



FOX201 | FOX OUT

Instruction manual

Version 1.0 | 2016

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## 1 | Terms of use

We would like to thank you for choosing equipment from Nexwell Engineering.

The author made a great effort that the contained information in this document are accurate and reliable, but cannot be held responsible for the improper use of this manual, including the destruction or damage of the equipment.

All rights concerning the available information material are reserved. Copying in order to distribute parts or the whole material is prohibited. Available material can be copied in parts or completely for private use only.

Due to the product development, the manufacturer reserves the right to do changes.

For any questions or concerns regarding the operation of Nexwell devices, please contact: [biuro.techniczne@nexwell.eu](mailto:biuro.techniczne@nexwell.eu)

Nexwell Engineering does not accept any liability deriving from the usage of the devices. Installations need to be carried out in accordance with all applicable standards for electrical safety conditions.

All connection work shall be done without any power supply.

**You can find the current version of the instruction manual on the producer's website [www.nexwell.eu](http://www.nexwell.eu)**

## Important!

### RESPONSIBILITY

Nexwell products are not intended for the use in: medical purposes as a direct threat and sustaining life and human health; industrial purposes, referring to controlling of critical for safety reasons, of technological processes and their safety systems, and in other applications, whose failure could danger human lives or cause environmental disasters.

### INSTALLATION PLACE

Nexwell products shall be installed where the access is possible without any special equipment (e. g. ladders), and in that way the assembly or disassembly does not result in any material losses (e. g. do not immerse it).

### PACKAGING AND UTILIZATION

The products are packaged in biodegradable, environmentally-friendly, separable cardboard materials, and protecting ESD foil.

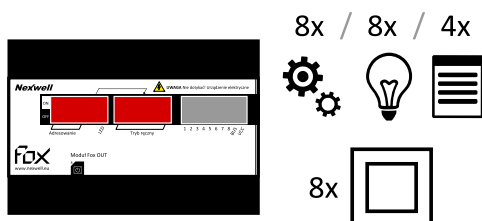
Disposal of waste of used electrical and electronic equipment (for the European Union and other European countries with separate collection systems) the European Directive 2002/96/EC on Waste Electrical & Electronic Equipment (WEEE) enunciates a ban on disposing used electrical and electronic equipment together with other waste as municipal waste – you could get fined. According to the law, used devices must be collected separately and sorted. The thwarted “trash” symbol on the product reminds you of your obligation of special sorting. Consumers should contact their local authority or retailer for information concerning the proceeding with used electrical and electronic equipment.



## 2 | Overview

### Usage

The module Fox OUT is a device with eight universal relay outputs. An output can be programmed as lighting control, valve controller for the heating as well as blinds control. In principle, any configuration as possible. You can set two blinds outputs and four lighting outputs, or one blinds output and six lighting outputs. Additionally, the module possesses eight inputs, to which classic light switches can be connected.



### Definitions

**System inputs** – potential-free contact inputs, assigned to control the local module Fox OUT or other system elements. The system inputs can work with mono-stable and bistable switches in the following configurations:

- pressing
- clicking [possibility to set maximum clicking time]

Also, the system inputs can work with movement sensors in the system NO or NC.

**System outputs** – the relay outputs are assigned to work as on/off relay outputs, lighting outputs, and blinds outputs. The configuration of blinds needs two relay outputs, in order to control the up and down movements of the engine.

**Fox BUS inputs** – the Fox BUS inputs possess two data lines as well as +/- 24 VDC power supply.

**Manual control** – electro-technical function to control the module outputs. This allows testing the outputs before powering and programming them in the system (separated electrical running from the smart home). The manual control is active, when the module is powered, and switch number 7 on position ON.

### Physical characteristics

- Outputs
  - Type: NO/NC relay
  - Number of outputs: 8
  - Load of the output: 13 A
  - Amount of load of the whole module: 50 A
  - State LEDs: Yes
  - Manual control: Yes
- Inputs
  - Type: potential-free contacts NO or NC
  - Number of inputs: 8
- Power supply: 24 VDC
- Power consumption: 125 mA (LED off)
- Communication: Fox BUS
- Addressing module: DIP switches
- Installation: switchboard – DIN rail [TH-35]
- Width on the DIN rail: U/6

### The module Fox OUT in the Fox system

The module Fox OUT needs to be connected with other system components through the Fox BUS rail. After the successful connection, the module shall be configured through the application FoxMaker.

### Description of the device



1. Input connectors
2. Output connectors
3. Fox BUS connector
4. Module addressing switches
5. Switches manual control
6. State display of module outputs

### Meaning of the address module switches

- 1-5 – address
- 7 – Manual control – switch enables usage of manual control
- 8 – LED On/Off – switch enables turning on and off the LED display

### Meaning of module state LEDs

- 1-8 – State of outputs
  - LED lights up – NO relay is closed
- BUS – data bus
  - LED blinks – data interchange between Fox OUT and Fox system
- VCC – Module power supply
  - LED lights up – module is correctly powered

### Functionality of the module housing

The module is designed for connection to the Fox BUS rail. A bus connector is built-in in a suitable spot of the housing, which guarantees an easy and correct connection to the other Fox system components.



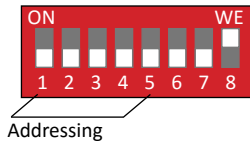
### 3 | Installation and connection

#### Installation

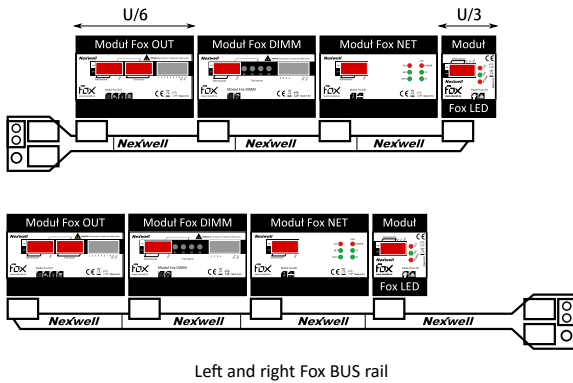
The module Fox OUT is a device of the Fox BUS. It is designed for usage in switchboards on a DIN rail. **Module width on the rail - U/6 (104 mm).** Please follow the general installation instructions for the installation of the bus. **The installation work should done without any power supply.**

#### Connection

1. Before powering the device, an address needs to be set. The addressing is done by changing the state of the switches located on the housing of the device – switch addressing [1-5] (see figure). In the project documentation you should note the device’s address and its location in the building.

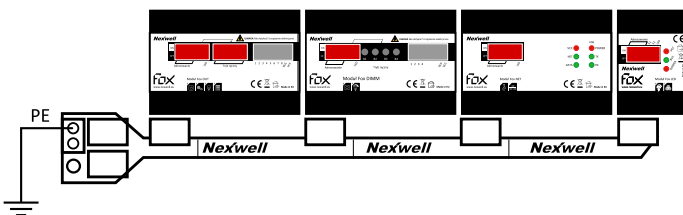


2. Then connect the Fox BUS communication and module power supply. You shall use the Fox BUS rails, there are right and left ones available (see figure).



The Fox BUS rails are designed to connect up to four modules with the width U/6 each. We suggest to place module with a smaller width at the end of the left rail, and to place smaller ones at the beginning of the right rail.

3. Afterwards you need to connect the PE cable (see figure).

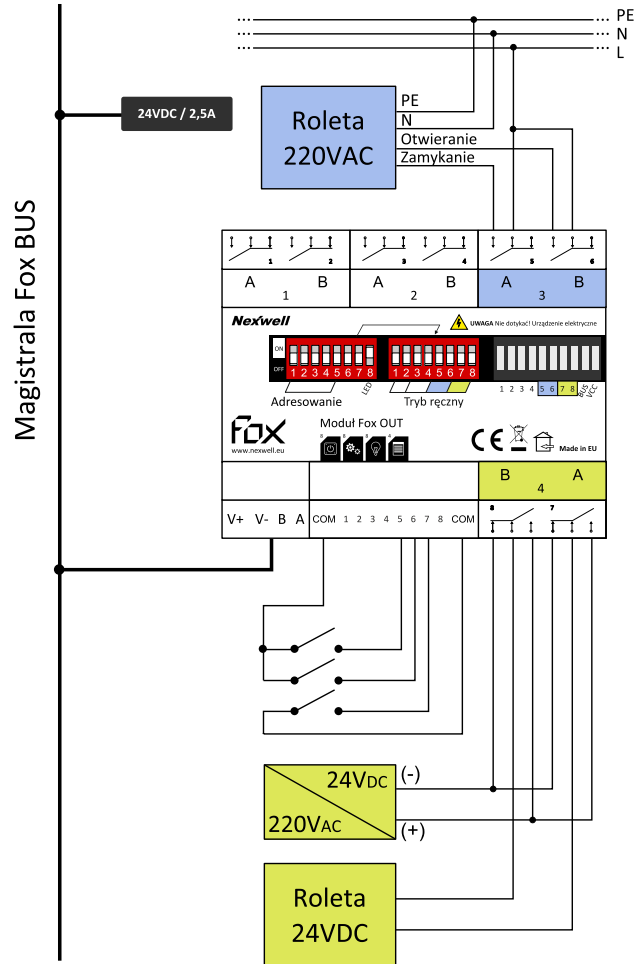


**WARNING**  
Please tighten the screws 24 hours, after installing the connectors to the rail, to fix the electrical contact.

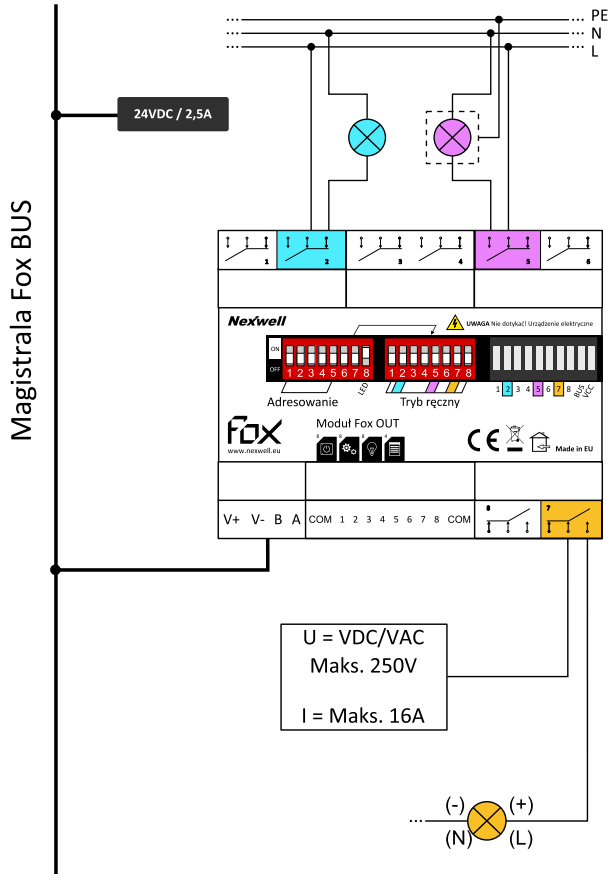
**WARNING**  
Cables, that are longer than 15 metres, need to be shielded. Do not wire cables of local inputs close to electrical wires. The local inputs ignore electrical disturbances less than 20 ms.

4. The next step is to connect the module outputs in a suitable manner to the circuits (see figure).

- a) Connect blinds to the Fox OUT module.



b) Connect lighting or a receiver to the Fox OUT module.



6. Connect the wires to the receivers, and also connect power supply cables.

**WARNING**

The Fox BUS connection via power supply and communication cables is resistant to short-circuits up to +/- 30 VDC.

8. Afterwards you can go on with the module configuration in the FoxMaker.

**WARNING**

Please note that you need, for the correct configuration of the Fox OUT, the module Fox NET. The minimum needed for configuring the Fox system with Fox OUT consists of Fox OUT and Fox NET.

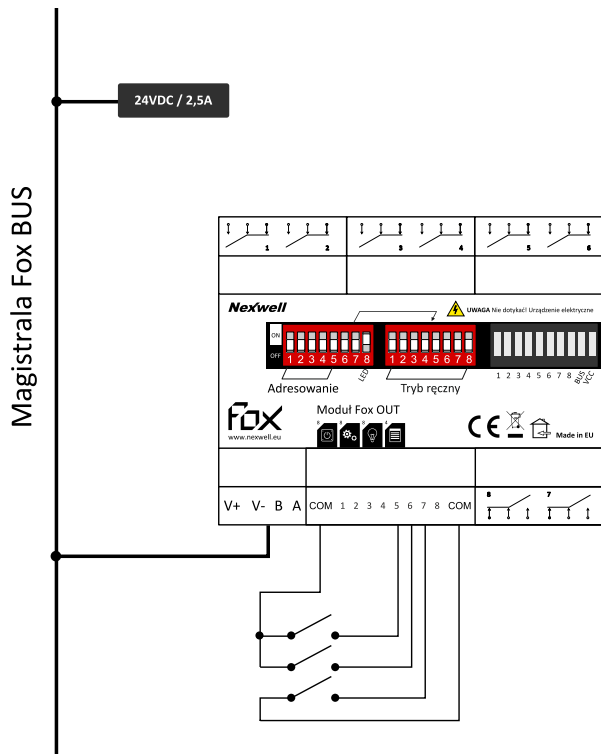
**Used relays**

In Fox relay modules you will find factory-made NO relays with a coil powered at 24 VDC with maximum load of 13 A. The used relays are equipped with the Inrush function, which improves their capability of high current float up to 80 A for 20 ms.

The most important data of the factory-made relays (based on manufacturer's documentation):

Contact materials	AgSnO2
Contact type	zwierny
Coil voltage nom./min./max. (VDC)	24/17/35
Maximum connecting power in category AC1	3500 VA
Maximum connecting power in category AC3	700 W
Maximum Inrush current	80 A/20 ms

5. You need to connect the wires to the connectors, in case that local input functions are used.



The mounted relays are placed on a rig, which allows an easy exchange of broken relays or a replacement to a NC relay.

The relay output connector includes also, besides the NO contact, a NC contact.

The relays outputs are galvanic isolated from each other. There is a possibility to load independent outputs of the module from a different circuit, and from a different phases.



## 4 | Configuration

The device Fox OUT needs to be configured through a computer and the application FoxMaker. It is a licensed freeware, and can be found on the producer's website [www.nexwell.eu](http://www.nexwell.eu)

1. The first step is to add a new device, in this case Fox OUT, assign an unique name, and set the identical address, which was set during the connection process.

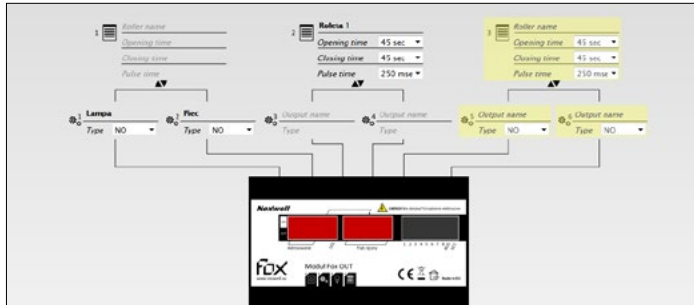


Screenshot FoxMaker – editor configuration Fox OUT

2. Configuration of the outputs:

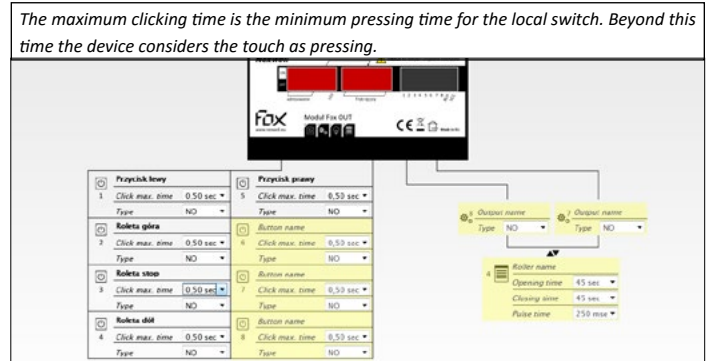
a) **Output** – to configure the output, you need to give it an unique name, and choose between NO and NC, depending on which cable is connected to the output.

b) **Blinds** – to configure blinds, you need to give it an unique name, and choose from a list the Opening time (min.: 5 s, max.: 20 min), Closing time (min.: 5 s, max.: 20 min), and Pulse time (min.: 100 ms, max.: 3 s). The default values are 45 s, 45 s and 250 ms.



Screenshot FoxMaker – configuration of the outputs

3. Configuration of the Inputs. To configure an input you need to give it an unique name, select the maximum click time, and choose between NO and NC, depending on which cable is connected to the input.



Screenshot FoxMaker – configuration of the inputs

4. The complete project can be added to the Fox system.

**WARNING**  
 For further details on creating and uploading a project to the Fox system, have a look on the documents of the FoxMaker. The current version can be downloaded from the producer's website: [www.nexwell.eu](http://www.nexwell.eu)

**WARNING**  
 With the module Fox OUT you could configure up to eight outputs, four blinds, and eight inputs. Any not configured inputs/outputs are marked in yellow colour – after their configuration/usage the colour disappears. If a particular output is programmed as a blinds output, the programme will reserve two separate outputs, and they will not be available for other use. If a particular output will be programmed as a regular output, the blinds function will not be available any more.

Pulse time – this is the time moment, where the blinds engine is turned on with a single input. It is used for engines that enable the adjustment of the blinds fins.

