# FOX

FOX204 | FOX NET

Instruction manual

**Version 1.0 | 2016**

## Table of contents

# 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

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**

## 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 immure 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 NET is responsible for the communication of the Fox system elements, it enables local and remote programming and management. For this purpose, the device possesses two different slots – one USB and one RJ45 slot. This module even provides a real-time clock, which is essential for programming schedules on other devices.

The clock is running on a 3 V battery, installed on the inside of the module.
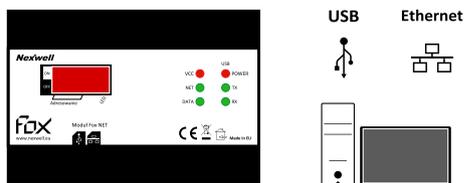


## Physical characteristics

*   USB slot, type B
*   RJ45 slot
*   Built-in real time clock
*   Back-up battery for clock
*   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 NET in the Fox system

The module Fox NET is installed on the bus of the Fox BUS devices. Its task is to provide the connection between the Fox devices and a computer, or a smartphone or tablet, with the suitable application. Fox NET enables the communication via USB cable or RJ45 connectors.

## Description of the device



1.   Fox BUS connector
2.   USB slot
3.   RJ45 connector
4.   Module addressing switches
5.   State LEDs

## 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

*   **VCC** – Module power supply
    ◦   LED lights up – module is correctly powered
*   **NET** – Status TCP/IP connections
    ◦   LED blinks once a second – obtaining IP address
    ◦   LED blinks four times a second – failed obtaining IP address
    ◦   LED flashes every two seconds – IP address obtained; ready to connect to TCP/IP client
    ◦   LED flashes twice every two seconds – connected to TCP/IP client
*   **DATA** – TCP/IP data
    ◦   LED blinks – data is transmitted between Fox NET and TCP/IP client
*   **USB POWER** – USB power supply
    ◦   LED lights up – module Fox NET is connected to computer's USB slot
*   **USB TX** – data sent to USB
    ◦   LED blinks – data is sent to a computer
*   **USB RX** – data obtained from USB
    ◦   LED blinks – receiving data from a computer

## 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 NET 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.
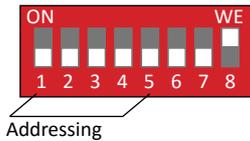


2. Then connect the Fox BUS communication and module power supply. You shall use the Fox BUS rails, there are right and left ones available (see figure).



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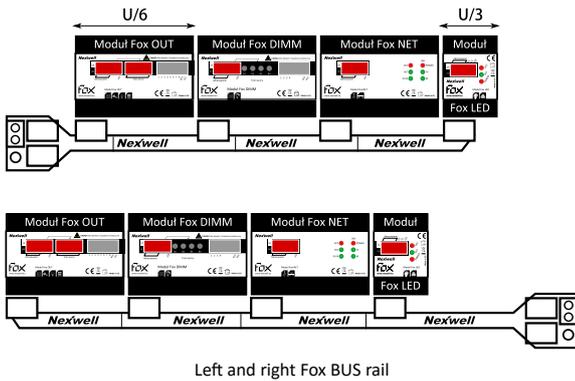
*The Fox BUS rails are designed to connect up to four modules with the width U/6 each. We suggest to place module with a smaller width at the end of the left rail, and to place smaller ones at the beginning of the right rail.*

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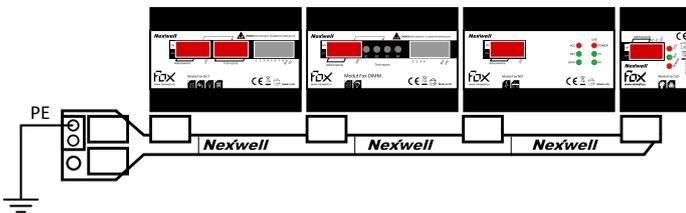


> **WARNING**
> *Please tighten the screws 24 hours, after installing the connectors to the rail, to fix the electrical contact.*

> **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 Fox NET with the application FoxMaker – there are two options, via USB and Ethernet.

    a) Ethernet

Fox NET is equipped with a RJ45 connector, allowing you to set a connection via Ethernet cable to the local network. The module is working as a TCP/IP server (see figure).
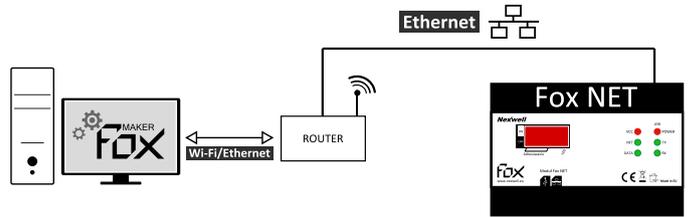


    b) USB

Fox NET is equipped with a USB slot, type B, allowing you to set a connection to a computer. The module is seen on your computer as virtual serial port (see figure).
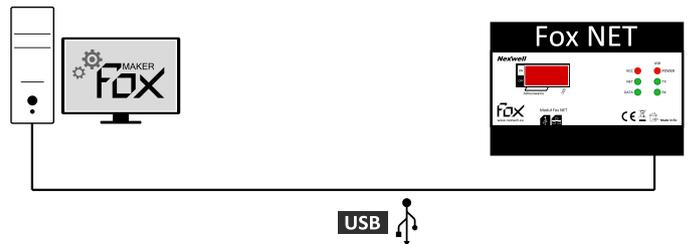


5. After completing the installation, you can power the bus.

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

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

# 4 | Configuration

The device Fox NET 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*

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



*Screenshot FoxMaker – editor configuration Fox NET*

2.  Further Fox NET module setting modifications are optional. It allows you to specify a different TCP/IP settings than default.

    a)    Obtaining IP address

**Automatically (default option)** – the module Fox NET is automatically obtaining an IP address, under which it will operate in the local network.

**WARNING**

*Remember to activate the static DHCP function on your local network, to make sure that the function of automatic IP address obtaining is working properly.*

**Static** – user defines TCP/IP connection parameters in the local network:
-   ◦    **IP address** – address under which the module will be identified within the local network
-   ◦    **Subnet mask** – this number allows the separation of the network part and the host part on IP address
-   ◦    **Default gateway** – this is the address that the devices are using to establish outside communication

All TCP/IP connection parameters are IPv4 addresses written in a form of four decimal digits from 0 to 255 range (e. g. 192.168.0.100).

**WARNING**

*The proper TCP/IP connection depends from local network configuration and router parameters. In case of communication failure, contact your local Internet provider, and have a look on the instruction manual of the router.*

    b)    MAC address

**Fabric (default option)** – module Fox NET is working with the MAC address specified by the producer.

**Set by user** – user is setting the MAC address on the Fox NET module. The MAC address is saved in a form of six hexadecimal digits in range of 00-FF (e. g. 01:23:45:67:89:AB).

**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*