

# User Manual

Revision 1.002  
English

## DeviceNet Master / Modbus TCP Slave - Converter

(Order Code: HD67152-A1 – HD67152-B2)

for Website information:

[www.adfweb.com?Product=HD67152](http://www.adfweb.com?Product=HD67152)

for Price information:

[www.adfweb.com?Price=HD67152-A1](http://www.adfweb.com?Price=HD67152-A1)

[www.adfweb.com?Price=HD67152-B2](http://www.adfweb.com?Price=HD67152-B2)

### Benefits and Main Features:

- ▶ Very easy to configure
- ▶ Low cost
- ▶ Rail mountable
- ▶ Wide supply input range
- ▶ Galvanic isolation between two buses
- ▶ Industrial temperature range:  
-40°C / 85°C (-40°F / 185°F)



HD67152-A1



HD67152-B2

For other DeviceNet products see also the following link:

#### DeviceNet Master from/to

[www.adfweb.com?Product=HD67151](http://www.adfweb.com?Product=HD67151)

**(Modbus Slave)**

[www.adfweb.com?Product=HD67153](http://www.adfweb.com?Product=HD67153)

**(CANopen)**

[www.adfweb.com?Product=HD67154](http://www.adfweb.com?Product=HD67154)

**(Ethernet)**

[www.adfweb.com?Product=HD67555](http://www.adfweb.com?Product=HD67555)

**(PROFIBUS)**

For other Modbus products see also the following link:

#### Modbus Master from/to

[www.adfweb.com?Product=HD67001](http://www.adfweb.com?Product=HD67001)

**(CANopen)**

[www.adfweb.com?Product=HD67012](http://www.adfweb.com?Product=HD67012)

**(CAN)**

#### Modbus Slave from/to

[www.adfweb.com?Product=HD67002](http://www.adfweb.com?Product=HD67002)

**(CANopen)**

[www.adfweb.com?Product=HD67011](http://www.adfweb.com?Product=HD67011)

**(CAN)**

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)

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**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 update.

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
1.000	23/04/2010	Fl	All	First release version
1.001	03/02/2011	Fl	All	Revision
1.002	13/02/2013	Nt	All	Added new chapters

**WARNING:**

ADFweb.com reserves the right to change information in this manual about our product without warning.

ADFweb.com is not responsible for any error this manual may contain.

**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:**

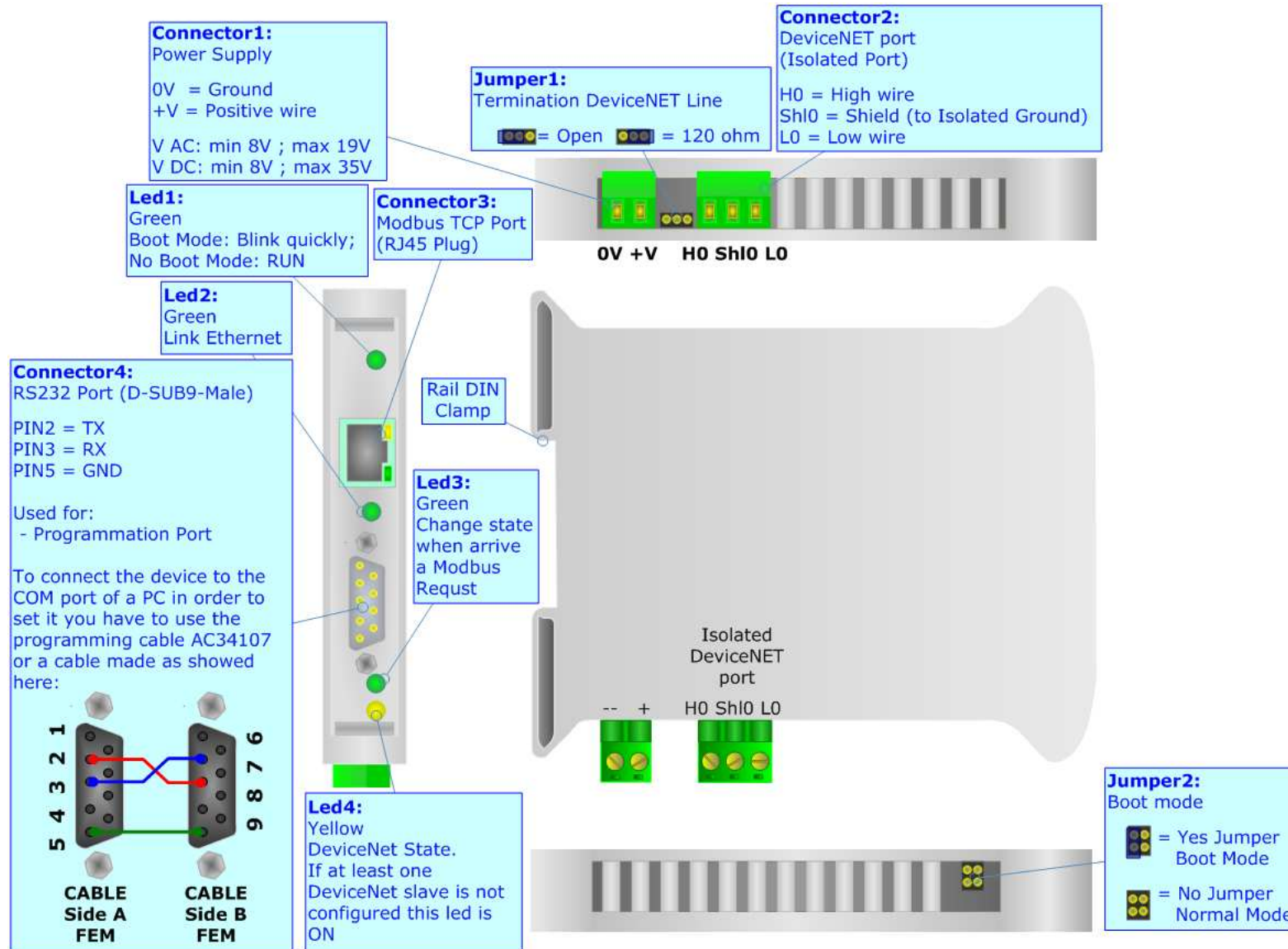


Figure 1: Connection scheme for HD67152-A1

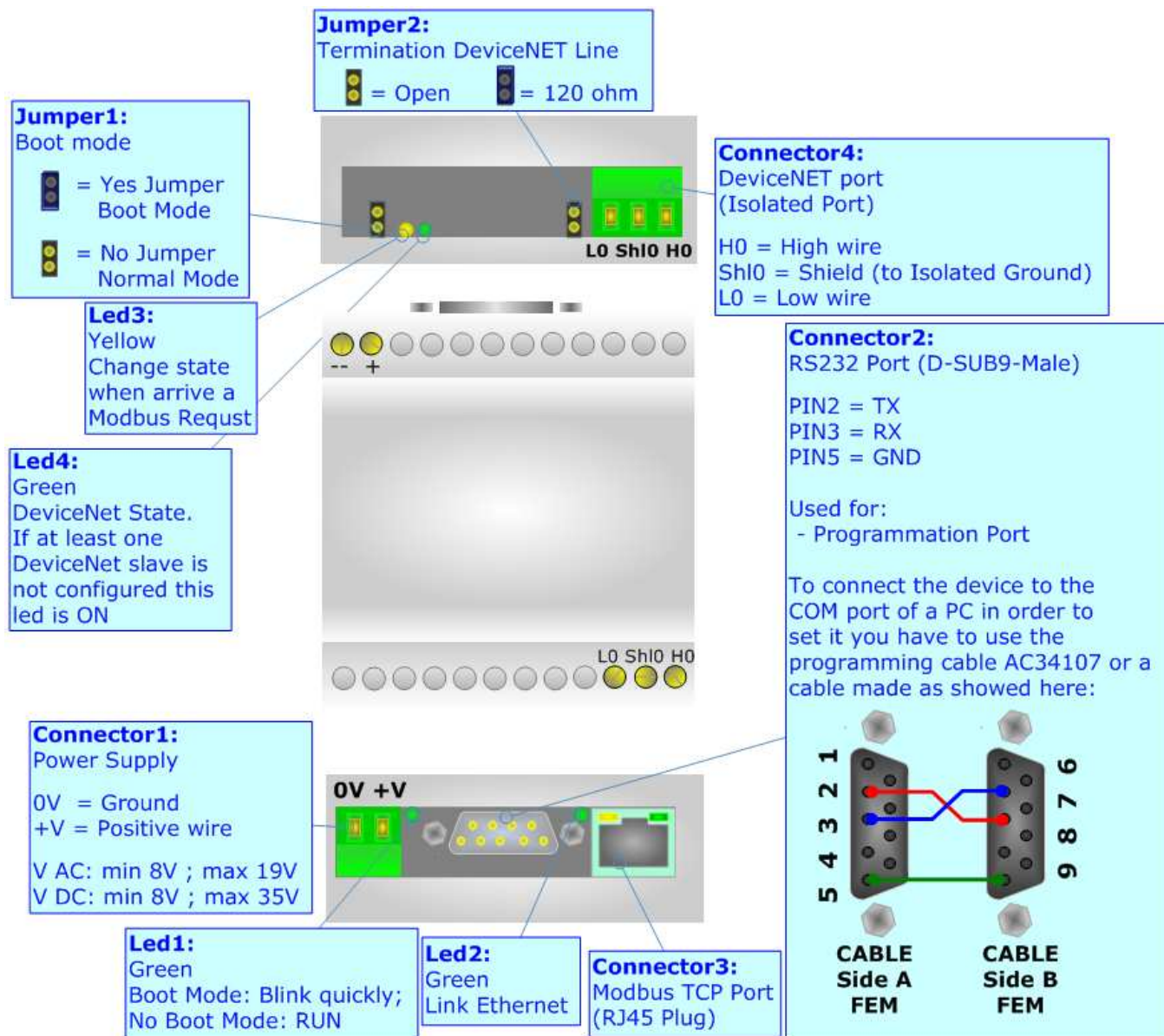


Figure 2: Connection scheme for HD67152-B2

**CHARACTERISTICS:**

The Modbus TCP Server from/to DeviceNet Master Gateway allows the following characteristics:

- Two-directional information between Modbus and DeviceNet bus;
- Electrical isolation between two buses;
- Power supply of 8...19 VAC 4VA or 8...35 VDC 4W;
- 35mm Rail DIN mounting;
- Temperature range -40°C to 85°C.



**CONFIGURATION:**

You need Compositor SW67152 software on your PC in order to perform the following:

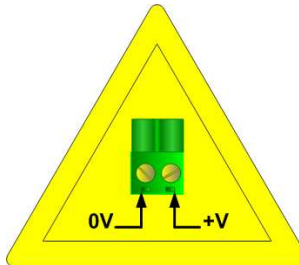
- Define the parameters of Modbus;
- Define the parameters of DeviceNet;
- Define the read/write registers;
- Update the Firmware and/or the Project.

**POWER SUPPLY:**

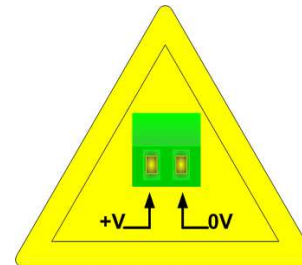
The devices can be powered at 8...19V AC and 8...35V DC. The consumption depends to the code of the device. For more details see the two tables below.

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

**Caution: Not reverse the polarity power**



HD67152-A1



HD67152-B2

### USE OF COMPOSITOR SW67152:

To configure the Gateway, use the available software that runs with Windows, called SW67152. It is downloadable on the site [www.adfweb.com](http://www.adfweb.com) and its operation is described in this document.

When launching the SW67152 the right window appears (Fig. 3).

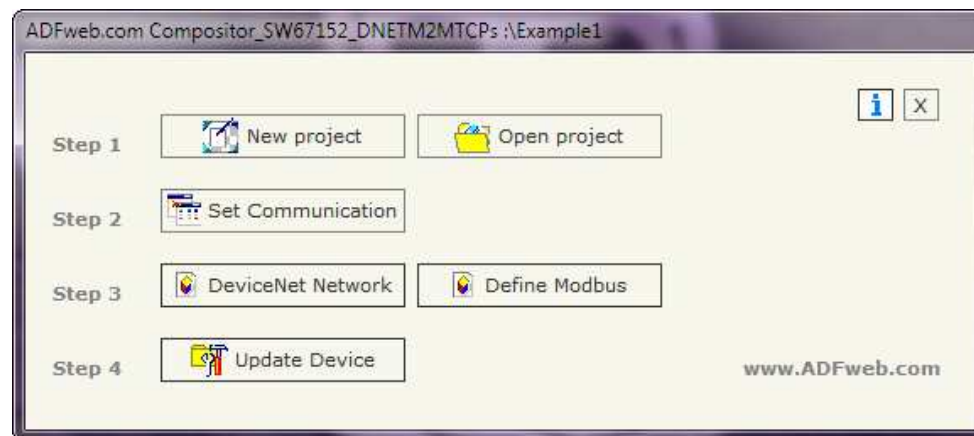


Figure 3: Main window for SW67152

### 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 Modbus TCP Server to DeviceNet Master 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**".



**SET COMMUNICATION:**

This section defines the fundamental communication parameters of two Buses Modbus and DeviceNet.

By pressing the "**Set Communication**" button from the main window for SW67152 (Fig. 3) the "SET COMMUNICATION" window appears (Fig. 4).

This window is divided in two sections, one for the DeviceNet and the other for the Modbus.

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

- In the "**ID Dev.**" field the Gateway address of the DeviceNet is defined.
- In the "**Baud rate**" field the DeviceNet baud rate is defined.

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;
- If the field "**Gateway**" is checked in the fields under it is possible to insert the IP address used for going out to the net;
- In the field "**Port**" insert the number of the port.

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

- DeviceNet Master:**
  - "ID Dev.": A text input field containing the value "15".
  - "Baud rate": A dropdown menu showing "500K".
- Ethernet:**
  - "IP Address": Four text input fields containing "192", ".168", ".2", ".189".
  - "Subnet Mask": Four text input fields containing "255", ".255", ".255", ".0".
  - "Gateway": A checkbox that is checked, followed by four text input fields containing "192", ".168", ".2", ".1".
  - "Port": A text input field containing "502".

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

Figure 4: "Set Communication" window

**DEVICENET NETWORK:**

By pressing the "**DeviceNet Network**" button from the main window for SW67152 (Fig. 3) the window "DeviceNet Network" appears (Fig. 5).

Here it is possible to define the Slaves DeviceNet Devices with their ID, number of Input and number of Output bytes.

The data of the columns have the following meanings:

- In the field "**ID**" the ID of a slave DeviceNet device is defined;
- In the field "**N BYTE IN**" the number of input byte of the slave DeviceNet is defined;
- In the field "**N BYTE OUT**" the number of output byte of the slave DeviceNet is defined;
- In the field "**Mnemonic**" is possible to insert a description. It isn't necessary compiling this field, is only a label.

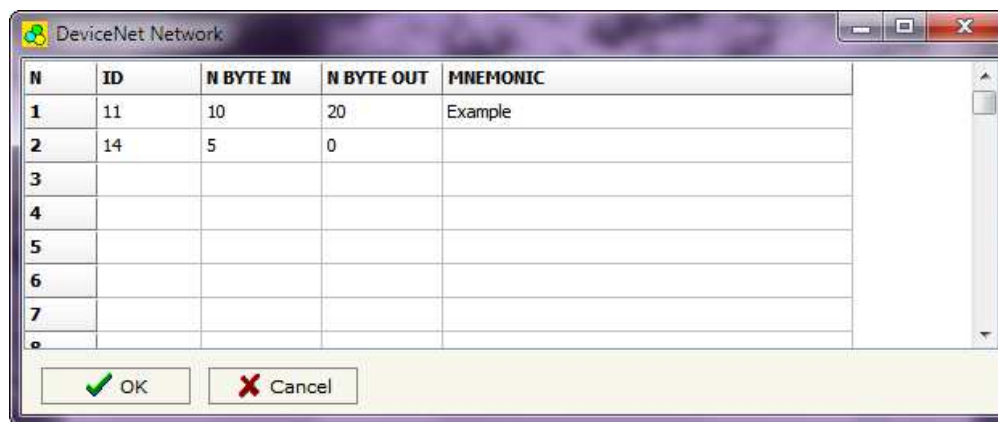


Figure 5: "Set Access" window

## DEFINE REGISTERS:

By pressing the "**Define Registers**" button from the main window for SW67152 (Fig. 3) the window "Modbus Registers Definition" appears (Fig. 6).

The window is defined in two sections: the first (Fig. 6) is "Modbus Register in Read" and allows to insert the modbus registers that a master read for knowing the values of Output data of a DeviceNet slave device; the second (Fig. 7). is "Modbus Register in Write" and allows to insert the Modbus registers that a master writes. The values of these registers going to be the Input data of the Slaves DeviceNet.

### MODBUS REGISTER IN READ

In the field "ID" there are the IDs of the slaves DeviceNet who you have defined in the section "DeviceNet Network".

In the field "MODBUS" there are the Modbus registers that you have created for the selected slave DeviceNet.

After selecting a DeviceNet ID you have to add the various Modbus registers that contains the OUT data of a slave DeviceNet. For doing this you have to fill the fields at the right side of the window; the means of that fields are:

- In the field "**Index Modbus**" the address of the register to be read is defined;
- In the field "**Translate in High MODBUS Byte**" you have to select which DeviceNet byte occupy the highest position of the Modbus Register;
- In the field "**Translate in Low MODBUS Byte**" you have to select which DeviceNet byte occupy the lowest position of the Modbus Register.

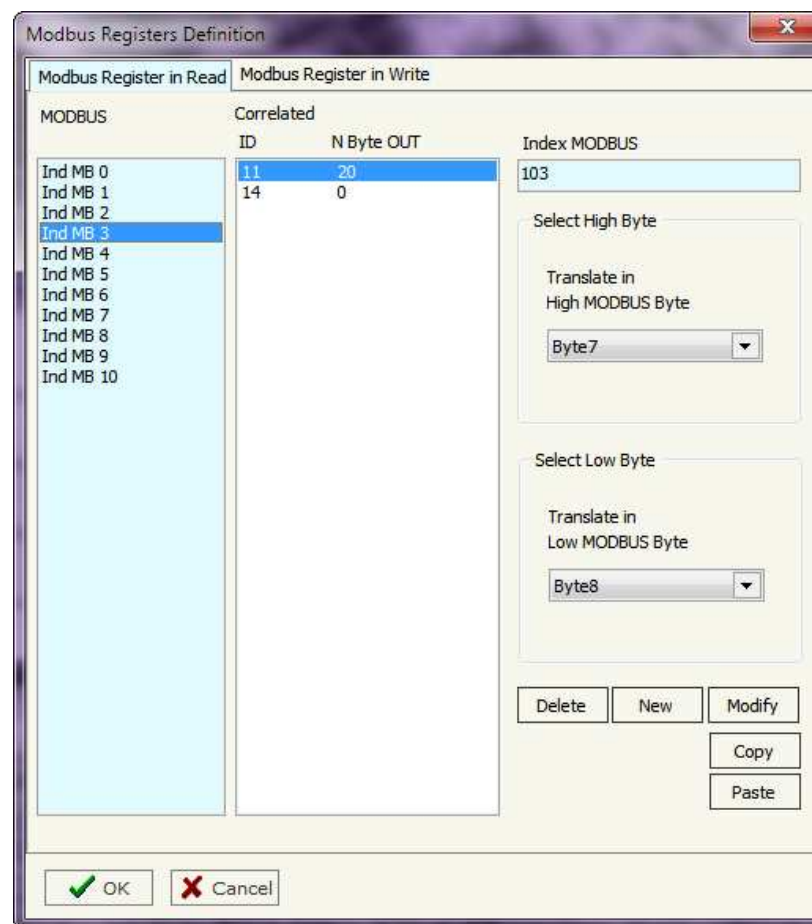


Figure 6: "Define Registers" window

### MODBUS REGISTER IN WRITE

In the field "ID" there are the IDs of the slaves DeviceNet who you have defined in the section "DeviceNet Network".

In the field "MODBUS" there are the Modbus registers that you have created for the selected slave DeviceNet.

After selecting a DeviceNet ID you have to add the various Modbus registers that contains the IN data of a slave DeviceNet. For doing this you have to fill the fields at the right side of the window; the means of that fields are:

- In the field "**Index Modbus**" the address of the register to be write is defined;
- In the field "**Translate in High MODBUS Byte**" you have to select where the highest position of the Modbus Register go in the DeviceNet IN array;
- In the field "**Translate in Low MODBUS Byte**" you have to select where the lowest position of the Modbus Register go in the DeviceNet IN array.

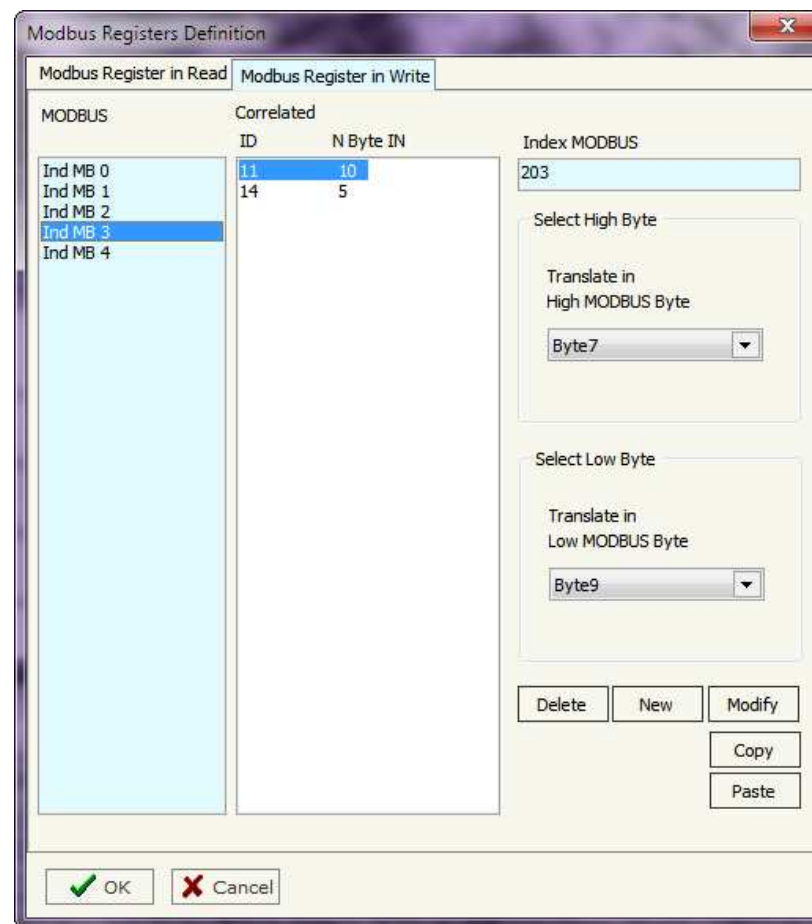


Figure 7: "Define Registers" window

## UPDATE DEVICE:

Section "Update Firmware" (Fig. 8):

In order to load the parameters or update the firmware in the device, 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 Fig. 1 or Fig. 2);
- Select the COM port and press the "**Connect**" button;
- Turn on the device;
- Check the BOOT Led. It must blink quickly (For more info see Fig. 1 or Fig. 2);
- 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;
- Disconnect the Boot jumper;
- Disconnect the RS232 Cable;
- Turn on the device.

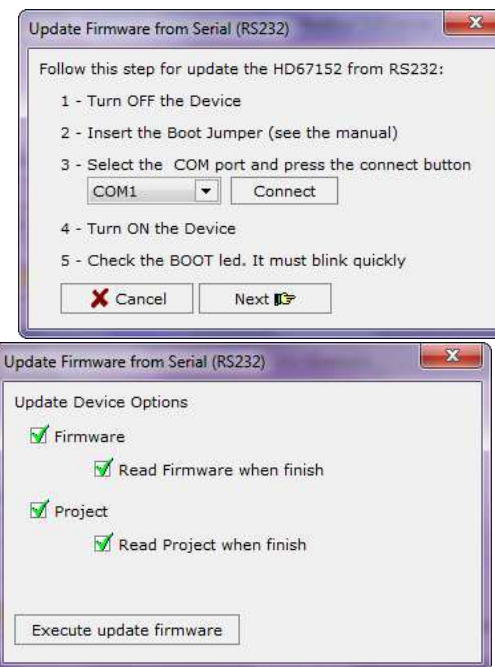


Figure 8: "Update Device" windows

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 HD67152-xx device.



### Warning:

If the Fig. 9 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 serial is connected between the PC and the device;
- Try to repeat the operations for the updating;
- If you are using a dongle try with a native COM port or change the dongle;
- Try with another PC.
- Try to restart the PC.



Figure 9: "Protection" window

**CHARACTERISTICS OF THE CABLES:**

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.

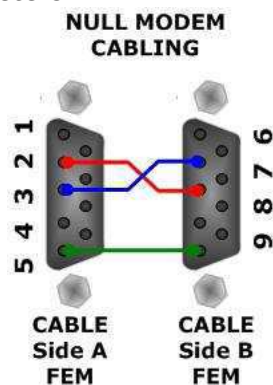


Figure 10: Null modem cabling

**MECHANICAL DIMENSIONS:**

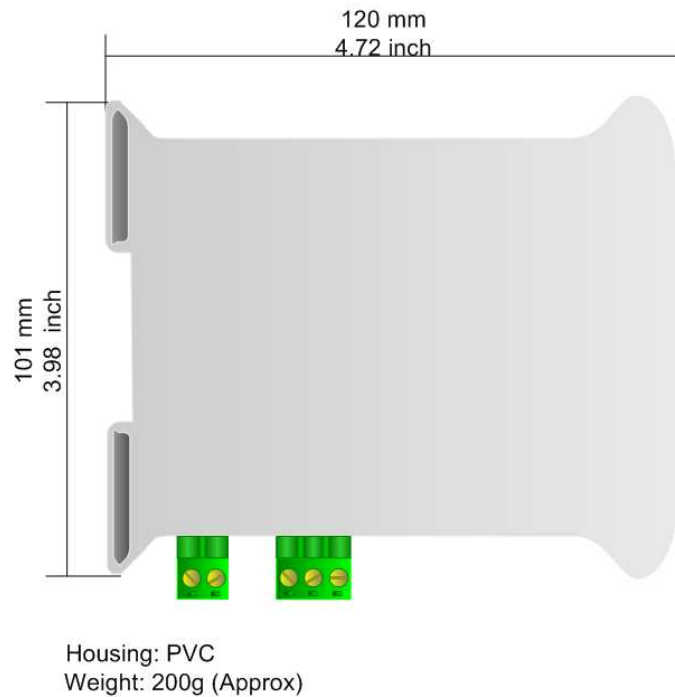


Figure 11: Mechanical dimensions scheme for HD67152-A1

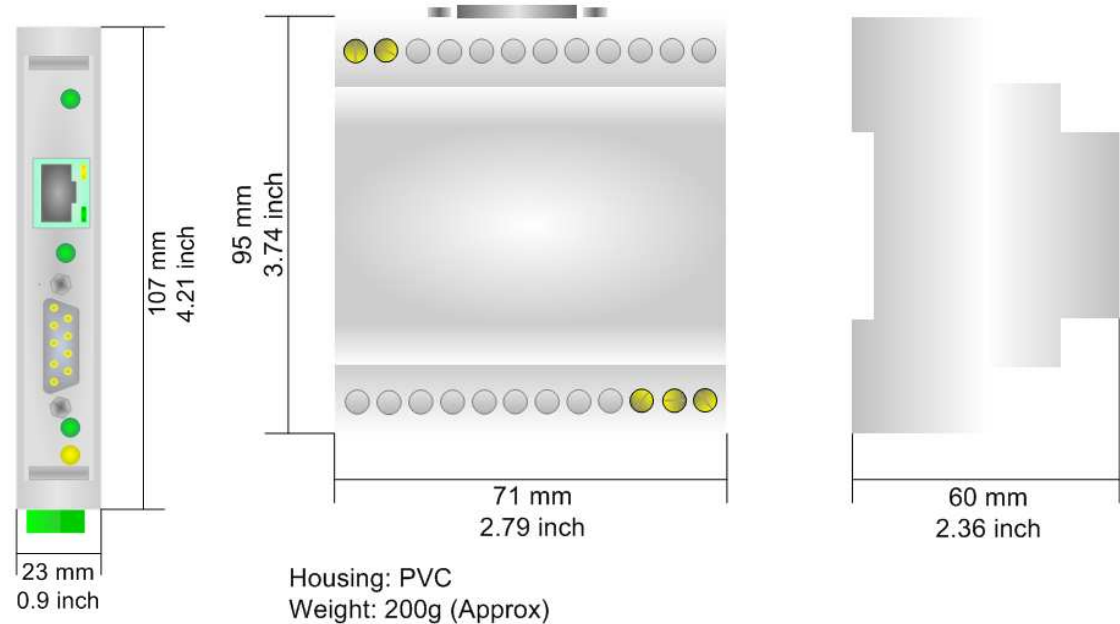


Figure 12: Mechanical dimensions scheme for HD67152-B2

**ORDER CODE:**

Order Code: **HD67152-A1-** DeviceNet Master / Modbus TCP Slave - Converter

Order Code: **HD67152-B2-** DeviceNet Master / Modbus TCP Slave - Converter

**ACCESSORIES:**

Order Code: **AC34107** - Null Modem Cable Fem/Fem DSub 9 Pin 1,5 m

Order Code: **AC34114** - Null Modem Cable Fem/Fem DSub 9 Pin 5 m

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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](mailto: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).
- 3) 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:**

<b>Part</b>	<b>Description</b>	<b>URL</b>
HD67117	CAN Repeater/Isolator	<a href="http://www.adfweb.com?Product=HD67117">www.adfweb.com?Product=HD67117</a>
HD67216	Can Analyzer	<a href="http://www.adfweb.com?Product=HD67216">www.adfweb.com?Product=HD67216</a>
HD67221	Translate CAN bus Gateway	<a href="http://www.adfweb.com?Product=HD67221">www.adfweb.com?Product=HD67221</a>