

NetLink

Radio bridge

USER MANUAL



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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.

1.1. Contents of the pack

NetLink can be purchased in the following versions:

Single product: P/N: NetLink

- n. 1 NetLink
- n. 1 quick guide

2. Technical features

GENERAL

- Ethernet 10/100 MB/s
- RS485 optoisolated
- RS232 optoisolated (Rx, Tx, GND)
- Serial communication speed up to 115.200 bit/s

MECHANICAL

- Plastic enclosure IP41 for DIN guide
- Size: 17,5 x 86 x 58 mm (1 DIN module)

ALIMENTAZIONE E CONSUMI

- Power supply 9-32VDC
- Average consumption 30mA

SOFTWARE

- ModBus TCP/ModBus RTU on RS485 conversion
- ModBus TCP/ModBus RTU on RS232 conversion
- ModBus RTU RS485/rs232 conversion
- Bidirectional protocol conversions on all channels
- Easy and quick configuration through APP
- Default parameters:
 - IP:192.168.1.100 DHCP disabled
 - 9600 bps

ENVIRONMENTAL

- Operating temperature: -20°C ÷ 60°C
- Relative humidity: from 0 to 80% without condense
- Storage temperature: -40° ÷ + 80°

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 Cabling and connection

3.2 Power supply

Connect NetLink to a 10-28 Vdc power supply as in Fig.1.

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

3.3 RS232 and RS485 serial

NetLink allows you to bridge both an RS485 and an RS232 serial. The terminals for the connections of the serial ports are as in Fig. 2.

3.4 Ethernet

For connection to the Ethernet network, the 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.1 Power supply connection



Fig.2 RS232 and RS485 serial connection



Fig.3 Ethernet connector

3.5 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).

3.6 Network IP address

The default IP address of NetLink is **192.168.1.101**

If your network is of the same IP class: 192.168.1 ..., go to paragraph 2.3, otherwise follow the instructions from point 2.2 to set the correct IP address.

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.

```
Microsoft Windows [Versione 10.0.18362.720]
(c) 2019 Microsoft Corporation. Tutti i diritti sono riservati.

C:\Users\Utente>IPCONFIG

Configurazione IP di Windows

Scheda LAN wireless Connessione alla rete locale (LAN)* 12:

    Suffisso DNS specifico per connessione: station
    Indirizzo IPv6 locale rispetto al collegamento . . . . . fe80::d493:dia7:650f:7f1cX19
    Indirizzo IPv4. . . . . 192.168.1.5
    Subnet mask . . . . . 255.255.255.0
    Gateway predefinito . . . . . 192.168.1.1

C:\Users\Utente>
```

Fig.4 Check your PC's IP address

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 2.2);
2. Set a valid IP on the MDB-E (see chapter 5 of the NetLink manual, available on the website www.4next.eu)

3.7 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

3.8 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:

User name: **admin**

Password: **admin**

For more information, the complete manual and other documentation are available on our website www.4next.eu.

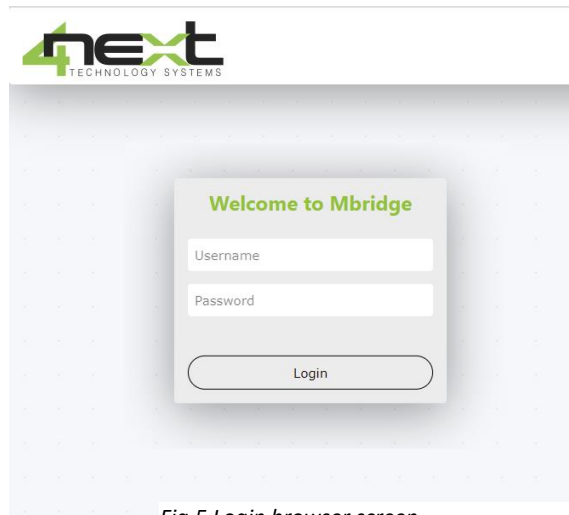


Fig.5 Login browser screen

Reading the QR code below you can access the manual page of the NetLink.



NetLink WEB page

4. IP Set up

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).

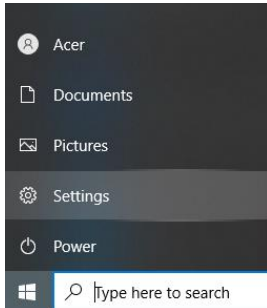


Fig.1

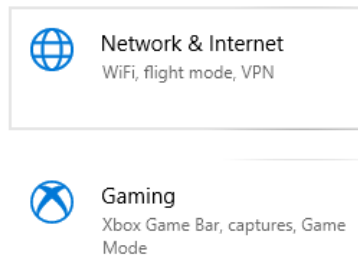


Fig.2

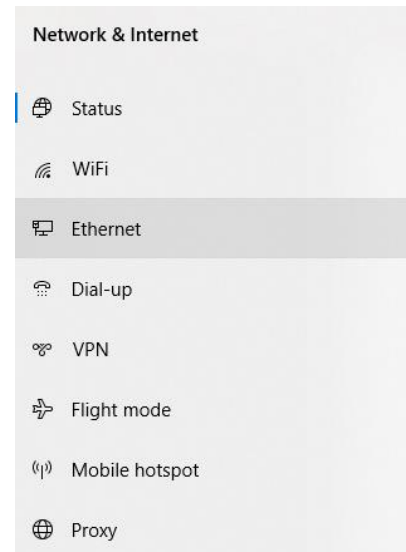


Fig.3

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

Ethernet

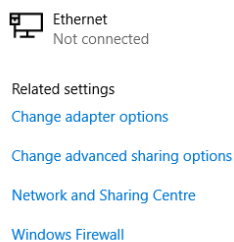


Fig.4

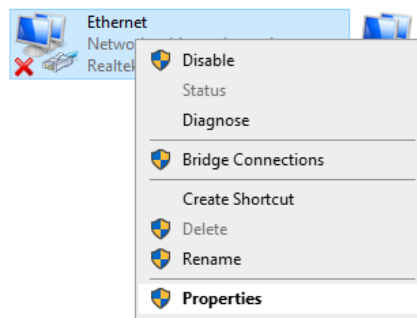


Fig.5

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 NetLink.

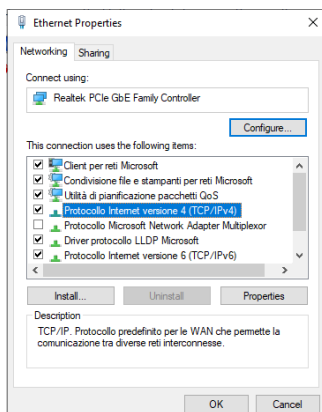


Fig.6

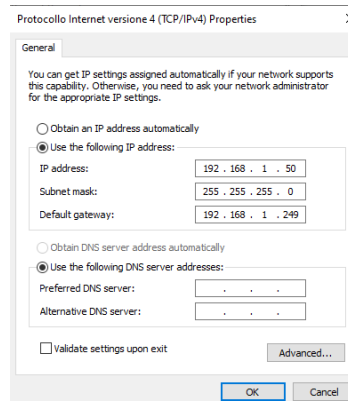
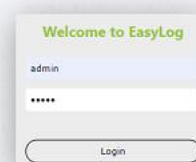


Fig.7

12. Log in with username and password.

The default values are:



User name: **admin**
Password: **admin**

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 NetLink to 192.168.10.101 (Fig.9).
14. Save the new NetLink configuration.
15. Restore the values on the PC.
16. NetLink is ready to be used in the same network as your *Fig.8 Login browser screen*



Network.

DHCP
Disabled ▼

IP address
192.168.10.100

IP network mask
255.255.255.0

IP gateway
192.168.1.1

HTTP server port
80

Fig.9

5. Programming

5.1 Main menu

5.1.1 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:** MDB-E acts as a converter between the Ethernet channel and both serial channels simultaneously. This means that devices on RS485 or a device on RS232 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.
- **Serial-Serial:** In this mode the protocol conversion is performed between the RS232 communication channel and the RS485 channel.

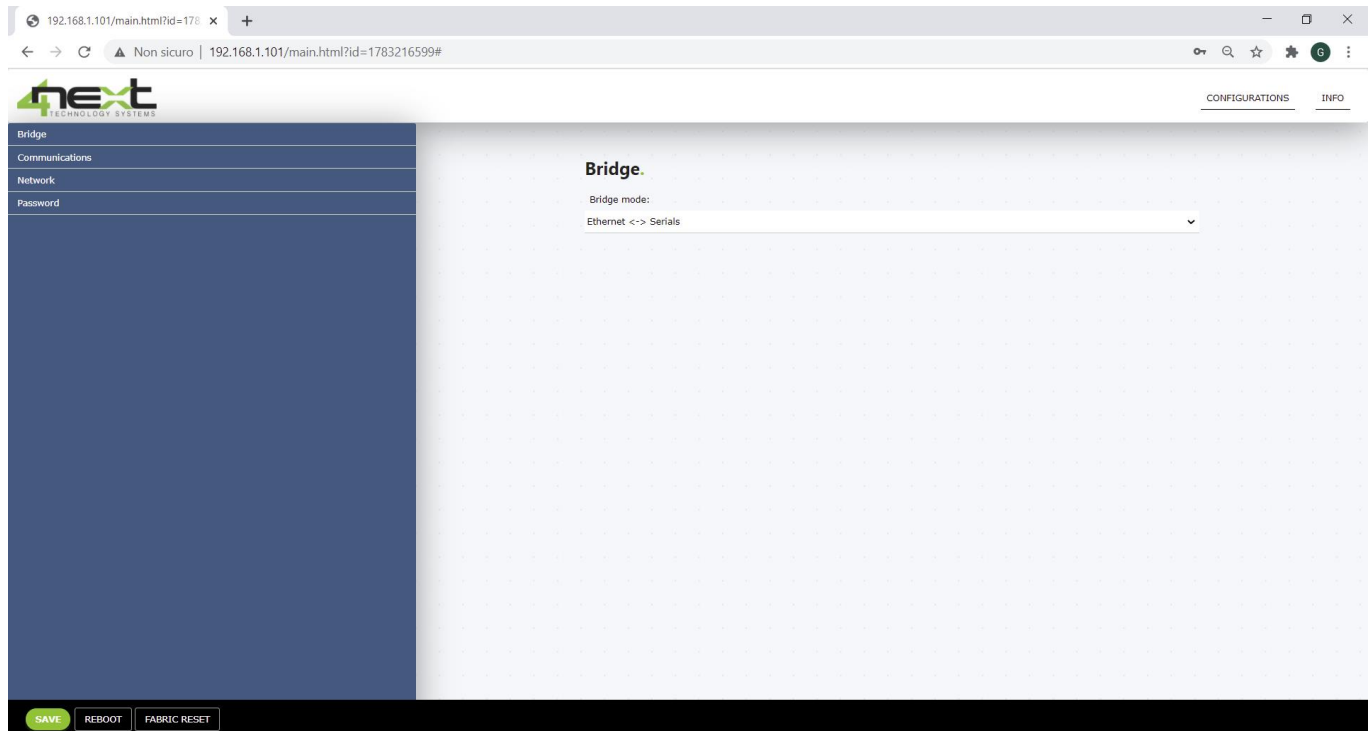


Fig.5.1 Bridge mode selection screen

5.1.2 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)
- RS232: for the parameters of the RS232 serial channel (communication speed, number of bits, stop bits and parity)
- ModBus Serve: The port used by the ModBus server (MDB-E) which, combined with the IP address, forms the socket on which MDB-E 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.
 - The transmission frequency must be the same.
 - Local address: it is the address of the NetLink that is being configured.
 - Remote address: it is the address of the NetLink that will receive commands via radio.

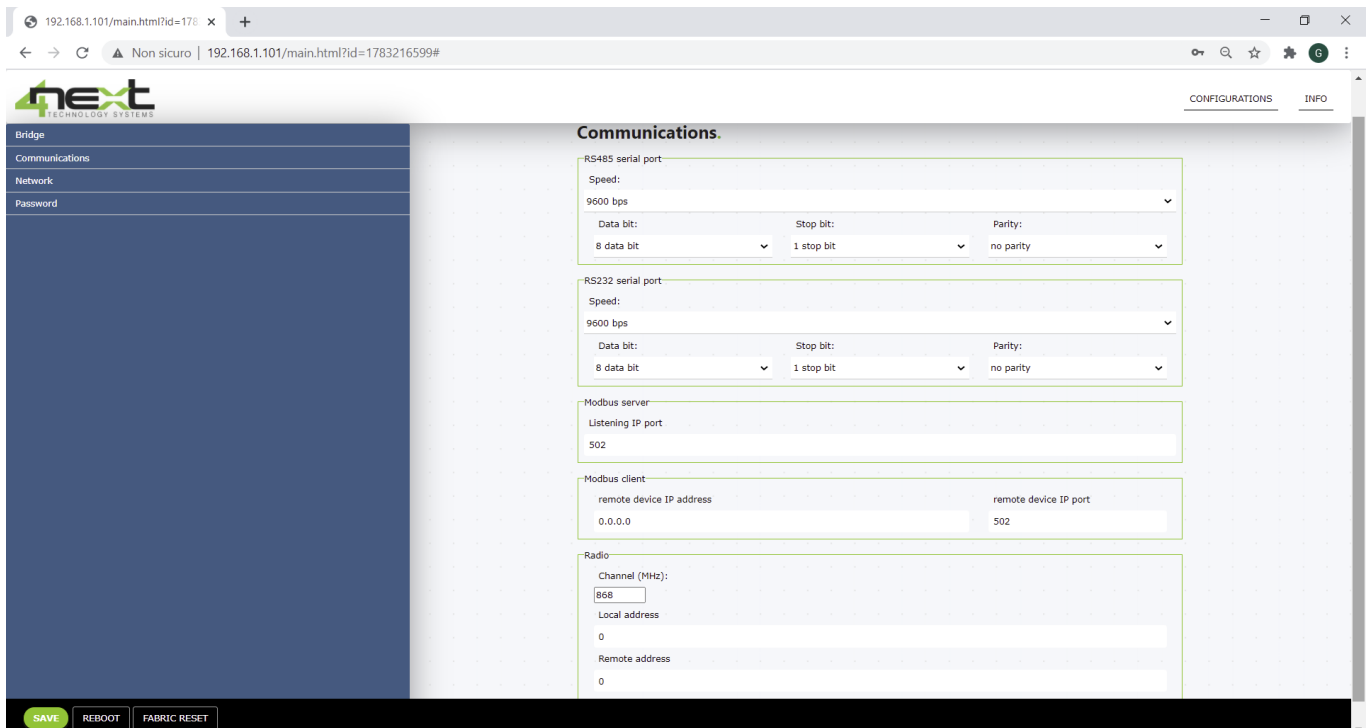


Fig.5.2 Communications, communication parameter settings

5.1.3 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.

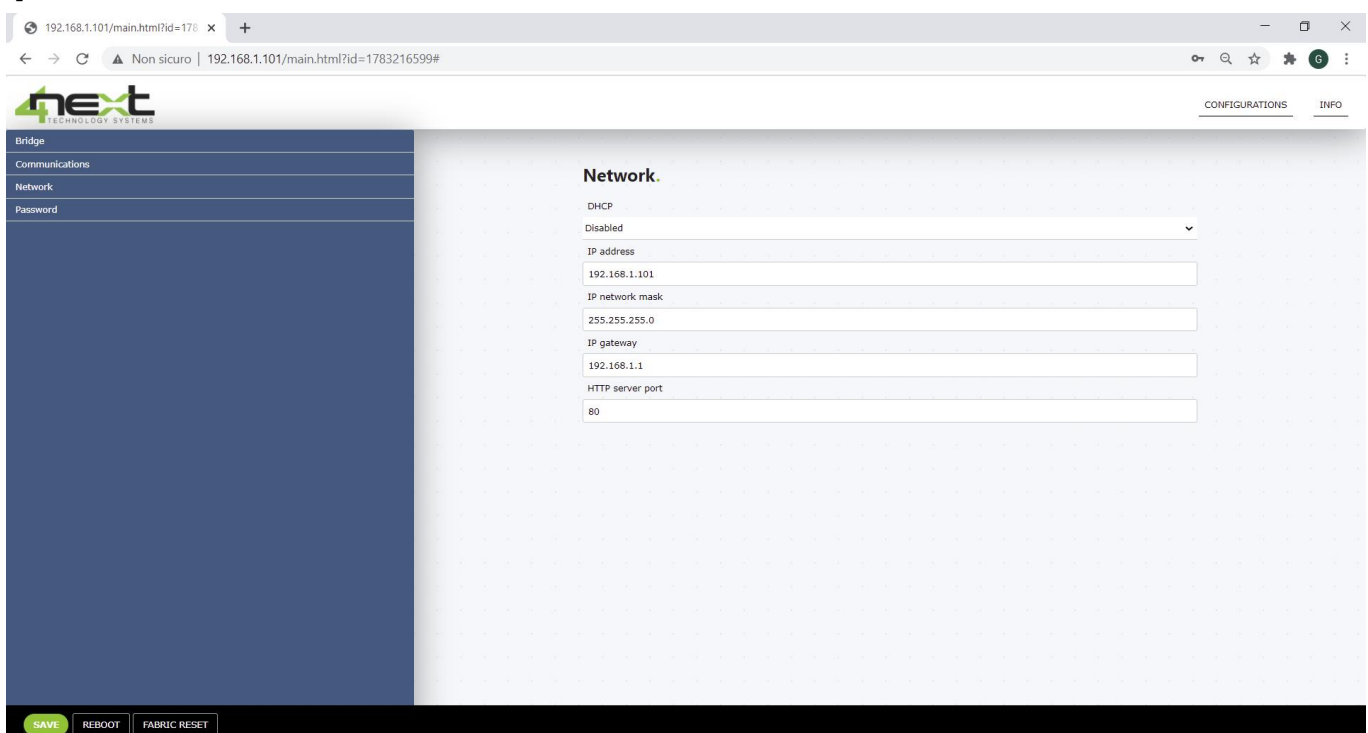


Fig.5.3 Network settings

5.1.4 Password

Set the passwords for access to the NetLink configuration page.

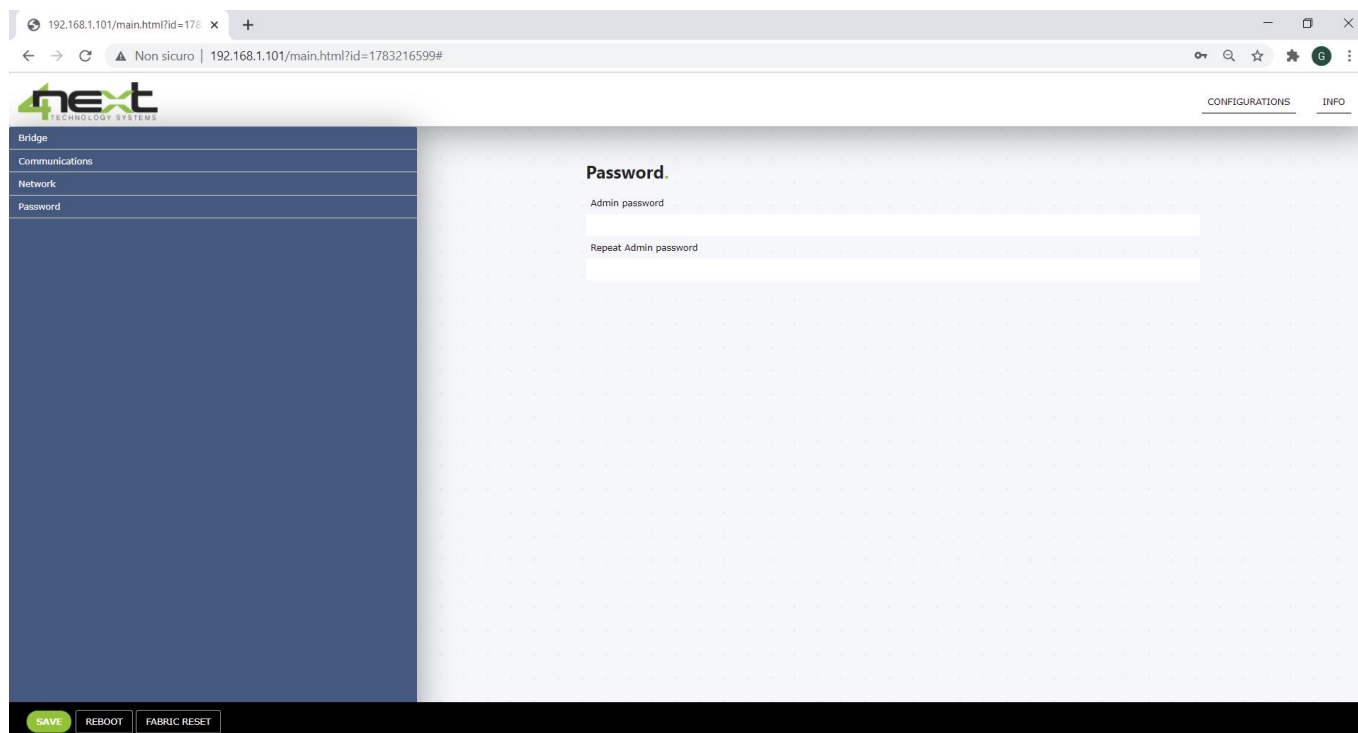


Fig.5.4 Access password change screen

5.1.5 Info

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

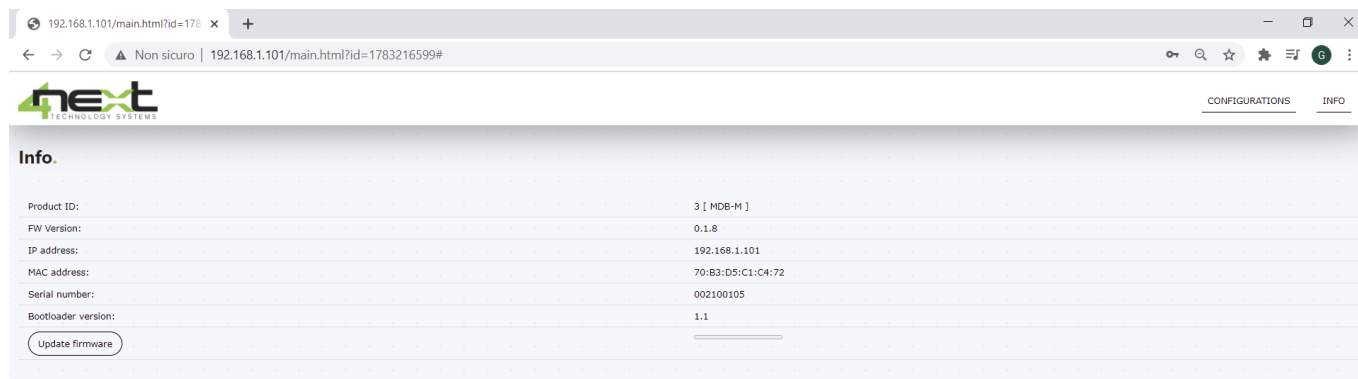


Fig.5.5 General information screen

The Update firmware button allows you to update the device's firmware. We recommend to check on the website at <https://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 a card containing 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".

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