

# User Manual

Revision 2.002  
English

## CAN / Ethernet - Converter

(Order Code: HD67513-A1 – HD67513-B2)

for Website information:

[www.adfweb.com?Product=HD67513](http://www.adfweb.com?Product=HD67513)

for Price information:

[www.adfweb.com?Price=HD67513-A1](http://www.adfweb.com?Price=HD67513-A1)

[www.adfweb.com?Price=HD67513-B2](http://www.adfweb.com?Price=HD67513-B2)

### Benefits and Main Features:

- ▶ Mountable on Rail DIN
- ▶ TCP/UDP protocols changeable with software
- ▶ Easy to use software configuration
- ▶ Industrial temperature range:  
-40 °C / 85°C (-40°F / 185°F)



HD67513-A1



HD67513-B2

Similar  
Products →

For others Gateway / Adapter:

#### Ethernet to

See also the following link:

[www.adfweb.com?Product=HD67213](http://www.adfweb.com?Product=HD67213)  
[www.adfweb.com?Product=HD67503](http://www.adfweb.com?Product=HD67503)  
[www.adfweb.com?Product=HD67506](http://www.adfweb.com?Product=HD67506)  
[www.adfweb.com?Product=HD67563M](http://www.adfweb.com?Product=HD67563M)

**(J1939)**  
**(CANopen)**  
**(Modbus RTU)**  
**(PROFIBUS)**

For others Converter / Adapter:

#### RS232 to RS485

See also the following link:

[www.adfweb.com?Product=HD67118](http://www.adfweb.com?Product=HD67118)

#### USB to RS485

See also the following link:

[www.adfweb.com?Product=HD67119](http://www.adfweb.com?Product=HD67119)

Do you have an your customer protocol?

See the following link:

[www.adfweb.com?Product=HD67003](http://www.adfweb.com?Product=HD67003)

Do you need to choose a device? do you want help?

Ask it to the following link:

[www.adfweb.com?Cmd=helpme](http://www.adfweb.com?Cmd=helpme)

**INDEX:**

	Page
INDEX	2
UPDATED DOCUMENTATION	2
REVISION LIST	2
WARNING	2
TRADEMARKS	2
SECURITY ALERT	3
CONNECTION SCHEME	4
POWER SUPPLY	6
CHARACTERISTICS	7
CONFUGURATION	7
USE OF COMPOSITOR SW67513	7
NEW PROJECT / OPEN PROJECT	8
SET COMMUNICATION	9
PING DEVICE	9
RECEIVE COB	10
UPDATE VIA SERIAL	11
CHARACTERISTICS OF THE CABLES	12
ETHERNET PROTOCOL	13
Write Frames	13
Read Frames	14
MECHANICAL DIMENSIONS	15
ORDER CODE	15
ACCESSORIES	15
DISCLAIMER	16
OTHER REGULATIONS AND STANDARDS	16
WARRANTIES AND TECHNICAL SUPPORT	17
RETURN POLICY	17
PRODUCTS AND RELATED DOCUMENTS	17

**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/](http://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/](http://www.adfweb.com/download/)

**REVISION LIST:**

Revision	Date	Author	Chapter	Description
1.001	20/01/2009	FI	All	Software changed
1.002	07/05/2010	MI , Dp	All	Revision
1.003	30/09/2010	FI	All	Revision
2.000	10/11/2011	FI	All	Codes changed
2.002	24/01/2013	Nt	All	Added new chapters

**WARNING:**

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**TRADEMARKS:**

All trademarks mentioned in this document belong to their respective owners.

**SECURITY ALERT:****GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device are required for each individual application, legal and safety regulation. 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 instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:

 This symbol indicates that non-observance of the safety instructions is danger for people to serious injury or death and / or the possibility of damage.

**CE CONFORMITY**

The declaration is made by us. You can send an email to [support@adfweb.com](mailto:support@adfweb.com) or give us a call if you need it.

**CONNECTION SCHEME:**

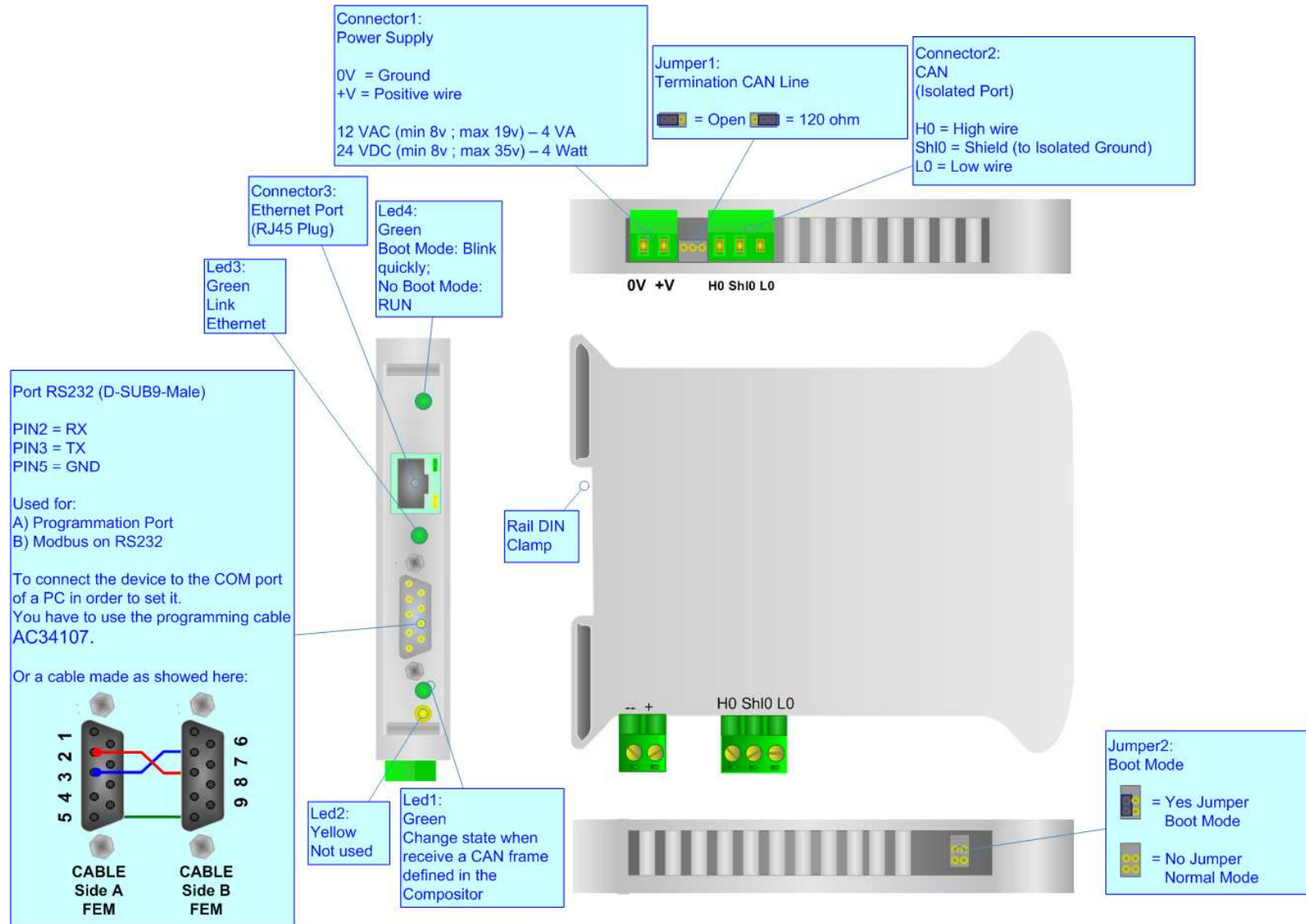


Figure 1: Connection scheme HD67513-A1

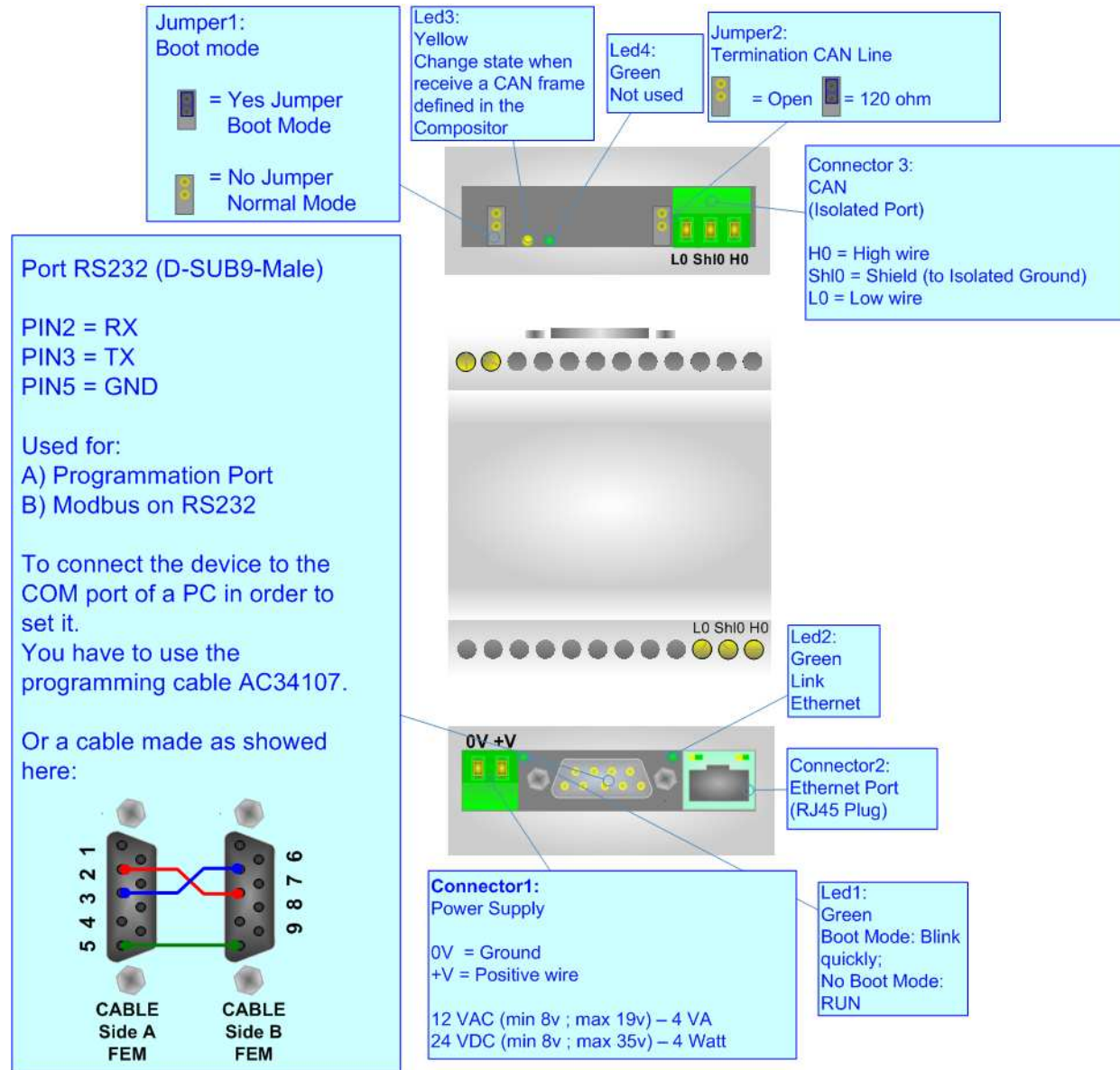




Figure 2: Connection scheme for HD67513-B2

**POWER SUPPLY:**

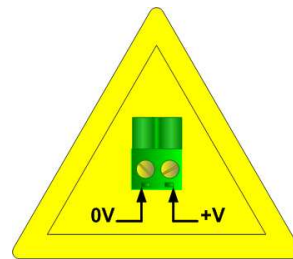
The devices can be powered at 8...19V AC and 8...35V DC. The consumption depends to the code of the device. For more details see the two tables below.

VAC 		VDC 	
Vmin	Vmax	Vmin	Vmax
8V	19V	8V	35V

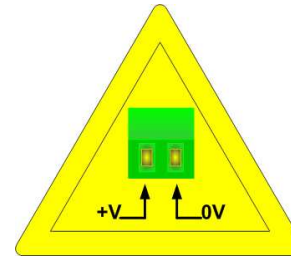
Consumption at 24V DC:

Device	Consumption [W/VA]
HD67513-A1	4
HD67513-B2	5

**Caution: Not reverse the polarity power**



HD67513-A1



HD67513-B2

**CHARACTERISTICS:**

The Configurable CAN / Ethernet - Converter allows the following characteristics:

- TCP/UDP Ethernet protocols changeable with software;
- Mountable on Rail DIN;
- Temperature range -40°C to 85°C.

This device is able to manage a maximum of four simultaneous connections from Ethernet side.

**CONFIGURATION:**

You need Compositor SW67513 software on your PC in order to perform the following:

- Define the parameter of the CAN bus;
- Define the parameter of the Ethernet;
- Define a list of Receive COB.

**USE OF COMPOSITOR SW67513:**

To configure the Gateway, use the available software that runs with Windows, called SW67513. It is downloadable on the site [www.adfweb.com](http://www.adfweb.com) and its operation is described in this document.

When launching the SW67513 the right window appears (Fig. 3).

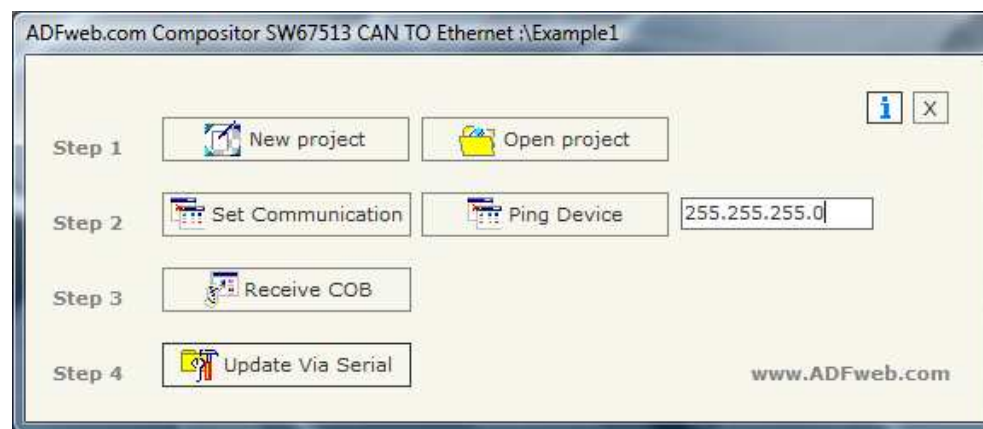


Figure 3: Main window for SW67513

**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 CAN to Ethernet Gateway 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";
- When a new project is created or an existent project is open, it will be possible to access the various configuration sections of the Software.



**SET COMMUNICATION:**

This section define the fundamental communication parameter of two buses, CAN Bus and Ethernet.

By pressing the "Set Communication" button from the main window for SW67513 (Fig. 3) the window "Set Communication" appears (Fig. 4).

The window is divided in two sections, one for the CAN Bus and the other for the Ethernet.

The means of the fields for "CAN Bus" are:

- In the field "Baud rate" the baudrate for the CAN Bus is defined;
- If the field "CAN Bus 2.0A" is checked, the CAN with a CobID of 11Bit is used; otherwise if the field "CAN Bus 2.0B" is checked, the CAN with a CobID of 29Bit is used.

The means of the fields for "Ethernet" are:

- In the field "IP ADDRESS" insert the IP address;
- In the field "SUBNET Mask" insert the SubNet Mask;
- In the field "Port" insert the number of the port;
- If the field "TCP" is checked the Ethernet protocol used is the TCP, otherwise if the field "UDP" is checked the Ethernet protocol used is the UDP.

The screenshot shows a dialog box titled "SET COMMUNICATION". It is divided into two main sections: "CAN Bus" and "Ethernet".

**CAN Bus Section:**

- "Baud rate" is set to 250.
- Two radio buttons are present: "CAN Bus 2.0A (CobID 11Bit)" is selected (indicated by a blue dot), and "CAN Bus 2.0B (CobID 29Bit)" is unselected.

**Ethernet Section:**

- "IP ADDRESS" is set to 192.168.0.10.
- "SUBNET Mask" is set to 255.255.255.0.
- "Port" is set to 10001.
- Two radio buttons are present: "TCP" is selected (indicated by a blue dot), and "UDP" is unselected.

At the bottom of the dialog, there are two buttons: "OK" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 4: "Set Communication" window

**PING DEVICE:**

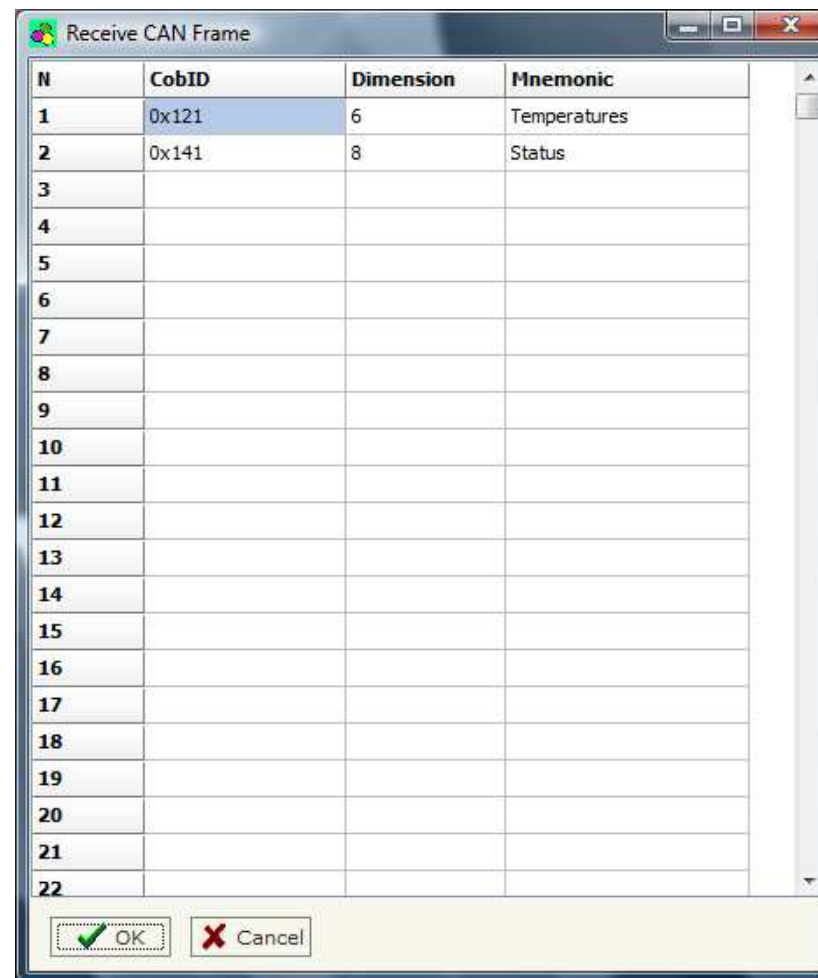
If it is necessary to do a Ping on the net, before pressing the "Ping Device" button insert a value in the field on the right and then press the button. In order to do this, the gateway must be in RUN mode. To use this feature in Vista and 7 you have to open the software with Administrator right.

**RECEIVE COB:**

By pressing the "Receive COB" button from the main window for SW67513 (Fig. 3) the window "Receive CAN Frame" appears (Fig. 5).

The means of the fields are:

- In the field "CobID" insert the Cob\_ID of the CAN Bus frame;
- In the field "Dimension" insert the number of bytes of CAN Bus frame (the maximum dimensions is 8 bytes);
- In the field "Mnemonic" you can insert a brief description.



N	CobID	Dimension	Mnemonic
1	0x121	6	Temperatures
2	0x141	8	Status
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Figure 5: "Receive CAN Frame" window

## UPDATE VIA SERIAL

Section "Update Via Serial" (Fig. 6):

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

- Turn OFF the device;
- Connect the Null Modem cable from your PC to the Gateway;
- Insert the Boot Jumper (For more info see the "Connection scheme" of the gateway);
- Turn ON the device;
- Check the "BOOT Led". It must blink quickly (more info see the "Connection scheme" of the gateway);
- Select the COM port and press the "Connect" button;
- Press the "Next" button;
- Select the operations you want to do. You can select only "Firmware", only "Project" or both of them;
- Press the "Execute update firmware" button to start the upload;
- When all the operations are "OK" turn OFF the device;
- Disconnect the Boot Jumper;
- Turn ON the device.

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

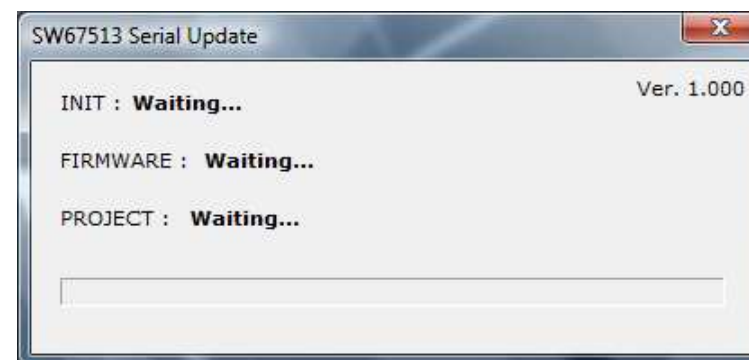
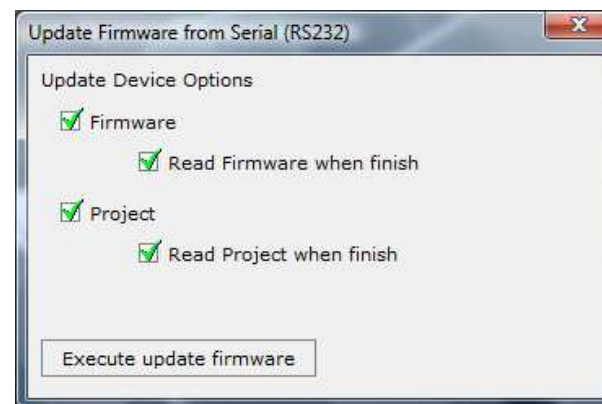
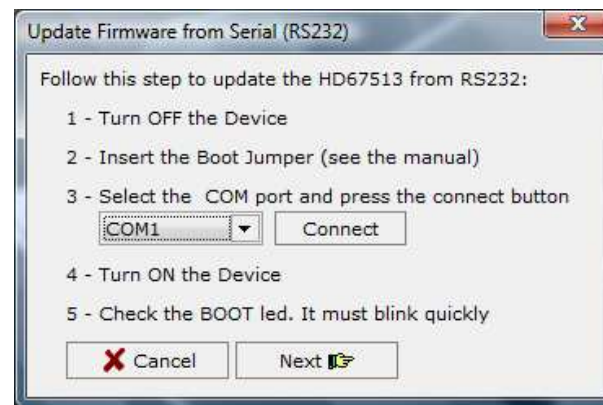


Figure 6: "Update Via Serial" windows

**CHARACTERISTICS OF THE CABLES:**

The connection with Ethernet socket must be with a Ethernet Cable with a RJ45 Plug.

The connection from RS232 socket to a serial port (example one from a personal computer) must be made with a Null Modem cable (a serial cable where the pins 2 and 3 are crossed).

It is recommended that the RS232C Cable not exceed 15 meters.

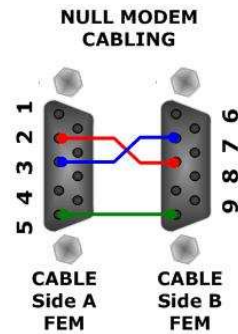


Figure 7: Null modem cabling

## ETHERNET PROTOCOL

This protocol is able to read and write frames in the CAN net.

### Write Frames

The transmission is very simple; it requires only what are the packets to send. In a single request it is possible to write at maximum 19 frames in the CAN net. The Bytes that composed the request are these:

Byte Number	Description
1	Write Identifier (0x02)
2	Number of frames to send
3÷6	Cob_ID
7	Number of Byte to send (0x01÷0x08)
8÷15	Data (Byte 8 is the higher, byte 15 is the lower)

A single frame is composed by 13 bytes (byte 3 to byte 15). If the "Number of frame to send" (Byte Number 2) has got a value greater than zero, the next frame is composed from byte 3 to byte 15 and so for all the frames.

If the "Number of Byte to send" has got a value less than 0x08 the byte of Data unused must be put with value 0x00.

The response is composed only by one byte. It can have two values:

- 0x00: No Errors;
- 0x01: Parameter Error.

Example:

We want to write three frames with the following characteristics:

Frame 1: Cob\_ID=0x0000018A; Number of Byte to send=8; Data=0x0102030405060708;

Frame 2: Cob\_ID=0x000413CB; Number of Byte to send=6; Data=0x1122334455660000;

Frame 3: Cob\_ID=0x00000001; Number of Byte to send=8; Data=0x123456789A9B9C9D.

So the string of hexadecimal numbers is:

```
REQ:[02][03][00][00][01][8A][08][01][02][03][04][05][06][07][08][00][04][13][CB][06][11][22][33][44][55][66][00][00][00][00][00][01][08][12][34][56][78][9A][9B][9C][9D]
RES:[00]
```

### Read Frames

For reading Data it is necessary to have a map in the RAM memory that contains the Data that passing in the bus. This map is implemented in the "Compositor SW67513" but it has some standard addresses given by the software. It is possible to see this map in Fig. 5.

The Bytes that composed the request are these:

Byte Number	Description
1	Read Identifier (0x01)
2	Starting Address Hi
3	Starting Address Lo
4	Number of Byte to read Hi
5	Number of Byte to read Lo

The Bytes that composed the respons are these:

Byte Number	Description
1	Error
2÷n+1	Data

n=Number of Byte

The Error Byte (Byte 1) can have three values:

- 0x00: No error;
- 0x01: Starting Address doesn't exist;
- 0x02: Too many Data to read.

Example:

1- We want to read the data of the first COB-ID defined in Fig. 5.. So the string of hexadecimal numbers is:

REQ:[01][00][00][00][06]

RES:[00][01][02][03][04][05][06]

2- We want to read the data of the second COB-ID defined in Fig. 5.. So the string of hexadecimal numbers is:

REQ:[01][00][01][00][08]

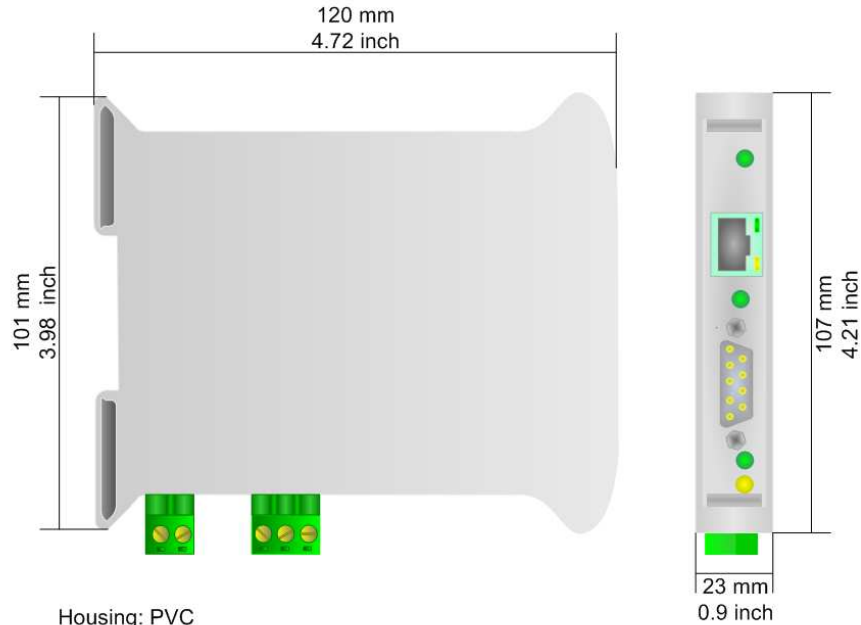
RES:[00][11][22][33][44][55][66][77][88]

3- We want to read the data of the first and second COB-ID defined in Fig. 5. together. So the string of hexadecimal numbers is:

REQ:[01][00][00][00][0E]

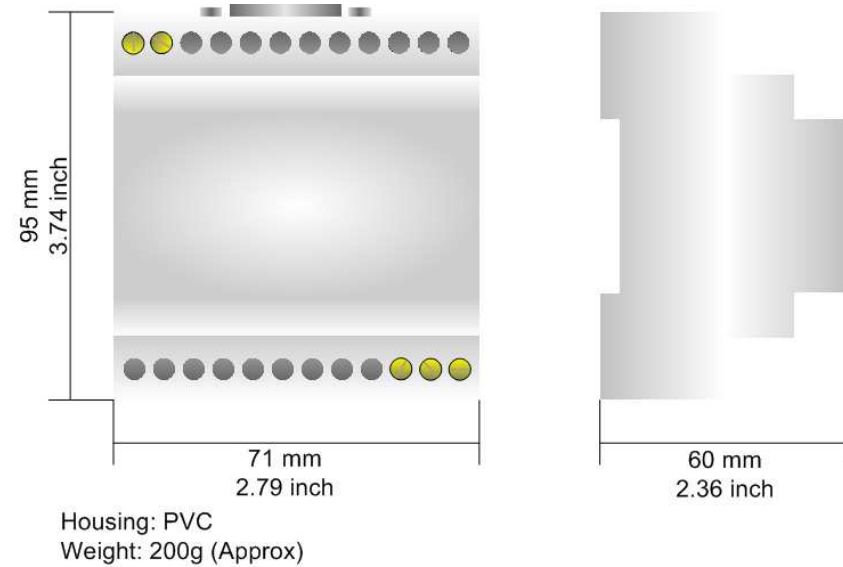
RES:[00][01][02][03][04][05][06][11][22][33][44][55][66][77][88]

**MECHANICAL DIMENSIONS:**



Housing: PVC  
Weight: 200g (Approx)

Figure 8: Mechanical dimensions scheme for HD67513-A1



Housing: PVC  
Weight: 200g (Approx)

Figure 9: Mechanical dimensions scheme for HD67513-B2

**ORDER CODE:**

Order Code: **HD67513-A1-** CAN / Ethernet - Converter

Order Code: **HD67513-B2-** CAN / Ethernet - Converter (different enclosure)

**ACCESSORIES:**

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

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

Order Code: **AC34104** - European Input - Power Supply 230V AC 50Hz – 12 V DC

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## OTHER REGULATIONS AND STANDARDS

### 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 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.



**WARRANTIES AND TECHNICAL SUPPORT:**

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at [www.adfweb.com](http://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](http://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
HD67118	Converter RS232 to RS485 Isolated	<a href="http://www.adfweb.com?Product=HD67118">www.adfweb.com?Product=HD67118</a>
HD67119	Converter USB 2.0 to RS485 Isolated	<a href="http://www.adfweb.com?Product=HD67119">www.adfweb.com?Product=HD67119</a>
HD67507	Gateway Modbus TCP Server to RTU Master	<a href="http://www.adfweb.com?Product=HD67507">www.adfweb.com?Product=HD67507</a>
HD67510	Gateway Modbus TCP Client to RTU Slave	<a href="http://www.adfweb.com?Product=HD67510">www.adfweb.com?Product=HD67510</a>