

# User Manual

Revision 2.101  
English

## CAN / Modbus Slave - Converter

(Order Code: HD67012)

for Website information:

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

for Price information:

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

### Benefits and Main Features:

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



HD67012

Similar  
Products



For other Gateways / Bridges:

#### **CAN to Modbus**

See also the following links:

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

(Modbus RTU Master)

[www.adfweb.com?product=HD67014](http://www.adfweb.com?product=HD67014)

(Modbus TCP Master)

[www.adfweb.com?product=HD67515](http://www.adfweb.com?product=HD67515)

(Modbus TCP Slave)

#### **CANopen to Modbus**

See also the following links:

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

(Modbus RTU Master)

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

(Modbus RTU Slave)

[www.adfweb.com?product=HD67004](http://www.adfweb.com?product=HD67004)

(Modbus TCP Master)

[www.adfweb.com?product=HD67505](http://www.adfweb.com?product=HD67505)

(Modbus TCP Slave)

Do you have an your customer protocol?

See the following links:

[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 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
2.000	10/07/2007	Av	All	New document format
2.001	08/10/2008	Fl	All	Change figure 2
2.002	25/06/2009	MI	All	Revision
2.100	19/10/2010	Dp	All	Add function
2.101	04/04/2013	Nt	All	Added new chapters

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**TRADEMARKS:**

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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 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.

**CHARACTERISTICS:**

The CAN / Modbus Slave Converter allows the following characteristics:

- two-directional information between networks CAN and ModBUS;
- electrical isolation between two BUSES;
- to read CANbus frame from ModBUS word;
- to write CANbus frame from ModBUS word;
- Temperature range -40°C to 85°C.

To configure the gateway, use the available software that runs with Windows, called SW67012. It is downloadable on the site [www.adfweb.com](http://www.adfweb.com) and its operation is described in this document.

The Converter can be configured up to a maximum 250 CANbus frame in reading and 250 CANbus frame in writing.

**CONNECTION SCHEME:**

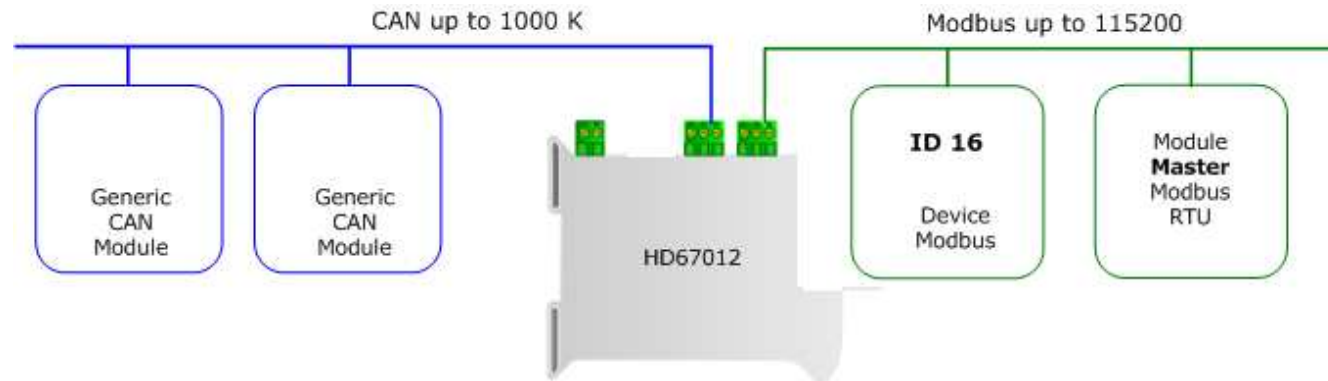


Figure 1: Connection scheme of HD67012 between a CANbus and Modbus RTU

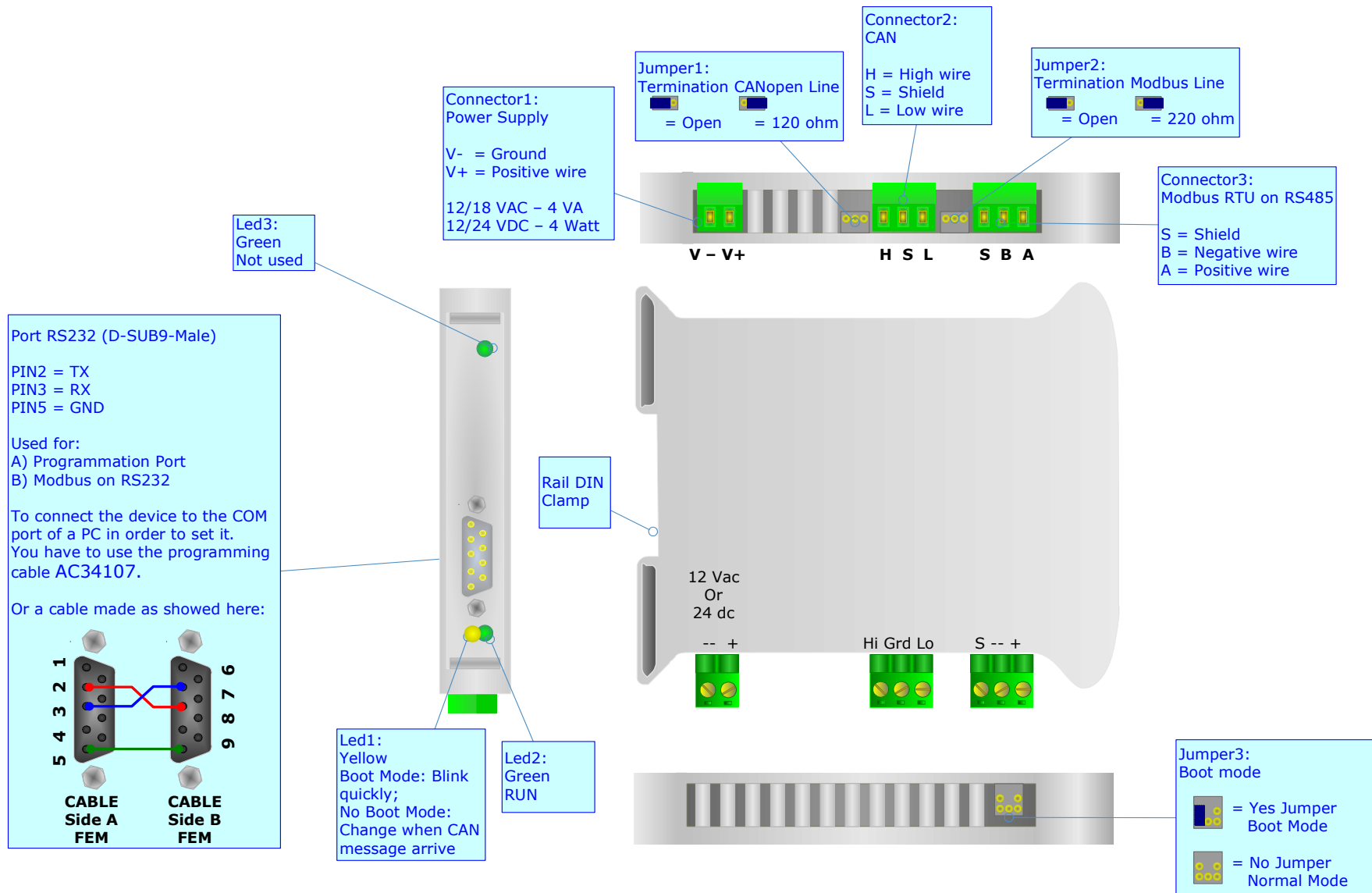


Figure 2: Connection scheme for HD67012

**CONFIGURATION:**

The "Gateway CANbus to Modbus" allows a CANbus network to communicate with a Modbus network.

You need Compositor SW67012 software on your PC in order to perform the following:

- Define that the CANbus frame of the CANbus are reading from Modbus;
- Define that the CANbus frame of the CANbus are writing from Modbus.

**USE OF COMPOSITOR SW67012:**

When launching the SW67012 the following window appears

(The SW67012 is downloadable on the site  
<http://www.adfweb.com/home/download/download.asp>

This manual is referenced to the last version of the software present in our web site).

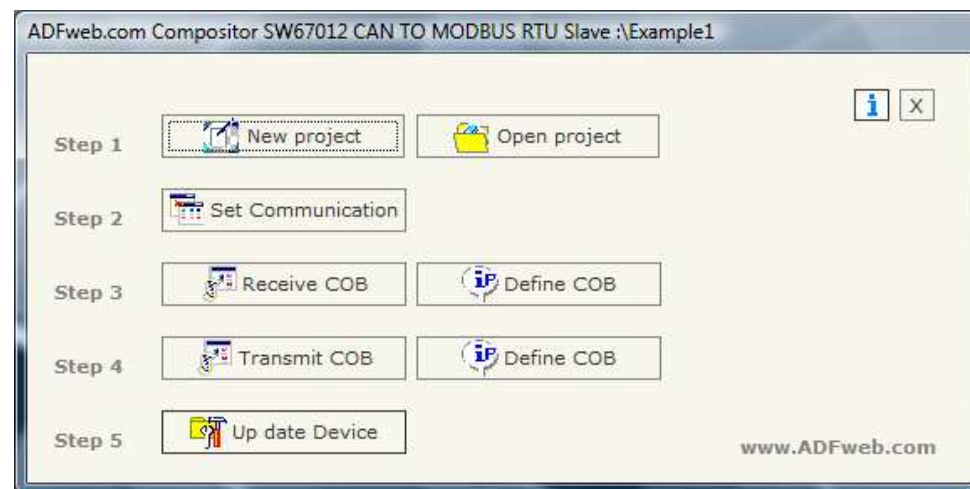


Figure 3: Main window for SW67012

**The following explains the function of the buttons:**

**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 CANbus to Modbus 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 section of the software:

- **Set Communication**
- **Recive COB**
  - Otherwise the **Define COB**
- **Transmit COB**
  - Otherwise the **Define COB**

**SET COMMUNICATION:**

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

By pressing the "Set Communication" button from the main window for SW67012 (Fig. 3) the window "Set communication" appears (Fig. 4):

- In the field "Baud rate" the velocity of the two buses is defined;
- Select the type of CANbus (CAN Bus 2.0A or CAN Bus 2.0B);
- "TimeOut Data" is the maximum time that the device attends for the CAN Frame;
- In the field "Modbus Register" insert the value of Modbus register which contains the number 1 if a CAN frame arrives or the number 0 if it does not arrives before the timeout;
- If the field "RS232" is checked the serial line in use is the RS232, otherwise is the RS485;
- In the field "Parity" the serial parity is defined;
- In the field "Dev ID" the Address Device is defined;
- If the field "Cancel data after read" is checked, the gateway cancel the data arrived from CAN bus after a modbus read function
- If the field "No Cancel if read Input Reg." Is checked, the gateway cancel the data arrived from CAN bus only if you use the Function 3 (Holding Register). If you use teh Function 4 (Input Register) data will not be cancel.

SET COMMUNICATION

CAN Bus

Baud rate 1000

CAN Bus 2.0A (CobID 11Bit)

CAN Bus 2.0B (CobID 29Bit)

TimeOut Data (Sec.) 1

Modbus Register 1000

Serial

RS232  RS485

Baud rate 115200

Parity NONE

Dev ID 1

Cancel data after read

No cancel if read Input Reg.

OK Cancel

Figure 4: "Set communication" window



**RECEIVE COB:**

By pressing the "Receive COB" button from the main window for SW67012 (Fig. 3) the window "Receive CAN Frame" appears (Fig. 5).

A user who has to read a CANbus frame from CANbus to Modbus needs to insert the coordinates of the CANbus frame in order to be transmitted in the field "Receive COB" of the window.

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

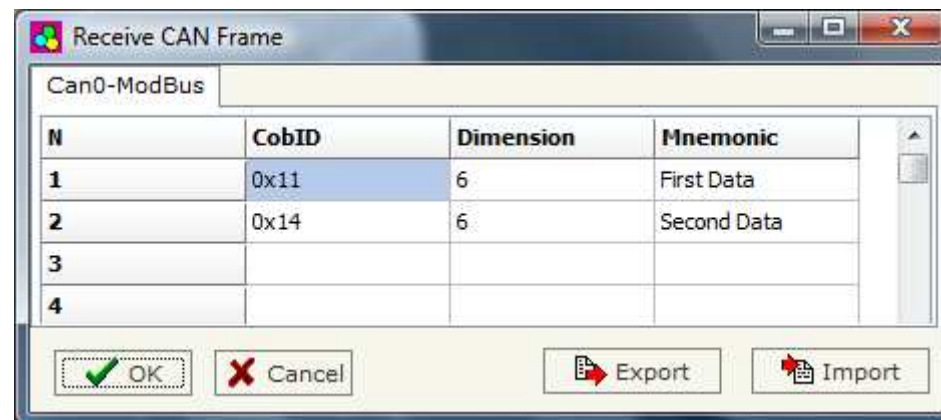


Figure 5: "Receive CAN Frame" window

**DEFINE COB:**

By pressing the "Define COB" button from the main window for SW67012 (Fig. 3) the window "Receive CAN Frame Info" appears (Fig. 6).

- In the field "COB-ID Frame" there are the COB-ID that you insert in the list Receive COB;
- In the field "MODBUS" there are the modbus words defined for that COB-ID Frame;
- In the field "Index MODBUS" there is the address that contain the Modbus word;
- In the field "Selecet Frame Byte" you select the position of the byte;

For example:

Click on the "COB-ID", insert the valid address in the field "Index MODBUS", select the byte position(B1 in "High MODBUS Byte" and B2 in "Low MODBUS Byte"), click the "New" button, then in the field "MODBUS" the names of modbus words appear (The first word is name IND MB 0, the second IND MB 1, the third Ind MB 2, the fourth Ind MB 3).

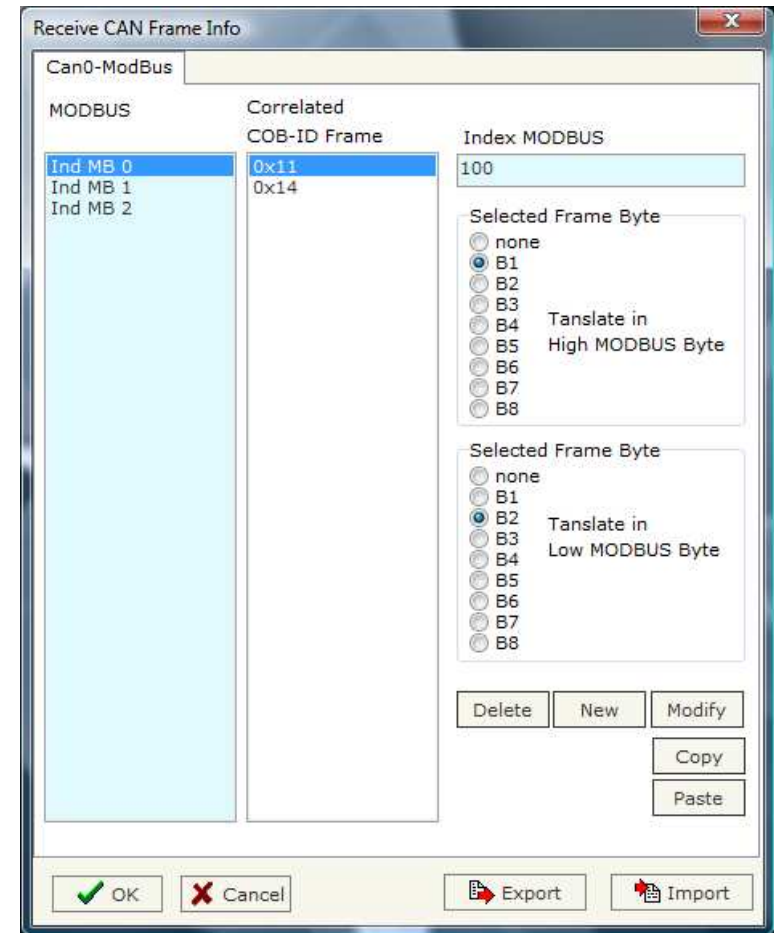


Figure 6: "Receive CAN Frame Info" window

**TRANSMIT COB:**

By pressing the "Transmit COB" button from the main window for SW67012 (Fig. 3) the window "Transmit CAN Frame" appears (Fig. 7).

A user who has to write a CANbus frame from Modbus to CANbus needs to insert the coordinates of the CANbus frame in order to be transmitted in the field "Trasmit COB" of the window.

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

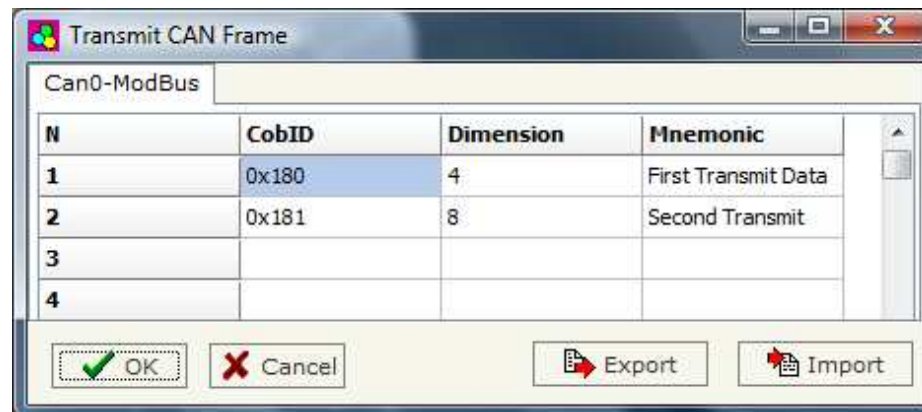


Figure 7: "Transmit CAN Frame" window

**DEFINE COB:**

By pressing the "Define COB" button from the main window for SW67012 (Fig. 3) the window "Transmit CAN Frame Info" appears (Fig. 8).

- In the field "COB-ID Frame" there are the COB-ID that you insert in the list;
- In the field "MODBUS" there are the Modbus words defined for that COB-ID Frame;
- In the field "Index MODBUS" there is the address that contain the Modbus word;
- In the field "Selected Frame Byte" you select the position of the byte.

For example:

Click on the "COB-ID", insert the valid address in the field "Index MODBUS", select the byte position(B1 in "High MODBUS Byte" and B2 in "Low MODBUS Byte"), click the "New" button, then in the field "MODBUS" the names of modbus words appears (The first word is name IND MB 0, the second IND MB 1, the third Ind MB 2, the fourth Ind MB 3).

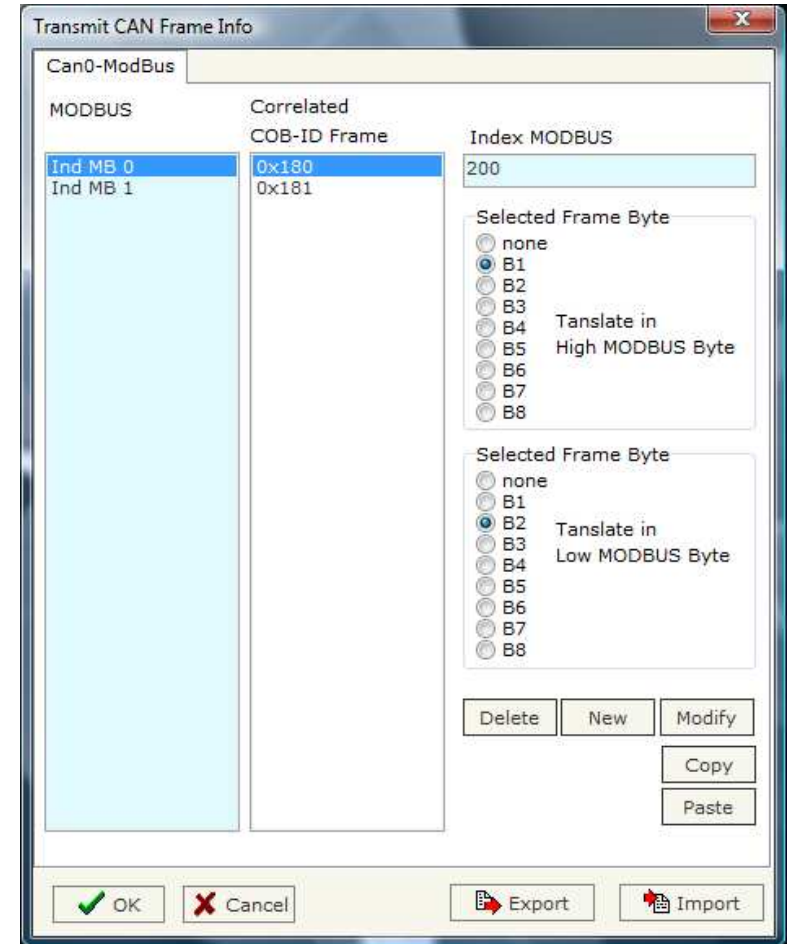


Figure 8: "Transmit CAN Frame Info" window

**UPDATE DEVICE:**

Section "Update Device":

Insert the boot jumper (see figure 2).

In order to load the parameters after they are set, set the Com port you used for update, then you must click the button "Execute update firmware" on the principal window.

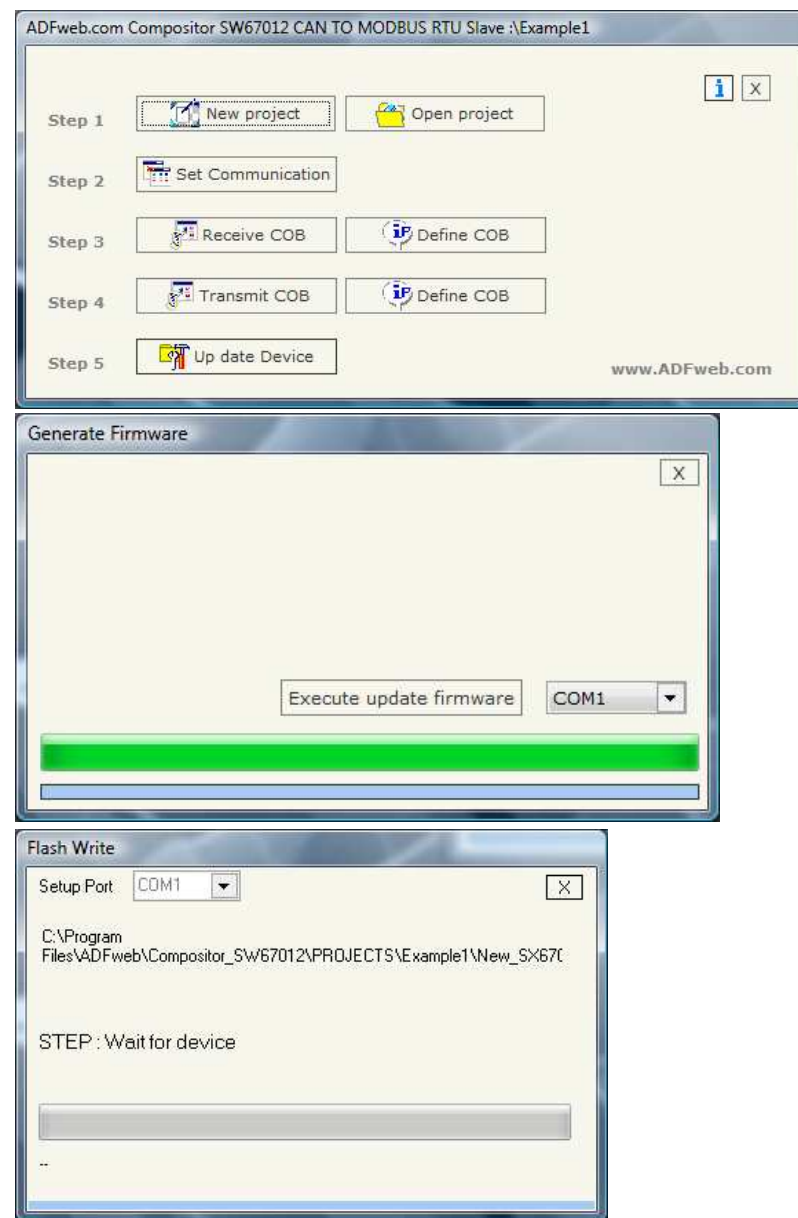


Figure 9: Update device procedure

**CHARACTERISTICS OF THE CABLES:**

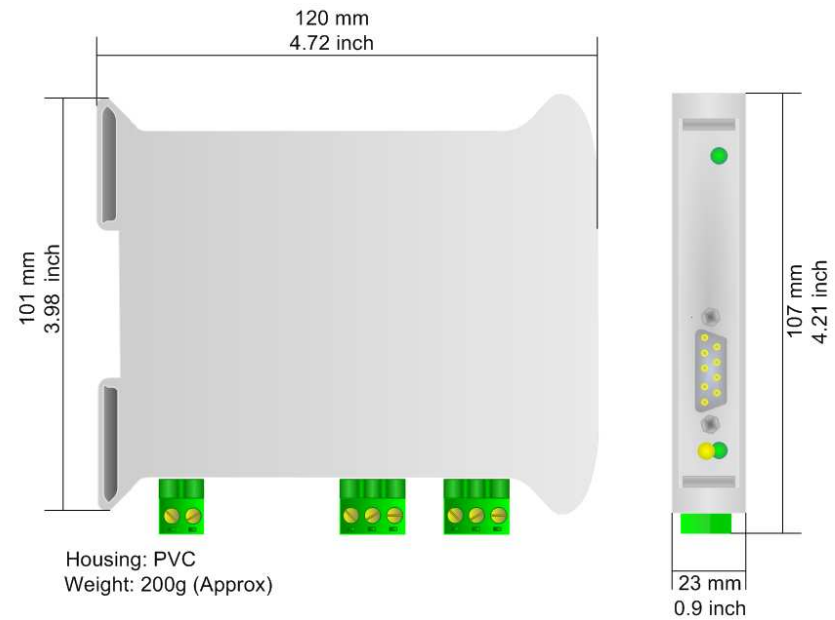
The connection from RS232 socket to a serial port (example one from a personal computer) must be made with a Null Modem cable (a serial cable where the pins 2 and 3 are crossed).

It is recommended that the RS232 Cable not exceed 15 meters.

Can bus cable characteristics:

<b>DC parameter:</b>	Impedance	70 Ohm/m
<b>AC parameters:</b>	Impedance	120 Ohm/m
	delay	5 ns/m
<b>Length</b>	<b>Baud Rate [bps]</b>	<b>Length MAX [m]</b>
	10 K	5000
	20 K	2500
	50 K	1000
	100 K	650
	125 K	500
	250 K	250
	500 K	100
	800 K	50
	1000 K	25

**MECHANICAL DIMENSIONS:**



*Figure 10: Mechanical dimensions scheme*

**ORDER CODE:**

Order Code: **HD67012** - CAN / Modbus 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

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

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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).

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
HD67117	CAN bus Repeater	<a href="http://www.adfweb.com?Product=HD67117">www.adfweb.com?Product=HD67117</a>
HD67216	CAN bus Analyzer	<a href="http://www.adfweb.com?Product=HD67216">www.adfweb.com?Product=HD67216</a>
HD67012	CAN bus to Modbus RTU Client	<a href="http://www.adfweb.com?Product=HD67012">www.adfweb.com?Product=HD67012</a>
HD67014	CAN bus to Modbus TCP Client	<a href="http://www.adfweb.com?Product=HD67014">www.adfweb.com?Product=HD67014</a>
HD67515	CAN bus to Modbus TCP Server	<a href="http://www.adfweb.com?Product=HD67515">www.adfweb.com?Product=HD67515</a>