BO08S01KNX	**UNIVERSAL MODULE 8 OUT 20A WITH CURRENT SENSORS**
BO08S02KNX	**UNIVERSAL MODULE 8 OUT 20A**

USER MANUAL

Translation of the Original Instructions

Version: **1.0**

Date: **22/Jan/2024**

Contents

VERSION	DATE	CHANGES
1.0	22/Jan/2024	-

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.

1. Introduction to the user manual

This manual is intended for use by KNX installers and describes functions and parameters of the **BO08S0xKNX** device 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 data sheet 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 devices **BO08S01KNX** and **BO08S02KNX** are DIN modules with 8 relay outputs of 20A - 230 V AC for controlling lights or generic loads.

The outputs can be configured in the following ways:

- Every single output configured independently to control lights or generic loads for a total of 8 outputs.
- It is possible to combine groups of relays (up to 8) for special functions with logic interlocking.

NOTE: Due to non-simultaneous switching it is not possible to manage three-phase loads with groups of 3 relays.

Moreover, 8 logic blocks are available to implement simple expressions with logical or threshold operator or complex expressions with algebraic and conditional operators.

The **BO08S01KNX** device has an integrated **"current sensing"** function which allows to measure the effective current of each relay output with the **"true RMS"** method (RMS = Root-Mean-Square value).

Two current thresholds can be set; when the value of the first threshold is exceeded, a **warning function** will be activated; when the second (higher) threshold value is exceeded, the **alarm function** which provides for the opening of the relay is activated. The **"Load Control"** function is also available, which allows you to control the total consumption of the system up to **16 sources.**

Device is equipped with KNX communication interface.

Device is intended to be installed on DIN rail in cabinets for low voltage supply systems.

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 seven configuration blocks, described in the next paragraphs.

General settings

Communication objects involved:

"<General> Heartbeat"	1 Bit	CRT

KNX PARAMETER	SETTINGS
Delay to send telegrams on power-up	5 ÷ 15 second
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 request" 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 request" configuration.	
Period - time value	1 ... 255
Defines the notification interval time. This parameter is not available for the "on request" configuration.	
Maximum BUS current consumption after relay commutation	30,28,26,24,22,20,18,16,14,12, 10 mA
Defines the maximum current consumption from BUS allowed for the device at power up or after relay switching: consider this parameter in designing the KNX lines.	

Voltage configuration

Communication objects involved:

"<General> Voltage Vx (estimated)"	4 bytes	CW / CWTU

KNX PARAMETER	SETTINGS
Estimated voltage Vx [V]	1 ÷ 65535
Defines the estimated voltage after download. Since the value is entered manually and not read by the device, it must be considered an estimated value.	

Enable object Vx	enabled / disabled
By enabling this object, it's possible to send a new value while the device is in function.	
Voltage objects management	
Cyclic read voltage values	enabled / disabled
By enabling this parameter, it's possible to read the values of voltage cyclically.	
Cyclic time [s]	30 ÷ 255
It defines the interval time between readings.	

6. Global Objects

The following communication objects are available for global functions:

OBJECTS RELATING TO ALL OUTPUTS		
"<Global All > Lock"	1 bit	CW
This object can be used to manage the block function for multiple outputs, subordinating the different blocks to this global function.		

OBJECTS RELATING TO SINGLE RELAYS		
"<Global Single> Scene"	1 Byte	CW
Object used to manage scenarios for multiple outputs, subordinating the different blocks to this global function.		
"<Global Single> Dyn Scene"	1 bit	CW
Object used to enable / disable dynamic scenarios.		
"<Global Single> Command"	11 bit	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.		

7. Outputs configuration

Functional blocks description
Relays can be used individually or in combination with other relays to obtain more functions, the blocks are called A - B - C - D - E - F - G - H, each block can perform one of the following functions.

RELAYS 1 ÷ 8	FUNCTIONAL BLOCKS							
	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8
1	A1	A2	A3	A4	A5	A6	A7	A8
2	B1		A3	A4	A5	A6	A7	A8
3	B1		B2		A5	A6	A7	A8
4	B1		B2		B3		A7	A8
5	B1		B2		B3		B4	
6	D1				A5	A6	A7	A8
7	D1				B3		A7	A8
8	D1				B3		B4	
9	D1				D2			
10	E1					A6	A7	A8
11	E1					A6	B4	

Block	Relays #	Description
A	1	Single Relay
B	2	Interlock 2 relays
C	3	Interlock 3 relays
D	4	Interlock 4 relays
E	5	Interlock 5 relays
F	6	Interlock 6 relays
G	7	Interlock 7 relays
H	8	Interlock 8 relays

12	E1				C4	
13	C1	A4	A5	A6	A7	A8
14	C1	A4	A5	A6	B4	
15	C1	A4	B3		B4	
16	C1	C2			A7	A8
17	C1	C2			B4	
18	D1			C3		A8
19	F1				A7	A8
20	F1				B4	
21	G1					A8
22	H1					

8. Outputs

Please refer to the "Single relay and Relays with Interlock" user manual.

In BO08S01KNX, the counter function for single relays does not have the "instant power" type available. The "count of energy (estimated)" is subordinate to the activation of current sensing. The power measurement (W or kW) is determined by the current measured through the relay and the estimated voltage connected to the output (see general parameters).

9. Load Control

Please refer to the "Load Control" user manual.

10. Current Sensing

Please refer to the "Current Sensing" user manual.

11. Logics

Please refer to the "Logics" user manual.

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

Functions available:

- **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**
- **multiplexer**

12. 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.