configurations can be changed using the ETS software tool.

For the technical data of the device and the compatible accessories, please refer to the datasheet of the device itself.

Meaning of the symbols used



WARNING - The operation or phase described must be carried out in compliance with the instructions provided and with the safety standards.



IMPORTANT NOTE - Details and specifications to be respected for the correct functioning of the device.

2. Product overview

The **BI04F01KNX** and **BI08F01KNX** devices are equipped with **4(8) inputs for interfacing dry contacts**, for example sensors, switch buttons and can be configured for sending on / off commands, dimmers, roller shutters, scene recall and sequences to the bus.

The digital inputs can be configured **for long or short distances**.

The lines (long distance) can be monitored using an **end of line resistor (EOL)** of 1.8K Ω [1/8W] value which allows the device to manage sensors with a higher level of safety such as magnetic contacts, motion detectors.

The pulse counter function is also available for counting the switching on inputs configured as digital at short distance. On the front panel there is a LED to display the status of each input. The inputs (for BI08F01KNX only inputs 1, 3, 5, 7) can be configured as analogue for the connection of NTC temperature probes (see eelectron probes code TS01A01ACC / 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, etc.

Two inputs 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).

Moreover, **10 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 tem-

perature and humidity or dew point calculation.

Device is equipped with KNX communication interface and is intended for installation on DIN rail in LV distribution switchboards.

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.

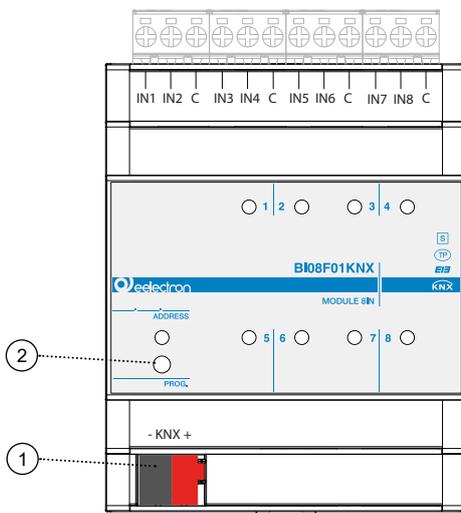
For more information: www.eelectron.com.

4. Configuration and commissioning

The configuration and commissioning of the device is made with the ETS® (Engineering Tool Software). For the configuration of the device parameters the corresponding application program or the whole eelectron® product database must be loaded in the ETS® program.

The commissioning of the device requires the following steps:

- connect the bus KNX (1)
- turn on the bus power supply
- press the programming button (2); the red programming LED turns ON
- download into the device the physical address and the configuration with the ETS® program



5. General parameters

In ETS®, in the drop down menu of the device the general parameters consist of two configuration blocks, described in the next paragraphs.

General settings

Communication objects involved:

"<General> Heartbeat"	1 Bit	CRT
"<Global> Enable"	1 Bit	CW

KNX PARAMETER	SETTINGS
Delay on power-up	3 + 15 seconds
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 shutdown, this delay avoids generating excessive traffic on the bus which cause slow performance or a transmission crash. In case of several devices requiring 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.	
Global enable object	disabled / enabled
Use this parameter to activate object "<Global> Enable": through this object it is possible to enable or disable all the inputs at the same time with a single command, saving commands and bus engagement.	
Global enable state after download	disabled / enabled
It defines the status of the object "<Global> Enable" after download.	
Global enable activation telegram	telegram "0" / telegram "1"
It defines the telegram of activation of the object "<Global> Enable".	
Economy mode: switch OFF leds after download	never switch off 1 ... 15 minutes

Through this parameter it is possible to save energy by establishing whether the status LEDs relating to the inputs must show their condition constantly (for example if the input has received an activation command, stay on) or if they should go off after a certain time has elapsed from the last activation.

Never switch OFF

The LED associated with each input remains lit as long as the active input condition determined by the settings in the ETS page of each input continues.

Economy mode

The status LED lights up when the input is activated and turns off after the lesser of the active condition maintaining time and the interval defined (1... 15 minutes).

Inputs Configuration

For both the devices, the inputs can be configured as in the following table:

Input BI08	Input BI04	Long Distance	Short Distance	Analog	CO2 / VOC
1	1	X	X	X	X
2		X	X	-	-
3	2	X	X	X	X
4		X	X	-	-
5	3	X	X	X	-
6		X	X	-	-
7	4	X	X	X	-
8		X	X	-	-

KNX PARAMETER	SETTINGS
Input X	Long distance digital (high current) Short distance digital (low current) Temperature function (analog) CO2/VOC sensor (analog)
<p>Long distance digital (high current) ≤ 100m - it can be configured as standard input or as an EOL resistor; this mode is used to insert a terminating resistor of the input line in order to detect the interruption of the cables due to accidents or malicious cutting.</p> <p>Short distance digital (low current) ≤ 30m - it is configured only as standard input; it is possible to activate function "counter input".</p> <p>Temperature function (analog) It can be configured as analog for the connection of NTC temperature probes (see eelectron probes code TS01A01ACC / TS01B01ACC / TS01D01ACC) with which to send the temperature measurement on the bus or manage a complete thermostat module.</p> <p>CO2/VOC sensor (analog) It 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).</p>	

6. Digital Input

Please refer to the "Digital Input" user manual.

7. Logics

Please refer to the "Logics" user manual.

Each logic block can be configured to perform one of the following functions available in the drop-down menu on the corresponding page:

- bit no transfer function;
- byte no transfer function;
- NOT, AND, OR, NAND, NOR, XOR, XNOR;
- bit to byte conversion;
- byte to bit conversion;
- byte threshold;
- 2 bytes float threshold;
- 4 bytes float threshold;
- proportional fancoil;
- proportional / speed fancoil conversion;
- dew point humidistat;
- surveillance;
- constant illuminance;
- expression



In the devices described, the logical expression can have a maximum of 16 characters.

8. CO2 and VOC sensor

Please refer to the "CO2/VOC" user manual.

9. Behaviour on bus failure, recovery and download

Behaviour on bus voltage failure

On failure of bus voltage, no command is sent. 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.