4neXt s.r.l.s.
Via L. da Vinci, 15/4
30030 Vigonovo (VE)
Italy

E: info@4next.eu
W: www.4next.eu
P: +39 049 0981450

USER MANUAL
NetLink
RADIO BRIDGE

Content Index

Index

1. General Description

NetLink is an Ethernet – Serial radio bridge that can be used as a replacement for the cable for long distance connection.

It allows devices with serial / Ethernet port to communicate between each other wirelessly up to 1 km.

At the same time, it also allows the conversion between different communication channels.

Thanks to the point-to-multipoint configuration, NetLink allows users to create a real data collection network that is quick and easy to install.

Data can be transferred from Ethernet to serial, from serial to Ethernet or from serial to serial.

It does not need any additional software for configuration.

Contents of the pack

NetLink can be purchased in the following versions.

Single product:

P/N: NetLink

- n. 1 NetLink
- n. 1 Quick Start

2. Technical features

GENERAL	SOFTWARE
Ethernet 10/100 MB/s	ModBus TCP/ModBus RTU on RS485 conversion
RS485 optoisolated	Bidirectional protocol conversions on all channels
Serial communicazion speed up to 115.200 bit/s	Easy and quick configuration through APP
868 MHz radio module	Default parameters: IP: 192.168.1.101 DHCP disabled 9600 bps
Wireless remote data transmission (5/800m)	
NFC interface for programming	

MECHANICAL	ENVIRONMENTAL
IP41 plastic case for DIN guide	Operating temperature: -20°C ÷ 60°C
Size: 90 x 17 x 60 mm, 1 DIN module	Relative humidity: from 0 to 80% without condensation
	Storage temperature: -40°C ÷ 60°C

ALIMENTAZIONE E CONSUMI
Power supply: 10-32 v DC
Average consumption: 30mA

SAFETY INFORMATION

- **The use of radio devices may be inappropriate near electronic equipment.**
- **Do not install the NetLink near medical devices such as pacemakers or hearing aids. NetLink can interfere with the proper functioning of these devices.**
- **NetLink must not be used on board aircraft.**
- **Do not install NetLink near oil stations, fuel depots, chemical plants, explosion sites as NetLink can disturb the operation of technical equipment.**
- **NetLink can generate interference if used near television, radio or personal computers.**
- **In order to avoid possible damage, we recommend the use of accessories tested and specified as compatible with NetLink.**

3. Quick Start

3.1 Power supply

Connect NetLink to a 10-30 VDC power supply (Fig.1).

N.B. NetLink is protected with polarity inversion but for correct operation the polarity must be respected.

Fig. 1 *Power supply connection*

Fig. 2 *RS485 serial connection*

3.2 RS485 serial

NetLink allows you to bridge the RS485 serial. Terminals for the connection of the serial port are as in Fig. 2.

3.3 Ethernet

For connection to the Ethernet network, NetLink is equipped with the RJ45 connector on the front panel (Fig. 3). When connected to an Ethernet network, the status LED turns green. When there is communication, the green LED flashes.

Fig. 3 *Ethernet connector*

3.4 Access and configuration

NetLink is equipped with an integrated WEB server, therefore it can be configured using a standard browser. To access the configuration pages, type the IP address of NetLink from the browser of your PC, tablet or smart phone.

The device from which you connect must be within the same network as NetLink (Par. 2.1).

3.5 Network IP address

The default IP address of MDB-E is **192.168.1.101.**

If your network is of the same IP class: 192.168.1 ..., go to paragraph 5, otherwise follow the instructions from point 4 to set the correct IP address.

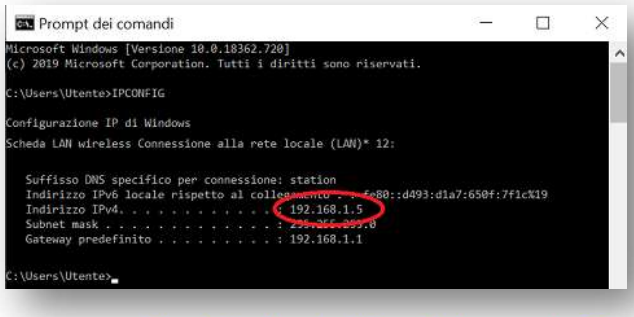


Fig. 4 *Verifica indirizzo IP de proprio PC*

To identify the IP class of your network, run the IPCONFIG command from the command prompt. In Fig.4 on the side, the IP address of the PC is 192.168.1.5. It belongs to the same class / network as NetLink, as the first 3 numbers (192, 168 and 1) are the same.

It is therefore possible to reach NetLink from the PC browser.

If the network is NOT of the 192.168.1 class, you can proceed in 2 ways:

1. Set NetLink to work in DHCP (see paragraph 5.3);
2. Set a valid IP on the NetLink

3.6 Configuration and settings

NetLink is equipped with an NFC interface that allows the configuration of all system parameters via the iBridge APP.
You can download the APP from the following link and it will be available on Play Store soon:
https://drive.google.com/file/d/1yvT_IAocvs2hn8F2HOKWHNAwMFVjH0sy/view?usp=sharing

3.7 Login and authentication

Once the IP address has been defined, type it on the browser. It will then be possible to access the NetLink configuration and consultation pages.

The first screen (Fig. 5) is the username and password authentication page.

The default values are:

Username: **admin**
Password: **admin**

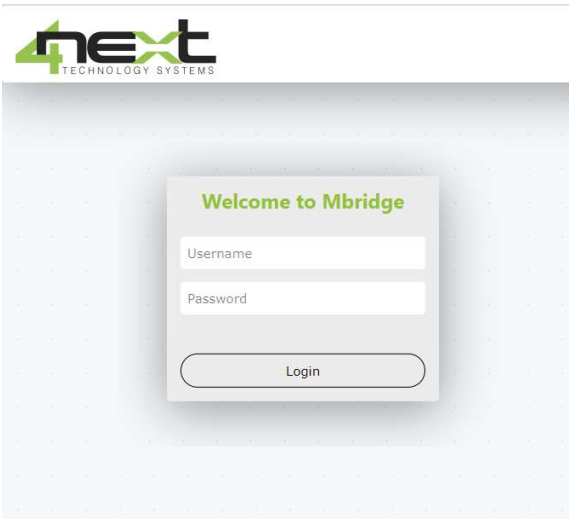
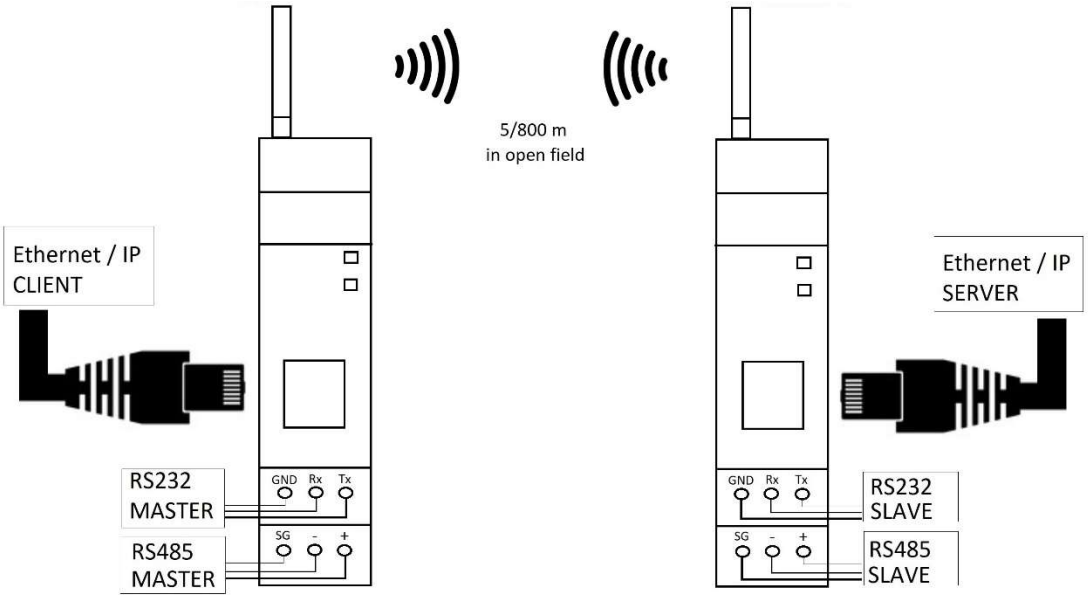


Fig. 5 *Login browser screen*

Connection scheme



Reading the QR code below you can access the WEB page of NetLink:

NetLink WEB page

4. IP settings

Associate a defined IP address with NetLink.

1. Connect NetLink to PC directly.
2. From the Windows menu select Settings (Fig.1).
3. Choose Network and Internet (Fig.2).
4. Choose Ethernet (Fig. 3) and the menu will open (Fig. 4).

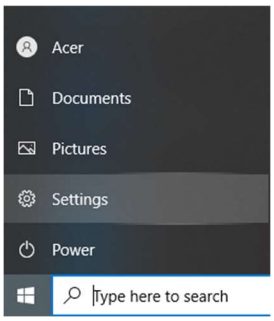


Fig. 1

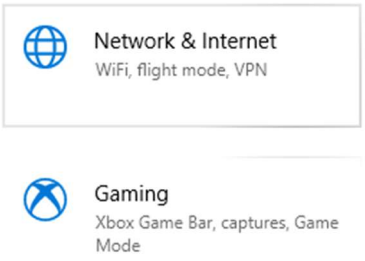


Fig. 2

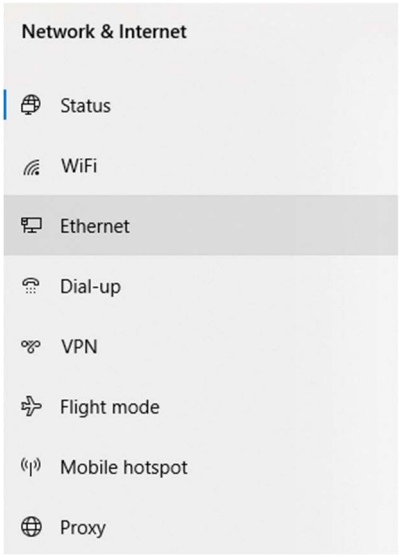


Fig. 3

5. Click on “Change adapter options”. A tab with all the network resources will appear (Fig.5).

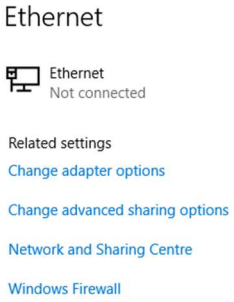


Fig. 4

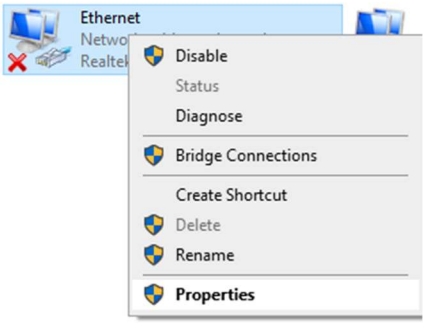


Fig. 5

6. Position the mouse on Ethernet, press the right button and select "Properties".
7. From the Ethernet properties menu (Fig.6), select “Internet Protocol version 4 (TCP / IPv4) and press the “Properties” button which will be enabled in the meantime. The screen in Fig. 7 will open.
8. Make a note of all the settings present that you will need later for the reset.
9. Set the IP address on 192.168.1.101
10. Set Subnet mask to 255.255.255.0 and confirm with OK.
11. At this point you can open the WEB browser and type 192.18.1.101 to configure MDB-E.

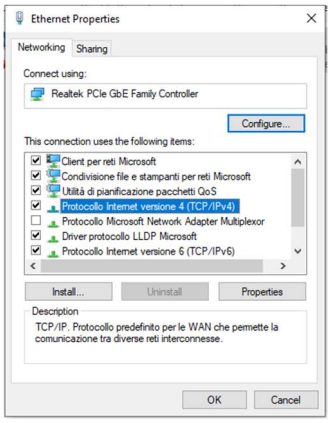


Fig. 6

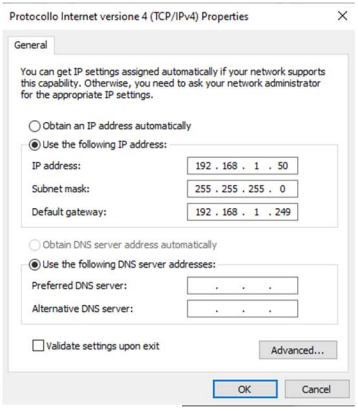


Fig. 7

12. Log in with username and password.
    Default values are:
    Username: **admin**
    Password: **admin**

Fig. 8 *Login browser screen*

13. Select "Network" from the Configurations menu to set the MDB-E network parameters in accordance with those of your Ethernet network. For example, if in the original screen of Fig.7 the IP address was 192.168.10.1, set MDB-E to 192.168.10.101 (Fig.9).
14. Save the new MDB-E configuration.
15. Restore the values on the PC.
16. MDB-E is ready to be used in the same network as your PC.

Fig. 9

5. Programming

Main menu

5.1 Bridge

After logging in, you access the configuration menu. The first screen, the one shown in the figure below, allows you to choose the working mode of the Bridge.

The options are:

- **Ethernet – serial**: NetLink acts as a converter between the Ethernet channel and the RS485 serial channel simultaneously. This means that devices on RS485 can be connected indiscriminately. Not at the same time.

- **Radio - Ethernet, serial**: In this configuration, the radio communication module is activated if present. It is necessary to have a pair of devices to ensure that they transmit the received packets to each other. The device equipped with the radio module is identified as NetLink.

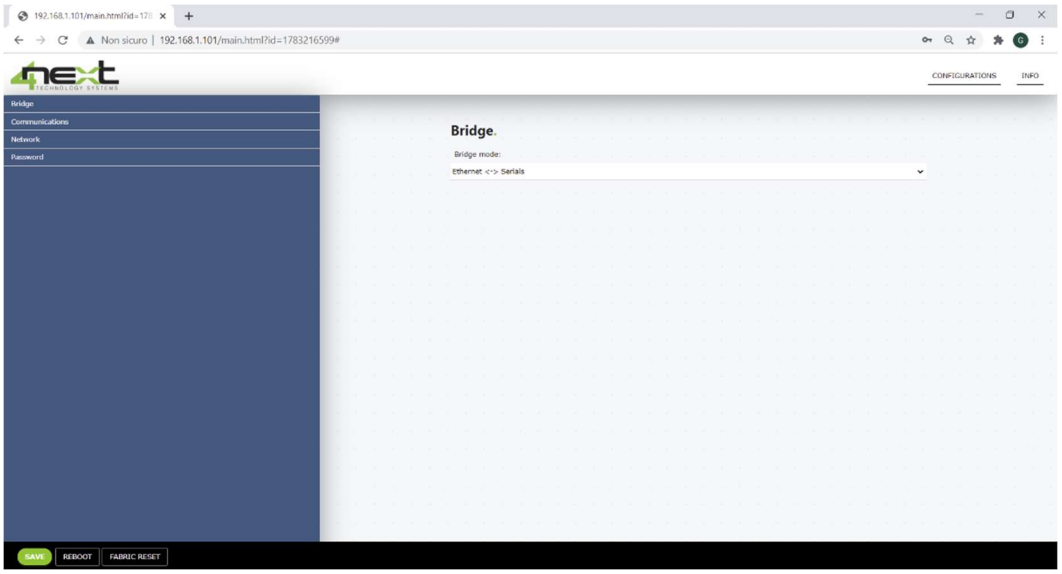


Fig. 5.1 *Bridge mode selection screen*

5.2 Communications

The communications menu allows you to set all the communication parameters for the various channels. In detail there are the following sections:

- **RS485**: for the parameters of the RS485 serial channel (communication speed, number of bits, stop bits and parity).
- **ModBus Serve**: the port used by the ModBus server (NetLink) which, combined with the IP address, forms the socket on which NetLink listens to receive ModBus TCP packets.
- **ModBus Client**: an additional ModBus TCP client that can be updated with the transferred data.
- **Radio**: this section allows you to set the parameters of the two NetLinks that exchange information via radio.

  o Transmission frequency must be the same.

  o Local address: it is the address of the NetLink that is being configured.

  o Remote address: it is the address of the NetLink that will receive commands via radio.

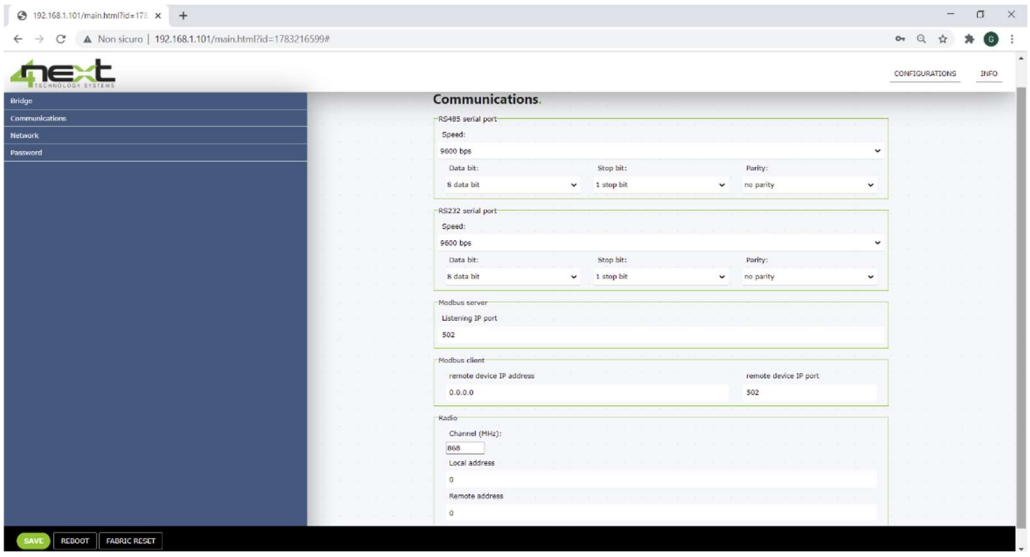


Fig. 5.2 *Communications parameter settings*

5.3 Network

It allows you to enter the parameters of the Ethernet network to which NetLink is connected in order to communicate with the servers for sending data. These are in detail the parameters to be configured:

- **DHCP:** it allows you to determine whether you should use the network DHCP server to assign the IP address or not;
- **IP address:** the static IP address assigned to NetLink. If DHCP is enabled or Dip-Switch 2 is set to ON, the IP is not the one displayed;
- **IP network mask:** the subnet mask or netmask allows you to determine the range of IP addresses within a subnet;
- **IP gateway:** IP address of the reference gateway;
- **HTTP server port:** http server port when different from standard 80 or 8080.

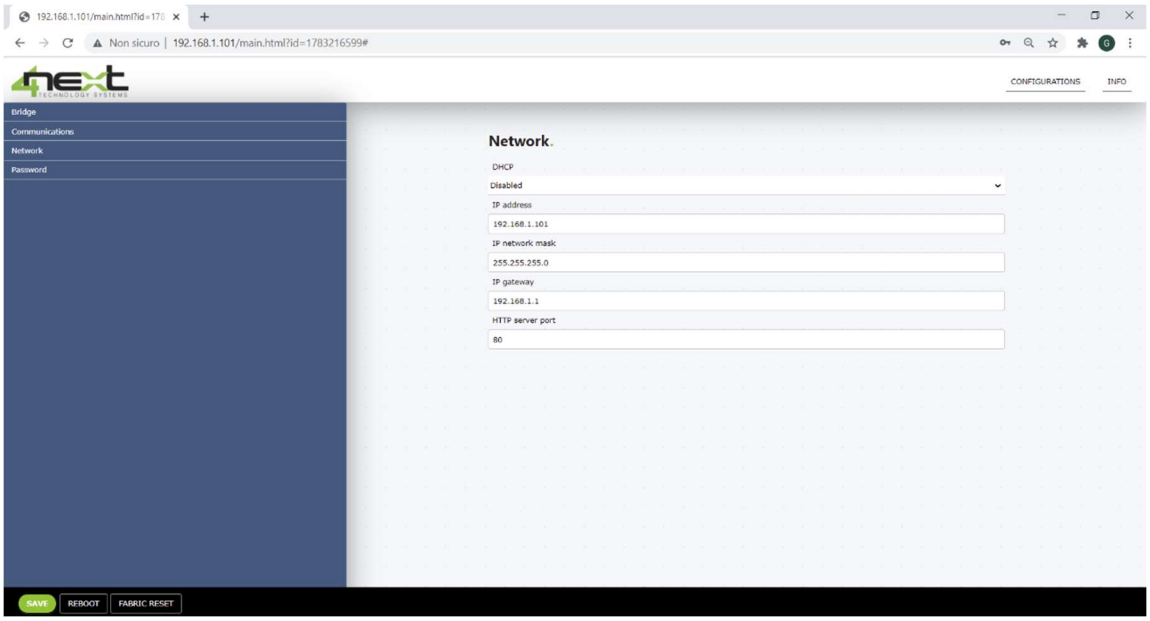


Fig. 5.3 *Network settings*

5.4 Password

Set the passwords for access to the NetLink configuration page.

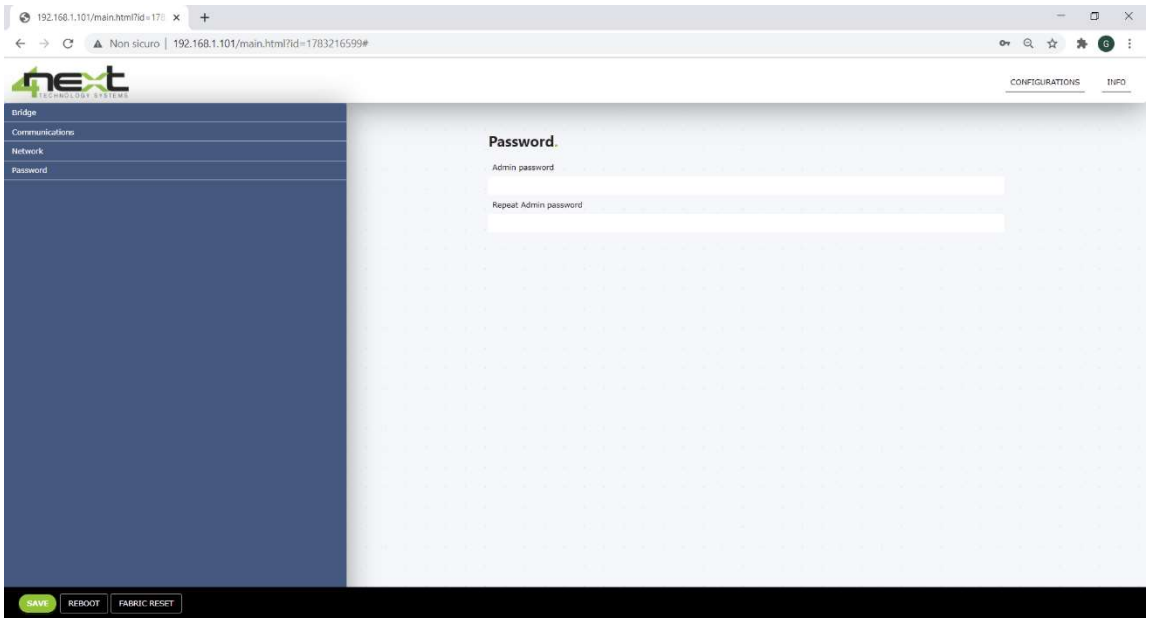


Fig. 5.4 *Access password change screen*

5.5 Info

The info menu displays the hardware and software information relating to the device.

Fig. 5.5 *General information screen*

The Update firmware button allows you to update the device's firmware. We recommend to check on the website at https: https://www.4next.eu/en/prodotto/radio-communication-bridge/ if the firmware is updated to the latest version.

6. Return and repair

The return for repair or replacement must be authorized in advance by requesting the RMA number.

Then send by e-mail to 4neXt at support@4next.eu or to your dealer / reseller the following information:

- Company name and customer data (address, tel, fax, email)
- Contact person
- Point of purchase
- Product data, P / N and S / N placed on the back of each product or on the original box
- Detailed description of the fault or anomaly detected

4neXt will send the RMA number with which the customer can send the material for repair. The products must be shipped carriage paid.

If the material arrives without the factory seals it will automatically be considered "out of warranty".

Technology systems
FOR YOUR BUSINESS

WWW.4NEXT.EU

4neXt s.r.l.s.
Via L. da Vinci, 15/4
30030 Vigonovo (VE)
Italy

E: info@4next.eu
W: www.4next.eu
P: +39 049 0981450