![ADFweb logo] Industrial Electronic Devices

User Manual

Revision 1.000
English

Ethernet/IP / DeviceNet Slave - Converter

(Order Code: HD67598-A1)

for Website information:
www.adfweb.com?Product=HD67598

for Price information:
www.adfweb.com?Price=HD67598-A1

Benefits and Main Features:

▶ Very easy to configure

▶ Electrical isolation

▶ Two Ethernet/IP ports

Other Products

For others Ethernet/IP products see also the following link:

Converter Ethernet/IP to

www.adfweb.com?Product=HD67077	**(M-Bus)**
www.adfweb.com?Product=HD67595	**(CAN)**
www.adfweb.com?Product=HD67598	**(DeviceNet Slave)**
www.adfweb.com?Product=HD67599	**(J1939)**
www.adfweb.com?Product=HD67589	**(NMEA2000)**
www.adfweb.com?Product=HD67590	**(Serial RS232)**
www.adfweb.com?Product=HD67590	**(Serial RS485)**
www.adfweb.com?Product=HD67591	**(Modbus Master RS232)**
www.adfweb.com?Product=HD67591	**(Modbus Master RS485)**
www.adfweb.com?Product=HD67592	**(Modbus Slave RS232)**
www.adfweb.com?Product=HD67592	**(Modbus Slave RS485)**

Do you have an your customer protocol?
www.adfweb.com?Product=HD67003

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

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.

To obtain the updated documentation for the product that you own, note the "Document Code" (Abbreviated written "Doc. Code" on the label on the product) and download the updated from our web site www.adfweb.com/download/

REVISION LIST:

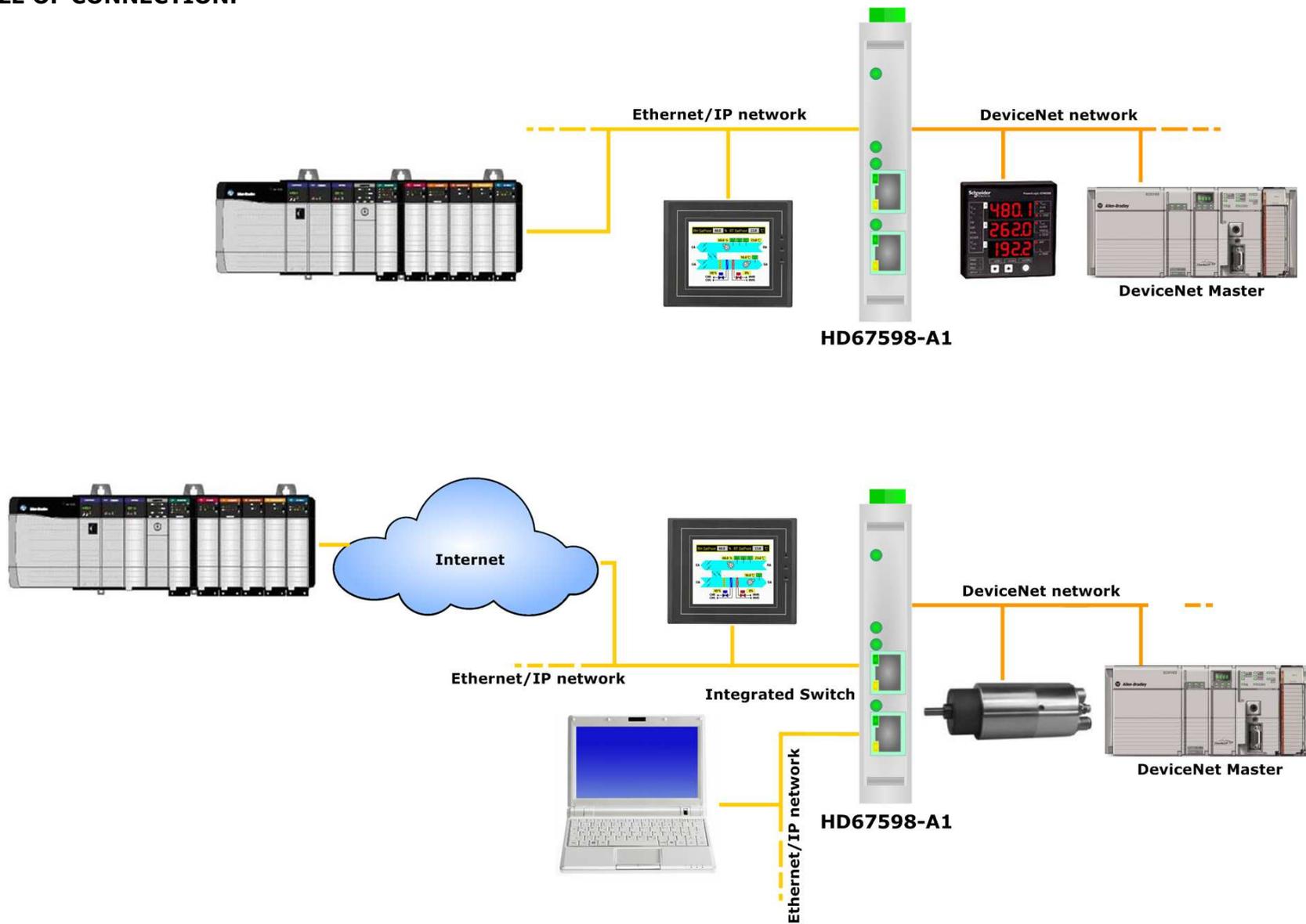| Revision	Date	Author	Chapter	Description
1.000	21/06/2012	Fl	All	First release version

WARNING:

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EXAMPLE OF CONNECTION:

Ethernet/IP network   DeviceNet network

DeviceNet Master

HD67598-A1

Internet

Ethernet/IP network   DeviceNet network

Integrated Switch

DeviceNet Master

Ethernet/IP network

HD67598-A1

CONNECTION SCHEME:

Dip-Switch B:
-Dip1 – Must be at ON
-Dip2 – Functioning Mode

= Normal   = Boot

Connector5:
USB Port

LED1 Device State
Lo Grd Hi
DeviceNet port
Dip-Switch A

+V 0V
Power Supply
8...24V AC
or
12...35V DC

LED2 DeviceNet State
LED3 Ethernet1 Link
ETHERNET 1

Ethernet/IP / DeviceNet Slave - Converter

www.ADFweb.com HD67598-A1

Q.n. - - - -

LED4 Ethernet2 Link
ETHERNET 2
Dip-Switch B
USB

Date Code: c.s.: MAC: 10-64-E2-07-18-8A
39 . 12   B159   Serial Nr.: B5986

Rail DIN Clamp

Led1:
Green
Device State

Led2:
Green
DeviceNet State

Led3:
Green
Ethernet1 Link

Connector3:
Ethernet1 Port
(RJ45 Plug)

Led4:
Green
Ethernet2 Link

Connector4:
Ethernet2 Port
(RJ45 Plug)

Lo Shl Hi   +V 0V

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V AC: min 8V ; max 24V
V DC: min 12V ; max 35V

Dip-Switch A:
-Dip1 – DeviceNet Termination Resistor
-Dip2 – Not used

= Open   = 120 Ohm

Connector2:
DeviceNet (Isolated port)

Hi = High wire
Shl = Shield* (to Isolated Ground)
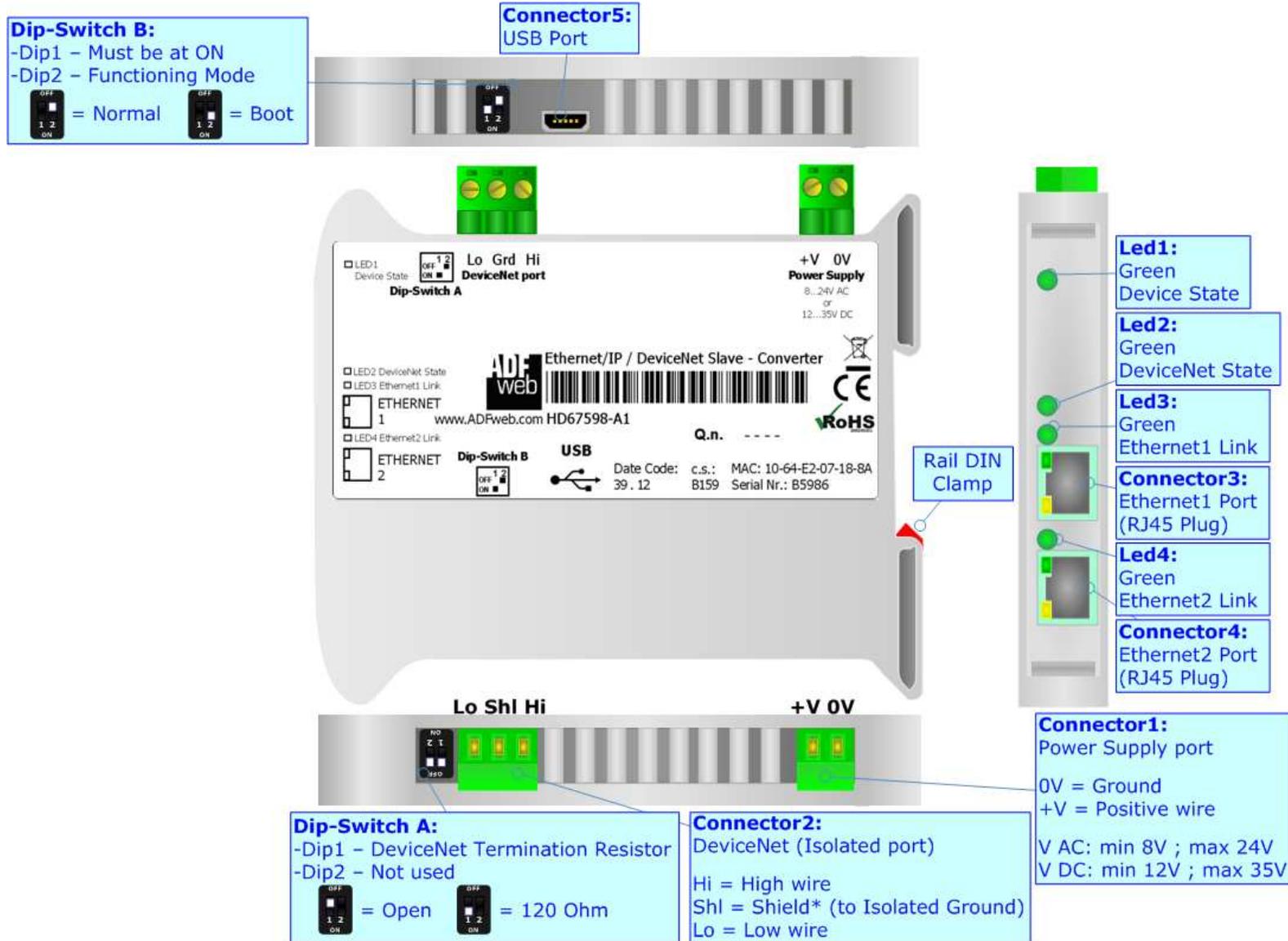Lo = Low wire

Figure 1: Connection scheme for HD67598-A1

CHARACTERISTICS:

The HD67598-A1 is a Ethernet/IP / DeviceNet Master Converter.

It allows the following characteristics:

- Up to 455 bytes in reading and 455 bytes in writing;
- Two-directional information between DeviceNet bus and Ethernet/IP bus;
- Mountable on 35mm Rail DIN;
- Power Supply 8…24V AC or 8…35V DC;
- Temperature range -40°C to 85°C.

CONFIGURATION:

You need Compositor SW67598 software on your PC in order to perform the following:

- Define the parameter of Ethernet/IP line;
- Define the parameter of DeviceNet line;
- Update the device.

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POWER SUPPLY:

The devices can be powered at 8…24V AC and 12…35V DC. For more details see the two tables below.

VAC		VDC	
Vmin	**Vmax**	**Vmin**	**Vmax**
8V	**24V**	**12V**	**35V**

Consumption at 24V DC:

Device	Consumption [W/VA]
HD67598-A1	3.5

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V AC: min 8V ; max 24V
V DC: min 12V ; max 35V

0V +V

Caution: Not reverse the polarity power

0V   +V

HD67598-A1

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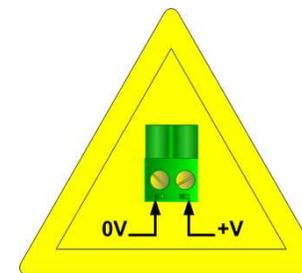
FUNCTION MODES:

The device has got two functions mode depending of the position of the 'Dip2 of Dip-Switch B':

- The first, with 'Dip2 of Dip-Switch B' at "OFF" position, is used for the normal working of the device.
- The second, with 'Dip2 of Dip-Switch B' at "ON" position, is used for upload the Project and/or Firmware.

For the operations to follow for the updating, see 'UPDATE DEVICE' section.

According to the functioning mode, the LEDs will have specifics functions, see 'LEDS' section.

Warning:
Dip1 of 'Dip-Switch B' must be at ON position for working even if the Ethernet cable isn't inserted.

LEDS:

The device has got four LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Device State (green)	Blinks slowly (~1Hz)	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
2: DeviceNet State (green)	**ON:** Data exchange with a Master **OFF:** No data exchange with a Master	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: Ethernet1 Link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected
4: Ethernet2 Link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected

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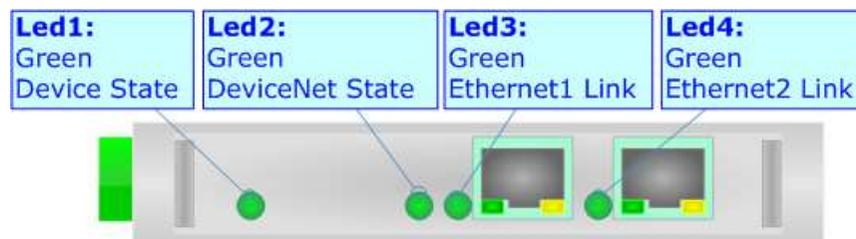
ETHERNET/IP:

The Ethernet/IP connection must be made using Connector3 and/or Connector4 of HD67595-A1 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/PLC/other is recommended the use of a cross cable.
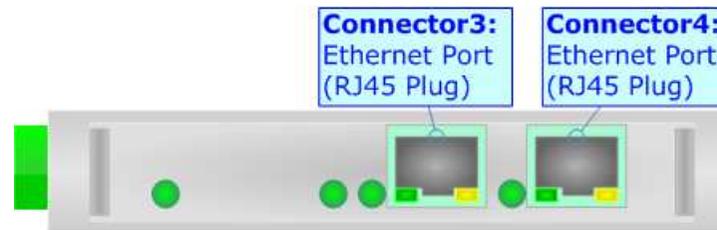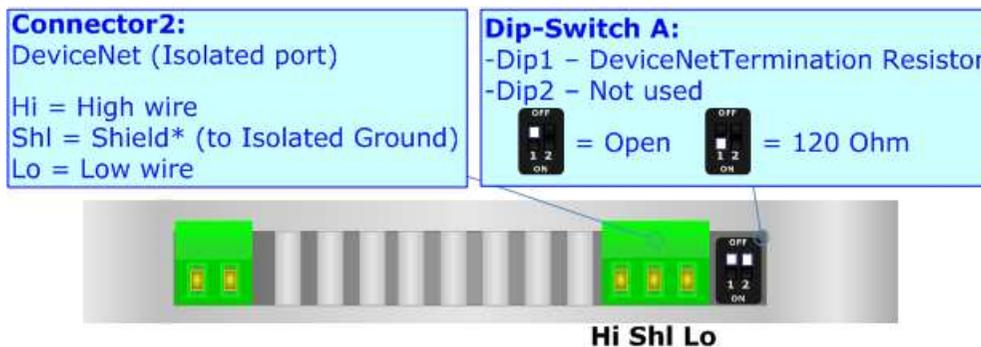
USB:

The USB connection, must be made with a USB cable with a USB Mini B plug.
The USB port is used for programming the device.

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DEVICENET:

For terminate the CAN line with a 120Ω resistor it is necessary that the Dip1 of 'Dip-Switch A' is at ON position.

Cable characteristics:

DC parameter:		Impedance	70 Ohm/m

AC parameters:		Impedance	120 Ohm/m
		Delay	5 ns/m

Length		Baud Rate [bps]	Length MAX [m]
		125 K	500
		250 K	250
		500 K	100

USE OF COMPOSITOR SW67598:

To configure the Converter, use the available software that runs with Windows, called SW67598. It is downloadable on the site www.adfweb.com and its operation is described in this document. *(This manual is referenced to the last version of the software present on our web site)*. The software works with MSWindows (MS 2000, XP, Vista, Seven, 8; 32/64bit).

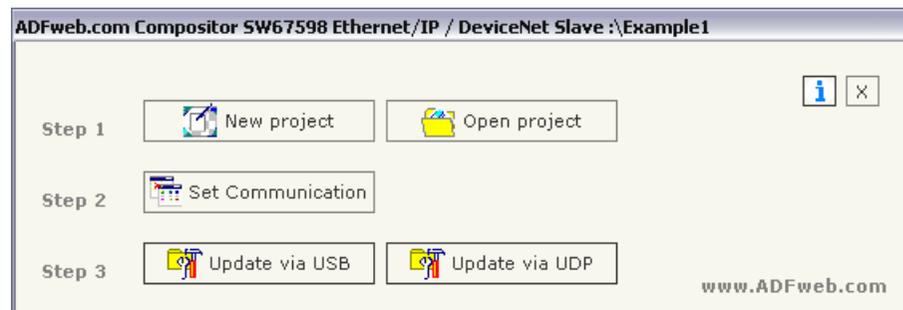When launching the SW67595 the right window appears (Fig. 2).

Figure 2: Main window for SW67598

NEW PROJECT / OPEN PROJECT:

The "**New Project**" button creates the folder which contains the entire device configuration.

A device configuration can also be imported or exported:

- To clone the configurations of a Programmable "Ethernet/IP / DeviceNet Slave – Converter" in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button "**Open Project**".

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SET COMMUNICATION:

This section define the fundamental communication parameters of two buses, Ethernet/IP and DeviceNet.

By Pressing the "**Set Communication**" button from the main window for SW67598 (Fig. 2) the window "Set Communication" appears (Fig. 3).
The window is divided in two sections, one for the Ethernet/IP and the other for the DeviceNet.

The means of the fields for "Ethernet/IP" are:

- In the fields "**IP**" insert the IP address that you want to give to the Converter;
- In the fields "**SubNet Mask**" insert the SubNet Mask;
- In the fields "**Default Gateway**" insert the default gateway that you want to use. This feature can be enabled of disabled pressing the Check Box field;
- In the field "**Port**" insert the number of port;
- In the field "**Number Byte IN**" the number of byte from the Ethernet/IP to the Converter is defined (at maximum it is possible to use 455 byte);
- In the field "**Number Byte OUT**" the number of byte from the Converter to the Ethernet/IP is defined (at maximum it is possible to use 455 byte).

The means of the fields for the "DeviceNet" section are:

- In the field "**ID Dev.**" the address for the DeviceNet Master is defined;
- In the field "**Baud Rate**" the velocity of the DeviceNet bus is defined.

Figure 3: "Set Communication" window

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UPDATE DEVICE VIA UDP:

By pressing the "**Update Device via UDP**" button it is possible to load the created Configuration into the device; and also the Firmware, if is necessary.

If you don't know the actual IP address of the device you have to use this procedure:

- Turn off the Device;
- Put Dip2 of 'Dip-Switch B' at ON position;
- Turn on the device
- Connect the Ethernet cable;
- Insert the IP "**192.168.2.205**";
- Press the "**Ping**" button, must appear "Device Found!";
- Press the "**Next**" button;
- Select which operations you want to do;
- Press the "**Execute update firmware**" button to start the upload;
- When all the operations are "OK" turn off the Device;
- Put Dip2 of 'Dip-Switch B' at OFF position;
- Turn on the device.

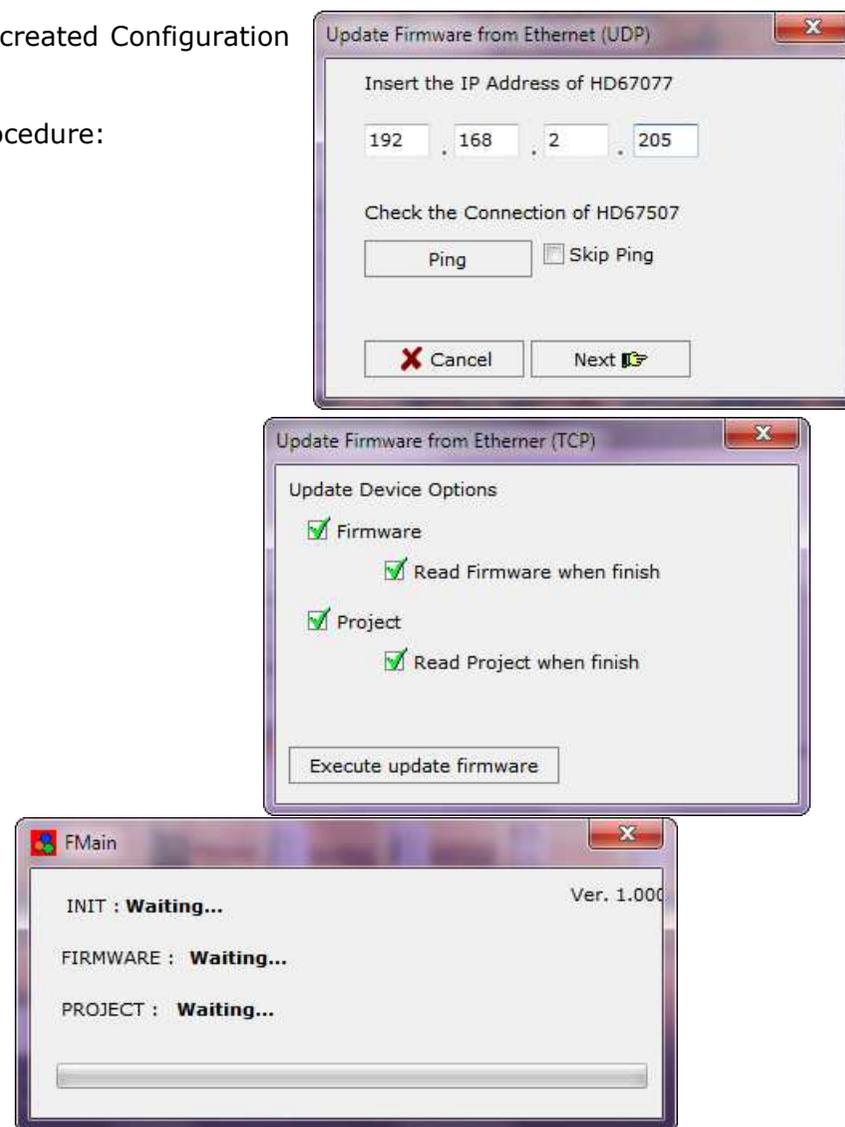At this point the configuration/firmware on the device is correctly updated.

Figure 4: "Update device" windows

If you know the actual IP address of the device you have to use this procedure:

+ Turn on the Device with the Ethernet cable inserted;
+ Insert the actual IP of the Converter;
+ Press the "**Ping**" button, must appear "Device Found!";
+ Press the "**Next**" button;
+ Select which operations you want to do;
+ Press the "**Execute update firmware**" button to start the upload;
+ When all the operations are "OK" the device automatically goes at Normal Mode.

At this point the configuration/firmware on the device is correctly update.

Note:
    When you install a new version of the software it is better if the first time you do the update of the Firmware in the HD67598-A1 device.

Note:
    When you receive the device, for the first time, you have to update also the Firmware in the HD67598-A1 device.

Warning:
    If the Fig. 5 appears when you try to do the Update before require assistance try these points:

+ Try to repeat the operations for the updating;
+ Try with another PC;
+ Try to restart the PC;
+ If you are using the program inside a Virtual Machine, try to use in the main Operating System;
+ If you are using Windows Seven or Vista or 8, make sure that you have the administrator privileges;
+ Take attention at Firewall lock;
+ Check the LAN settings.

⚠ In the case of HD67598-A1 you have to use the software "SW67598": www.adfweb.com\download\filefold\SW67598.zip.

Figure 5: "Protection" window

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UPDATE DEVICE VIA USB:

By pressing the "**Update Device via USB**" button it is possible to load the created Configuration into the device; and also the Firmware, if is necessary.

In order to load the parameters or update the firmware in the device, follow these instructions:

+ Turn off the Device;
+ Connect the USB cable form your PC to the Converter;
+ Put Dip2 of Dip-Switch B at "ON" position (see "FUNCTION MODES" section);
+ Select the "**COM port**" and press the "**Connect**" button;
+ Turn on the device;
+ Check the Led. They must blink quickly (see "LEDS" section);
+ Press the "**Next**" button;
+ Select which operations you want to do.
+ Press the "**Execute update firmware**" button to start the upload;
+ When all the operations are "OK" turn off the device;
+ Put Dip2 of Dip-Switch B at "OFF" position or disconnect the Boot jumper;
+ Disconnect the USB Cable;
+ Turn on the device.

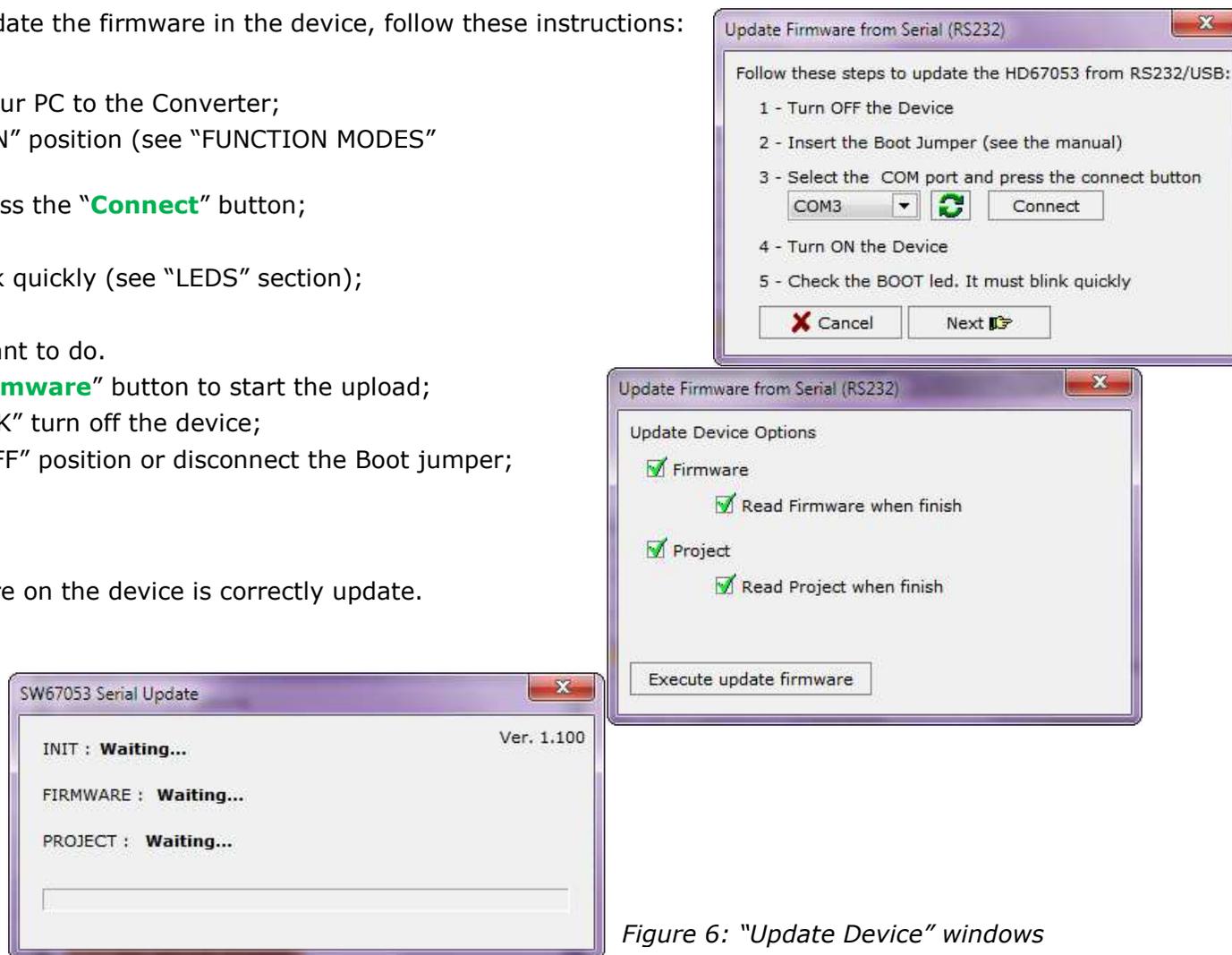At this point the configuration/firmware on the device is correctly update.

Figure 6: "Update Device" windows

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Note:
    When you install a new version of the software it is better if the first time you do the update of the Firmware in the HD67598-A1 device.

Note:
    When you receive the device, for the first time, you have to update also the Firmware in the HD67598-A1 device.

Warning:
    If the Fig. 7 appears when you try to do the Update before require assistance try these points:

- Check if the serial COM port selected is the correct one;
- Check if the USB or serial cable is connected between the PC and the device;
- Try to repeat the operations for the updating;
- Try with another PC;
- Try to restart the PC;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows Seven or Vista or 8, make sure that you have the administrator privileges;
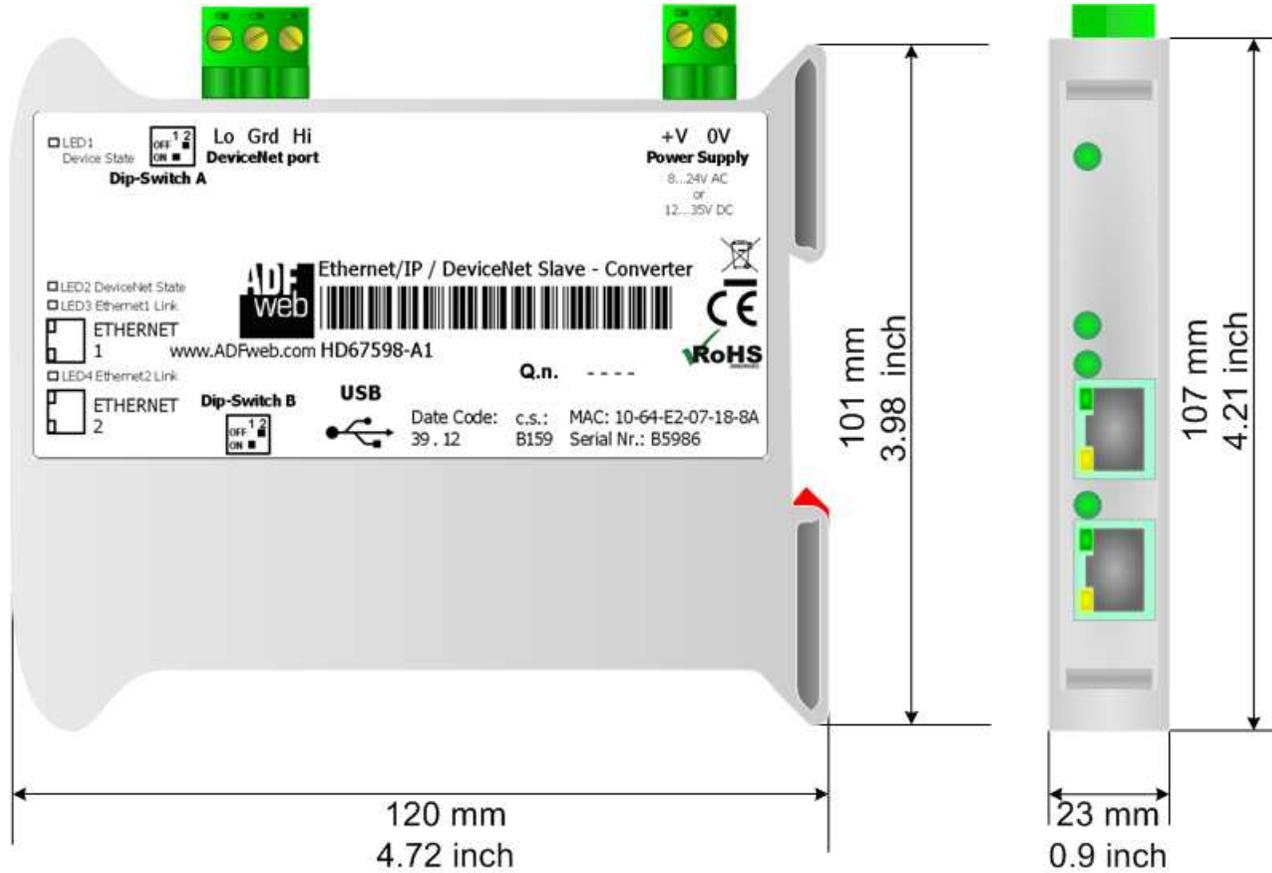- Take attention at Firewall lock.

Figure 7: "Protection" window

In the case of HD67598-A1 you have to use the software "SW67598": www.adfweb.com\download\filefold\SW67598.zip.

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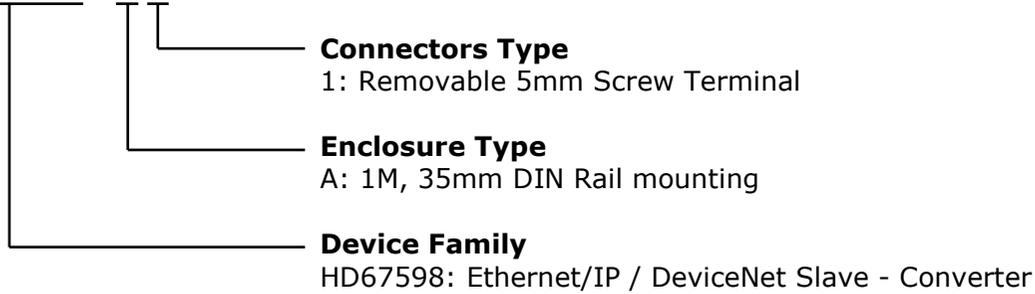
MECHANICAL DIMENSIONS:

Figure 8: Mechanical dimensions scheme for HD67598-A1

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ORDERING INFORMATIONS:

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

HD67598 – A 1

Connectors Type
1: Removable 5mm Screw Terminal

Enclosure Type
A: 1M, 35mm DIN Rail mounting

Device Family
HD67598: Ethernet/IP / DeviceNet Slave - Converter

Order Code: **HD670598-A1**   -   Converter Ethernet/IP / DeviceNet Slave Converter

ACCESSORIES:

Order Code: **AC34001**   -   35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V AC

Order Code: **AC34002**   -   35mm Rail DIN - Power Supply 110V AC 50/60Hz – 12 V AC

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:
1) 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.
2) 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.

PRODUCTS AND RELATED DOCUMENTS:

Part	Description	URL
HD67120	Converter Ethernet to RS232/RS485	www.adfweb.com?product=HD67120
HD67119	Converter USB 2.0 to RS485 Isolated	www.adfweb.com?product=HD67119
HD67507	Gateway Modbus TCP Server to RTU Master	www.adfweb.com?product=HD67507
HD67510	Gateway Modbus TCP Client to RTU Slave	www.adfweb.com?product=HD67510