Industrial Electronic Devices

User Manual

Revision 1.000
English

Multiprotocol Router with NAT

(Order Code: HD67H99-B2)

For Website information:
www.adfweb.com?Product=HD67H99-B2

For Price information:
www.adfweb.com?Price=HD67H99-B2

Benefits and Main Features:

 ⊕ Very easy to configure

 ⊕ Power Supply 18…35V DC

 ⊕ Temperature range: -40°C/+85°C (-40°F/+185°F)

User Manual

For others products, see also the following links:

RS232 / RS485 / USB / Ethernet

www.adfweb.com?Product=HD67118 (RS232 / RS485 - Converter)
www.adfweb.com?Product=HD67119 (USB / RS485 - Converter)
www.adfweb.com?Product=HD67038 (RS485 / RS232 / Ethernet - Converter)

CAN / CANopen / Modbus / Modbus TCP

www.adfweb.com?Product=HD67001 (CANopen / Modbus Master - Converter)
www.adfweb.com?Product=HD67502 (CANopen / Modbus Slave - Converter)
www.adfweb.com?Product=HD67011 (CAN / Modbus Master - Converter)
www.adfweb.com?Product=HD67012 (CAN / Modbus Slave - Converter)
www.adfweb.com?Product=HD67514 (CAN / Modbus TCP Master – Converter)

Modbus RTU Slave / Modbus TCP Master - Converter

www.adfweb.com?Product=HD67510

Do you have your customer protocol? Then go to:
www.adfweb.com?Product=HD67003

Do you need to choose a device? Do you want help?
www.adfweb.com?Cmd=helpme

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INDEX:

UPDATED DOCUMENTATION:

Dear customer, we thank you for your attention and we remind you that you need to check that the following document is:

- ♦ Updated
- ♦ Related to the product you own

To obtain the most recently updated document, note the "document code" that appears at the top right-hand corner of each page of this document.

With this "Document Code" go to web page www.adfweb.com/download/ and search for the corresponding code on the page. Click on the proper "Document Code" and download the updates.

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	05/03/2024	Ff	All	First release version

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SECURITY ALERT:

GENERAL INFORMATION
To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device, legal and safety regulation are required for each individual application. The same applies also when using accessories.

INTENDED USE
Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

QUALIFIED PERSONNEL
The device can be used only by qualified personnel, strictly in accordance with the specifications.
Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

RESIDUAL RISKS
The device is state-of-the-art and is safe. The instruments can represent a potential hazard if they are inappropriately installed and operated by untrained personnel. These instructions refer to residual risks with the following symbol:
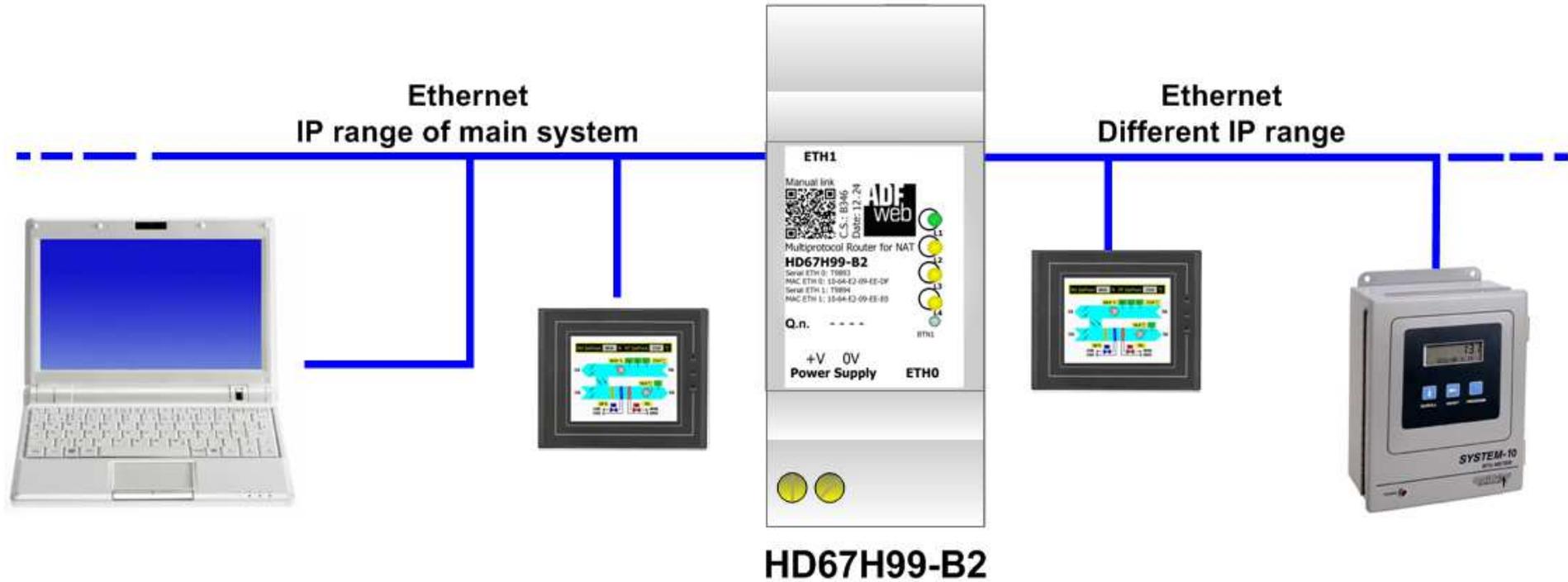
⚠️ This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

CE CONFORMITY
The declaration is made by our company. You can send an email to support@adfweb.com or give us a call if you need it.

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EXAMPLE OF CONNECTION:

Internal port mapping
For isolating two segments
(port NAT and IP+Port NAT)

Ethernet
IP range of main system

Ethernet
Different IP range

ETH1

HD67H99-B2

HD67H99-B2

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CONNECTION SCHEME:

Connector1:
Power Supply

0V = Ground
+V = Positive wire

V DC: min 12V ; max 35V

+V 0V

Connector2:
Ethernet Port 0
(RJ45 Plug)

Led5:
Green
Link Ethernet 0

Led1:
Green
Device state

Led2:
Yellow
Not used

Led3:
Yellow
Not used

Led4:
Yellow
Not used

BTN1:
Recovery
button

Led6:
Green
Link Ethernet 1

Connector3:
Ethernet Port 1
(RJ45 Plug)

ETH1

Manual link

Multiprotocol Router for NAT
HD67H99-B2
Serial ETH 0: T9893
MAC ETH 0: 10-64-E2-09-EE-DF
Serial ETH 1: T9894
MAC ETH 1: 10-64-E2-09-EE-E0

Q.n. - - - -

+V 0V
Power Supply   **ETH0**

Figure 1: Connection scheme for HD67H99-B2

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CHARACTERISTICS:

The HD67H99-B2 is a Multiprotocol Router with NAT.

It allows the following characteristics:

- Electrical isolation between Ethernet and Power Supply;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 18…35V DC;
- Wide temperature range: -40°C / 85°C [-40°F / +185°F].

CONFIGURATION:

You need "ADFweb Discovery Tool" software on your PC in order to discover the device into the network and see its IP address.
The configuration is made using an integrated webserver and it is used to:

- Define the parameter of Ethernet interfaces;
- Define the list of NAT rules;
- Update the device.

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POWER SUPPLY:

The devices can be powered at 12…35V DC. For more details see the two tables below.

VDC	
Vmin	**Vmax**
12V	**35V**

Consumption at 24V DC:

Device	Consumption [W/VA]
HD67H99-B2	3.5

Connector1:
Power Supply

0V = Ground
+V = Positive wire

V DC: min 12V ; max 35V

+V 0V
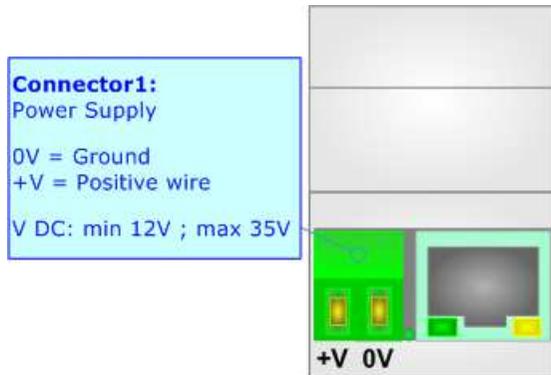
Caution: Not reverse the polarity power

+V   0V

HD67H99-B2

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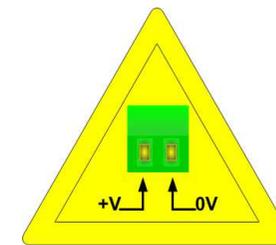
LEDS:

The device has got six LEDs that are used to give information of the functioning status. Meanings of the LEDs when the device is ON are described in the table below. During the start-up, there is a fixed animation of the LEDs (Scrolling LEDs) that will stop as soon as the hardware is ready.

| LED	Normal Mode	Recovery Mode
1: Device State (green)	Blinks slowly (~1Hz)	Blinks quickly
2: Not used (yellow)	OFF	Blinks quickly
3: Not used (yellow)	OFF	Blinks quickly
4: Not used (yellow)	OFF	Blinks quickly
5: Link Ethernet 0 (green)	**ON:** Ethernet cable inserted **OFF:** Ethernet cable not inserted	**ON:** Ethernet cable inserted **OFF:** Ethernet cable not inserted
6: Link Ethernet 1 (green)	**ON:** Ethernet cable inserted **OFF:** Ethernet cable not inserted	**ON:** Ethernet cable inserted **OFF:** Ethernet cable not inserted
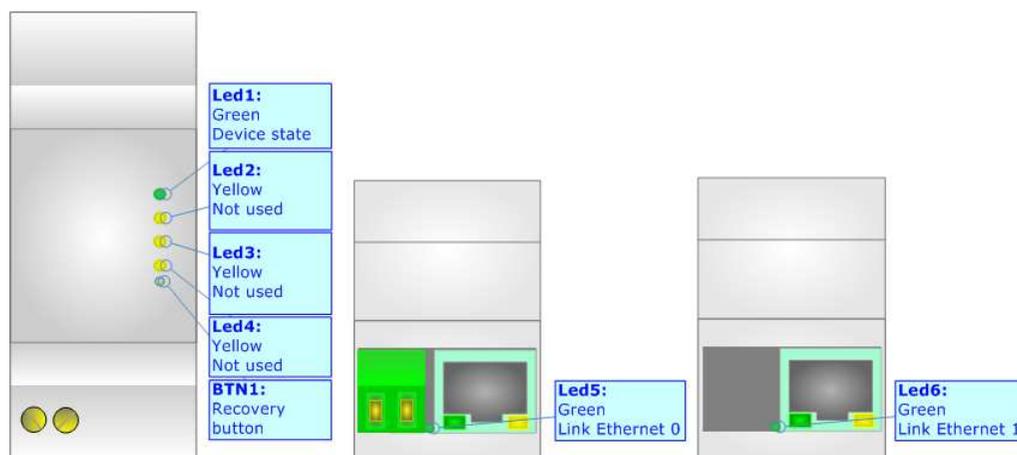
ETHERNET:

The Ethernet port is used for programming the device and for Ethernet communication.
The Ethernet connection must be made using Connector2 and/or Connector3 of HD67H99-B2 with at least a Category 5E cable. The maximum length of the cable should not exceed 100m. The cable has to conform to the T568 norms relative to connections in cat.5 up to 100 Mbps. To connect the device to an Hub/Switch is recommended the use of a straight cable, to connect the device to a PC is recommended the use of a cross cable.
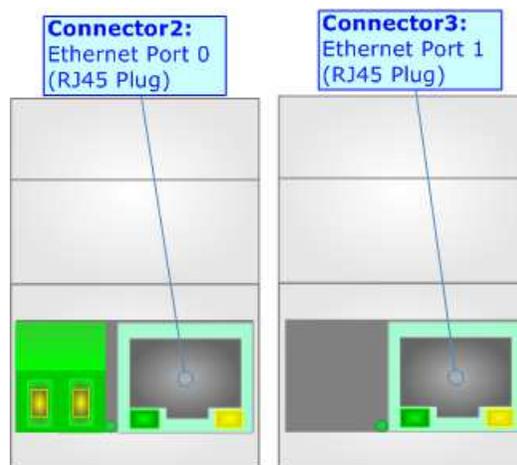
RECOVERY BUTTON:

In order to recover the device in case of wrong firmware updating or any error that compromises correct functioning of the device, it is necessary to press the BTN1. After pressing, the device will be switched in Recovery Mode and it will be possible to update again the firmware or reset the device using the default IP address 192.168.2.206 via webserver.

BTN1:
Recovery
button

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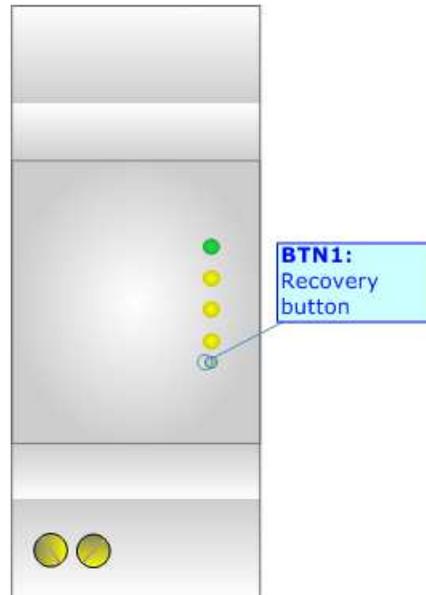
USE OF ADFWEB DISCOVERY TOOL SOFTWARE:

To discover the device into the network and see its IP Address, use the available software that runs with Windows called "ADFweb Discovery Tool". It is downloadable from here: www.adfweb.com/download/filefold/ADFweb_Discovery_Tool.zip.
The software works with MSWindows (XP, Vista, Seven, 8, 10, 11; 32/64bit).

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USE OF WEBSERVER:

To configure the device, it is necessary to use the integrated webserver.
Communication will be done over the HTTPS protocol, so with encrypted communication.
The default IP address from factory is 192.168.2.206 for Ethernet 0 port and the device is reachable at this url: https://192.168.2.206/

As soon as the browser is launched and connected to the IP address of the device, the login page appears.
Default username and password: admin/admin.

It appears like below:

Figure 3: "Login" page

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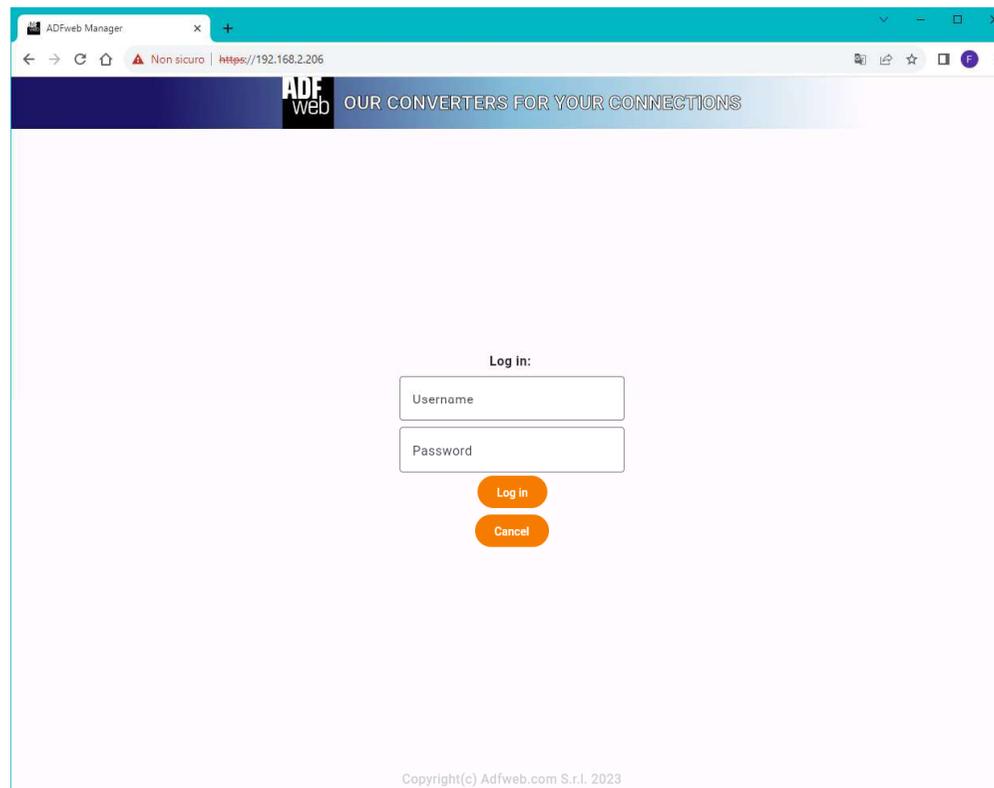
When login is done, the main page with device info will appear. In the top-left corner, there will be a menu that allows to open a drawer with all sections of the webserver.
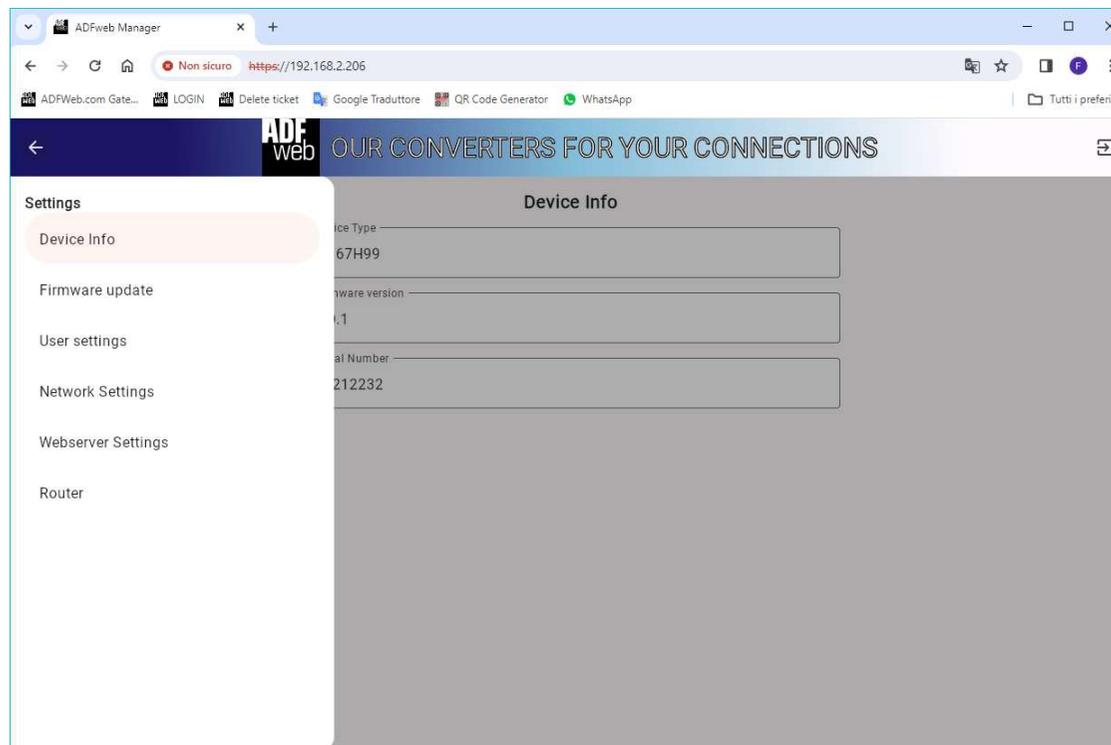
Figure 4: "Drawer"

The sections are described below:

- Device info;
- Firmware update;
- User settings;
- Network settings;
- Webserver settings;
- Router.

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WEBSERVER → DEVICE INFO:

This section shows main info about the device.
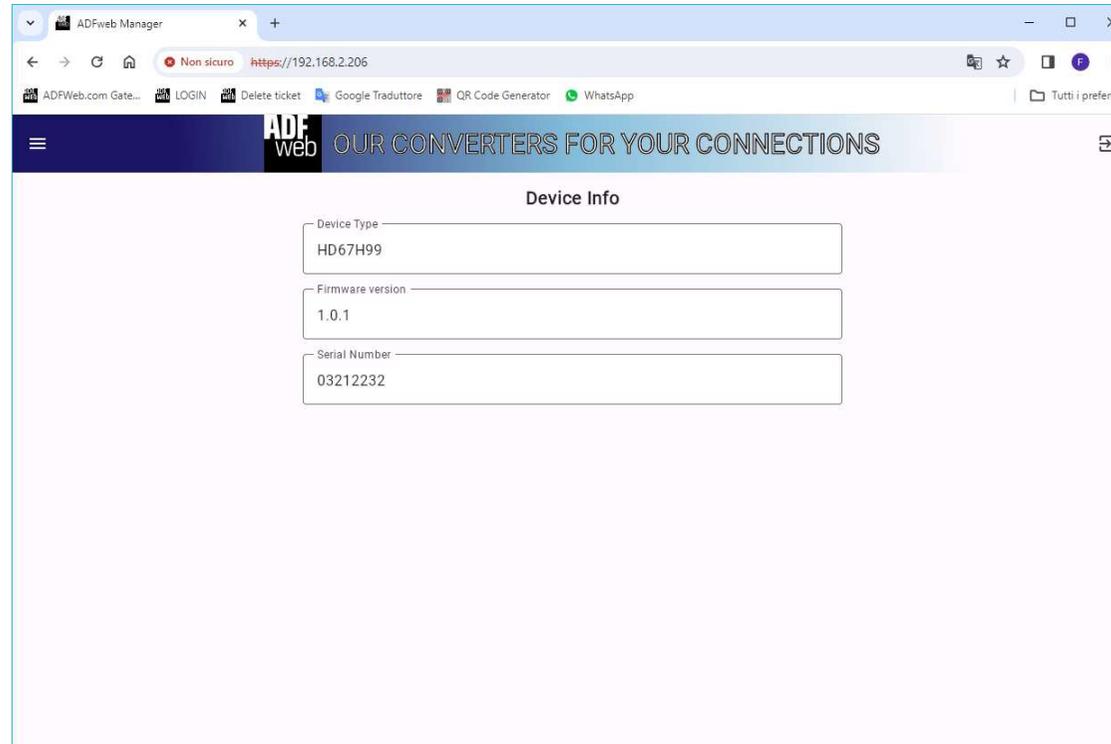
Figure 5: "Device Info" page

The means of the fields for the "Device Info" section are:

- In the field "**Device Type**" the name of the product is displayed;
- In the field "**Firmware version**" the version of the firmware is displayed;
- In the field "**Serial number**" the serial number is defined is defined.

WEBSERVER → FIRMWARE UPDATE:

This section is used to download and update the firmware of the device and export/import full configuration.
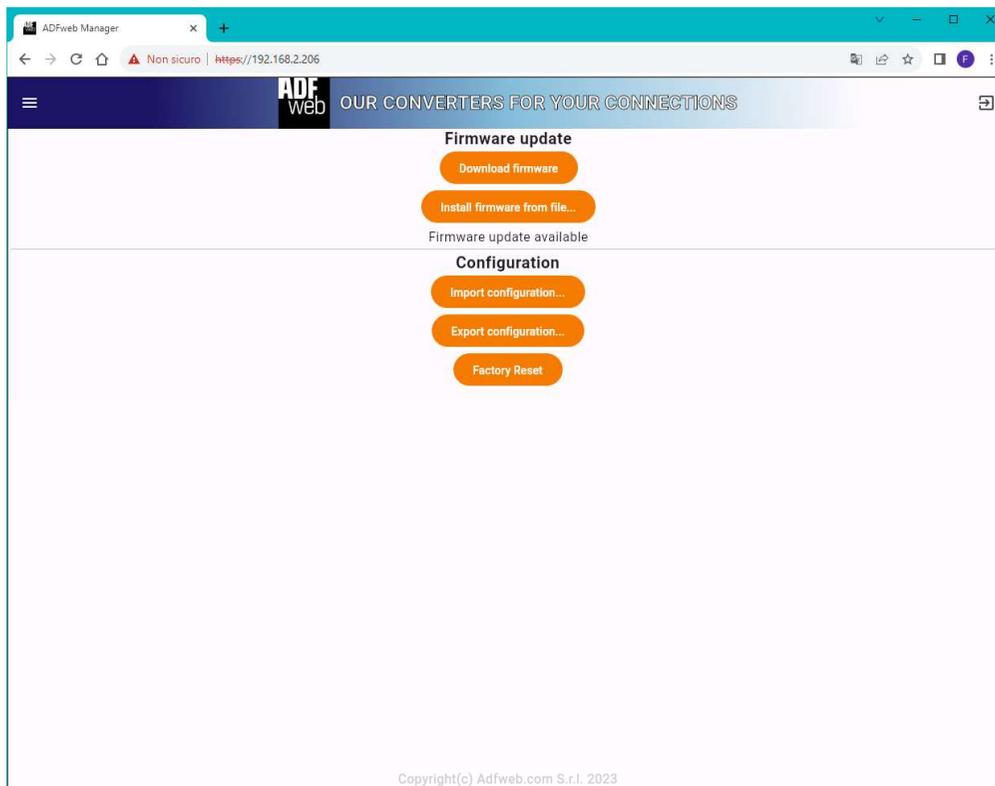If required, it is possible to reset the device to Factory settings.

Figure 6: "Firmware update" page

WEBSERVER → USER SETTINGS:

This section is used to change the username and/or password of the webserver.
All settings of this page can be imported or exported by pressing the related buttons.

Figure 7: "User settings" page

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WEBSERVER → NETWORK SETTINGS:

This section is used to set the Network interfaces of the device.
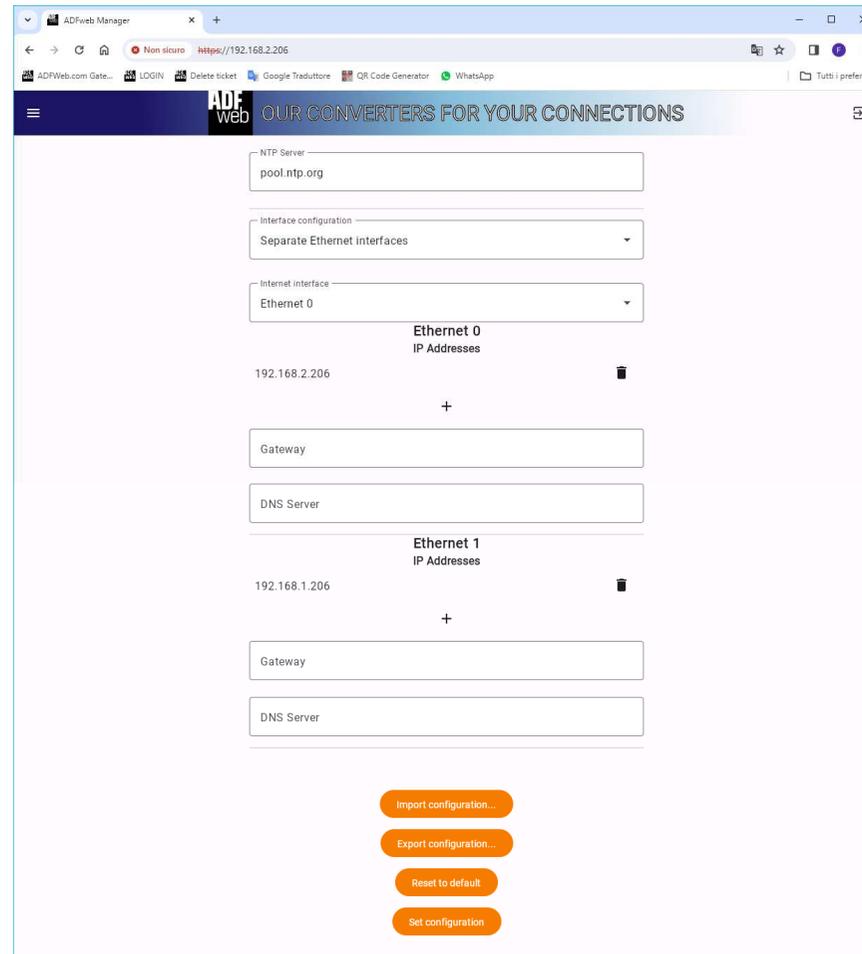All settings of this page can be imported or exported by pressing the related buttons.

Figure 8: "Network settings" page

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The means of the fields for the "Network settings" section are:

- In the field "**NTP Server**" it is possible to set a NTP server for date and time synchronization;
- In the field "**Interface configuration**" it is possible to isolate the Ethernet interfaces (Separate Ethernet interfaces) (fixed setting);
- In the field "**Ethernet**" the IP settings of the interface are defined. It is possible to set a static IP Address by adding IP Address, SubNet Mask, Gateway and DNS.

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WEBSERVER → WEBSERVER SETTINGS:

This section is used to update the certificate and key for TLS encryption. By default, the device has its own certificate, but it is possible to update it to be recognized, trusted and configured in the final installation.
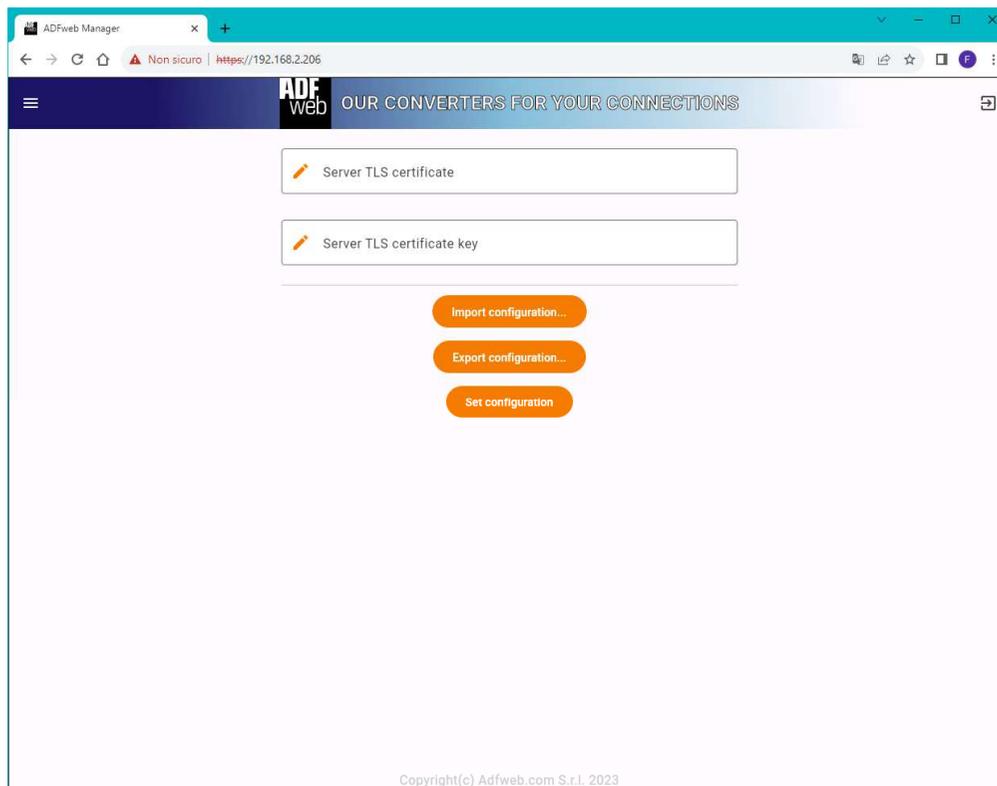All settings of this page can be imported or exported by pressing the related buttons.

Figure 9: "Webserver settings" page

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WEBSERVER → ROUTER:

This section is used to set all rules of NAT router.
All settings of this page can be imported or exported by pressing the related buttons.
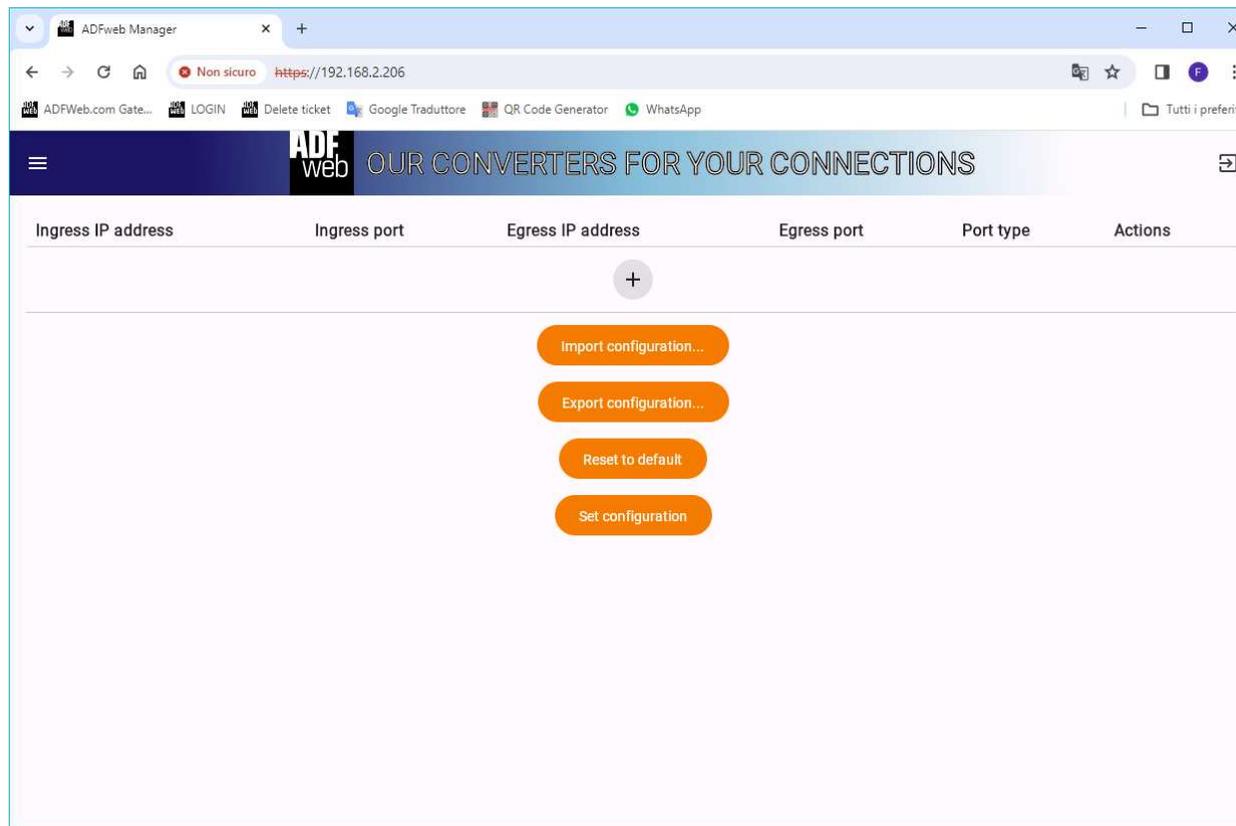

Figure 10: "Router settings" page

By clicking on '+', it is possible to add a new rule. It is possible to create the NAT in two different ways:

➔ By port: it is possible to address the TCP and/or UDP messages to a specific port and the router will now the local device to which forwarding it;

➔ By IP Address + port: it is possible to add some more IP Addresses to the Ethernet ports of the router and specify the port too.The router will forward the messages to the local device only if they are coming to the specific IP Address and port.

The means of the fields are described below:

➔ In the field "**Ingress IP address**" it is possible to select the IP Address of the ETH interface from which receiving the messages;
➔ In the field "**Ingress port**" it is possible to define the port number from which receiving the messages;
➔ In the field "**Egress port**" it is possible to define the IP Address of the external device to which forwarding the messages;
➔ In the field "**Egress port**" it is possible to define the port number to which forwarding the messages;
➔ In the field "**Egress port**" it is possible to define the port type.

Figure 11: "New NAT rule" page

MECHANICAL DIMENSIONS:
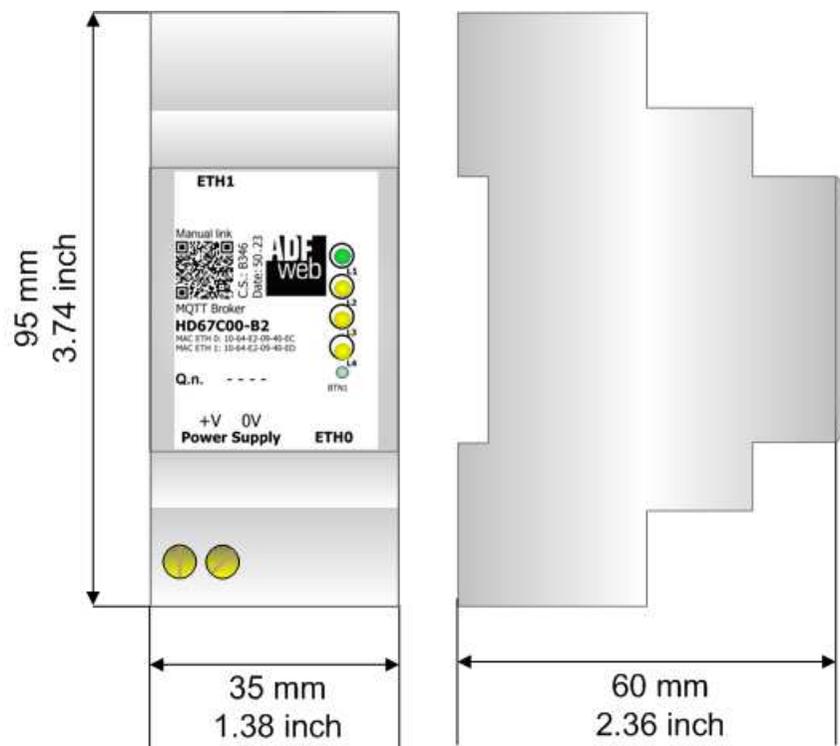
Figure 9: Mechanical dimensions scheme for HD67C00-xxx-B2

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ORDERING INFORMATIONS:

The ordering part number is formed by a valid combination of the following:

HD67H99 - B 2

Connectors Type
2: Fixed Screw Terminal

Enclosure Type
B: Modulbox 2M, 35mm DIN Rail mounting

Device Family
HD67H99: Multiprotocol Router with NAT
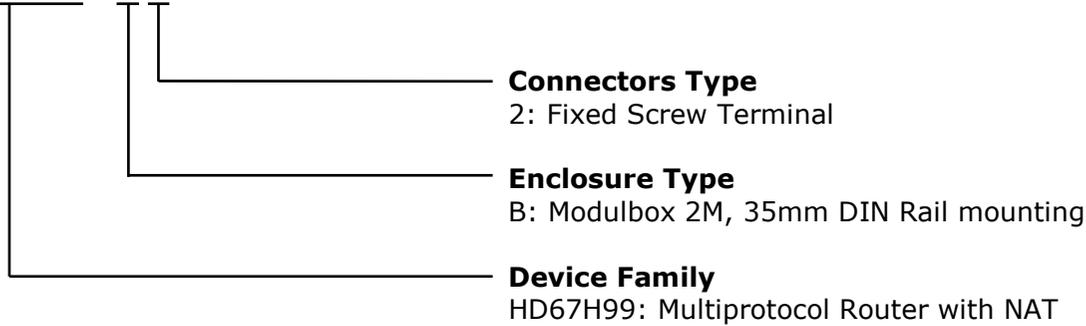
Order Code: **HD67H99-B2**   -   Multiprotocol Router with NAT

ACCESSORIES:

Order Code: **AC34011**   -   35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V DC

Order Code: **AC34012**   -   35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 24 V DC

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WEEE INFORMATION

Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and impact of human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE

The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

CE MARKING

The product conforms with the essential requirements of the applicable EC directives.

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WARRANTIES AND TECHNICAL SUPPORT:

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at www.adfweb.com.
Otherwise contact us at the address support@adfweb.com

RETURN POLICY:

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- Obtain a Product Return Number (PRN) from our internet support at www.adfweb.com. Together with the request, you need to provide detailed information about the problem.
- Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.

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