

# User Manual

Revision 2.002  
English

## Gateway / Bridge CAN to Ethernet to connect a Modbus TCP Server

(Order Code: HD67014)

for Website information:

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

for Price information:

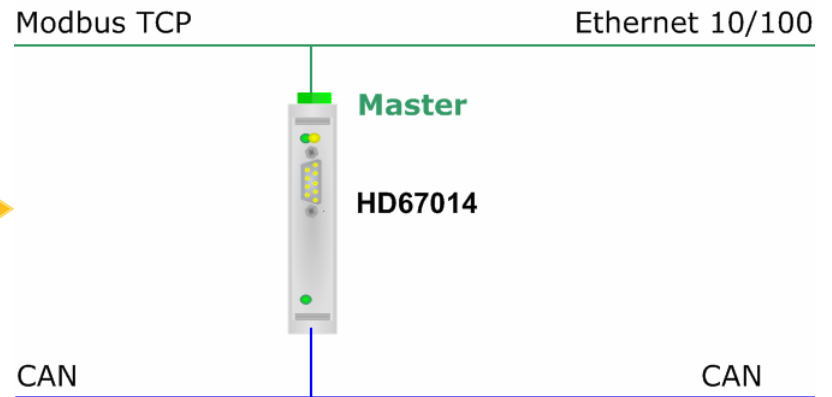
[www.adfweb.com?Price=HD67014](http://www.adfweb.com?Price=HD67014)

### Benefits and Main Features:

- ▶ Very easy to configure
- ▶ Low cost
- ▶ Rail mountable
- ▶ Wide supply input range
- ▶ Galvanic isolation
- ▶ Industrial temperature range:  
-30°C / 70°C (-22°F / 158°F)



Logical  
Scheme  
➔



Similar  
Products  
➔

For other Gateways / Bridges:

#### 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 Server)
- [www.adfweb.com?Product=HD67505](http://www.adfweb.com?Product=HD67505) (Modbus TCP Client)

#### 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=HD67012](http://www.adfweb.com?Product=HD67012) (Modbus RTU Slave)
- [www.adfweb.com?Product=HD67515](http://www.adfweb.com?Product=HD67515) (Modbus TCP Server)

#### CAN to Ethernet

See also the following links:

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

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)

Benefit  
←

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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
1.001	22/06/2007	Av	All	Revision
1.002	26/06/2007	Av	All	Revision
2.000	10/07/2007	Av	All	New document format
2.001	21/01/2009	Fl	All	Change figure 1
2.002	26/06/2009	MI	All	Revision

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**CHARACTERISTICS:**

The CAN bus Modbus TCP Client Gateway allows the following characteristics:

- two-directional information between networks CAN and Modbus;
- electrical isolation between two BUSES;
- to read CAN bus frame from Modbus word;
- to write CAN bus frame from Modbus word;
- Temperature range -30°C to 70°C.

To configure the Gateway, use the available software that runs with Windows, called Compositor SW67014. It is downloadable on the site [www.adfweb.com](http://www.adfweb.com) and its operation is described in this document.

The Gateway can be configured up to a maximum 250 CAN frame in reading and 250 CAN frame in writing.

**CONNECTION SCHEME:**

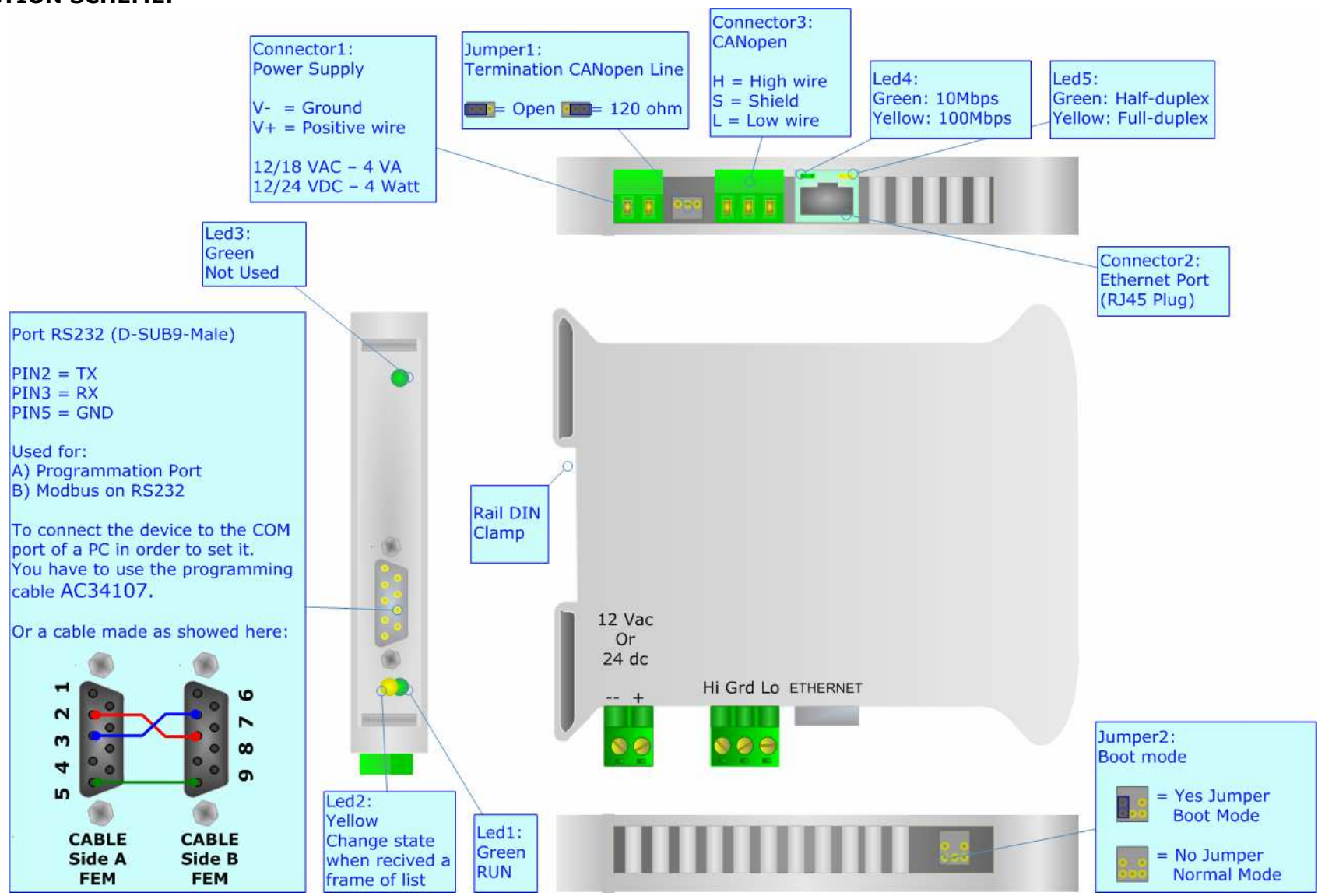


Figure 1: Connection scheme for HD67014

**CONFIGURATION:**

The "Gateway CAN bus to Modbus TCP" allows a CAN bus network to communicate with a Modbus network.

You need Compositor SW67014 software on your PC in order to perform the following:

- Define that the CAN bus frame is reading from the Modbus;
- Define that the CAN bus frame is writing from the Modbus.

**USE OF COMPOSITOR SW67014:**

When launching the SW67014 the following window appears

(The SW67014 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 on our web site).

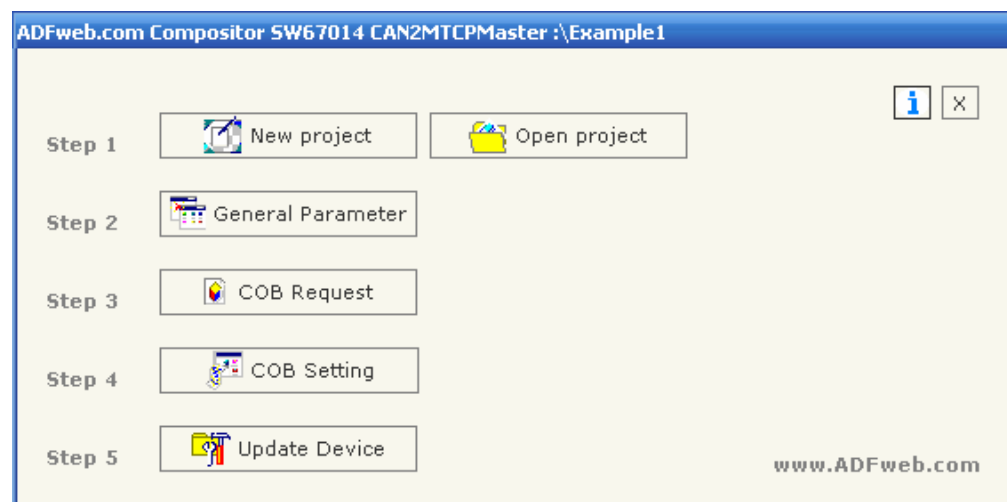


Figure 2: Main window for SW67014

**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 sections of the software:

- **"General Parameter"**
- **"COB Request"**
- **"COB Setting"**

**GENERAL PARAMETER:**

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

By pressing the "General Parameter" button from the main window for SW67014 (Fig. 2) the window "General Parameter" appears (Fig. 3):

- In the field "Baud Rate" the velocity of the CAN bus is defined;
- Select the type of CAN (CAN 2.0A 11bit or CAN 2.0B 29bit);
- In the field "IP" insert the IP address that you want to give to master Modbus;
- In the field "SubNet Mask" insert the SubNet Mask;
- In the field "Port" insert the number of port;
- "Time Out" is the maximum time that the device attends for the answer from the Slave interrogated.

The screenshot shows a dialog box titled "General Parameter" with a blue title bar. It is divided into two sections: "CAN" and "Serial".

**CAN Section:**

- Baud Rate: 1000 (dropdown menu)
- Radio buttons:  CAN2.0A 11bit,  CAN2.0B 29bit

**Serial Section:**

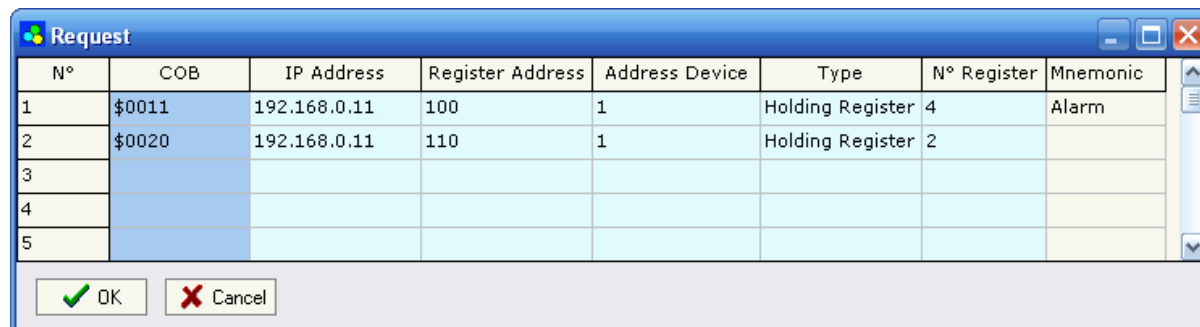
- IP: 192, 168, 0, 111 (four separate input boxes)
- SubNet Mask: 255, 255, 255, 0 (four separate input boxes)
- Port: 502 (input box)
- Time Out [mS]: 1000 (input box)

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

Figure 3: "General Parameter" window

**COB REQUEST:**

By pressing the "COB Request" button from the main window for SW67014 (Fig. 2) the window "Request" appears (Fig. 4).



N°	COB	IP Address	Register Address	Address Device	Type	N° Register	Mnemonic
1	\$0011	192.168.0.11	100	1	Holding Register	4	Alarm
2	\$0020	192.168.0.11	110	1	Holding Register	2	
3							
4							
5							

Figure 4: "Request" window

The COB inserted in this table is the data read from the Modbus:

- In the field "COB" insert the COB of the CAN bus frame;
- In the field "IP Address" insert the IP address of Modbus device that contains the Modbus data;
- In the field "Register Address" insert the register that contains the Modbus data;
- In the field "Address Device" insert the address of Modbus device that contains the Modbus data;
- In the field "Type" insert the type of Modbus register that you would like to read:
  - Coil Status;
  - Input Status;
  - Holding Register;
  - Input register.
- In the field "N° Register" insert the number of consecutive registers you configured;
- In the field "Mnemonic" you can insert a brief description.



For example:

If we want to read the 4 Holding Register at address 100 (Fig. 4) we must send a CANbus frame with COB ID= \$0011 and no data (Fig. 5-1).

As answer we would have a CANbus frame with COB ID=\$0011 and 8 bytes of data which are the value of the Modbus registers (Fig. 5-2).

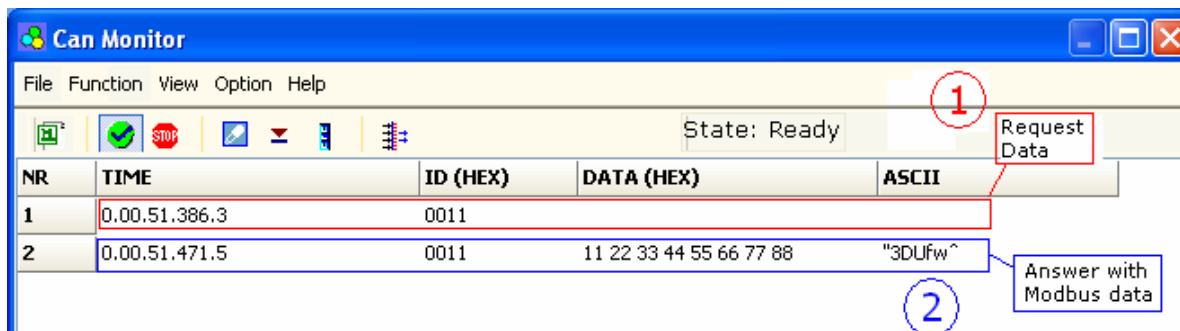


Figure 5: "Can Monitor" window for visualize the CAN frame for read request 1

If you are using a CAN Analyzer, you can see the windows on the right.  
 (For example you can see our CAN Analyzer at the following address:  
[http://www.adfweb.com/home/products/CAN\\_BUS\\_analyzers.asp](http://www.adfweb.com/home/products/CAN_BUS_analyzers.asp) )

In the second case of the table:

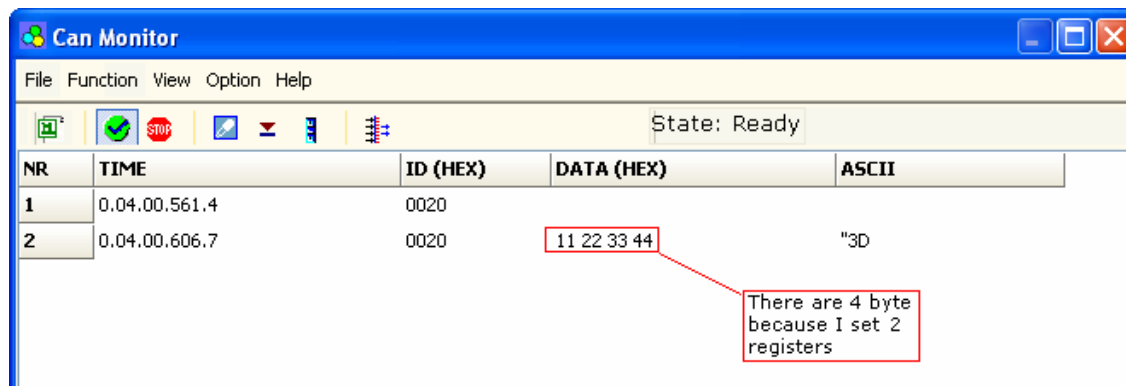
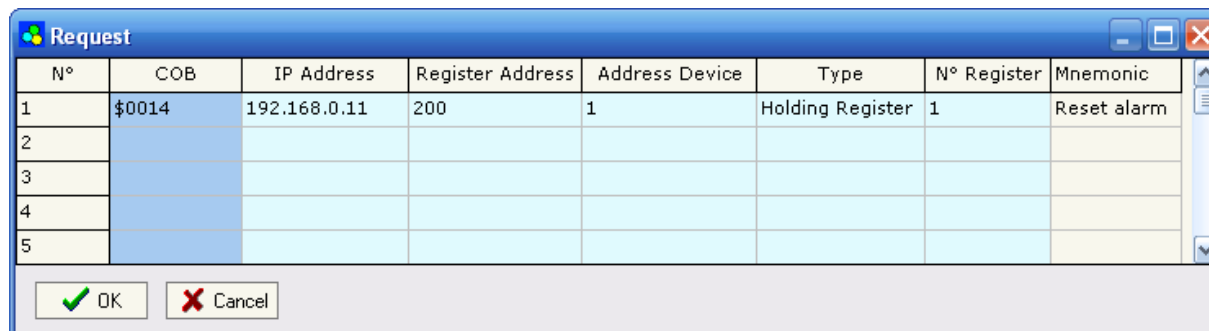


Figure 6: "Can Monitor" window for visualize the CAN frame for read request 2

**COB SETTING:**

By pressing the "COB Setting" button from the main window for SW67014 (Fig. 2) the window "Request" appears (Fig. 7).



N°	COB	IP Address	Register Address	Address Device	Type	N° Register	Mnemonic
1	\$0014	192.168.0.11	200	1	Holding Register	1	Reset alarm
2							
3							
4							
5							

Figure 7: "Request" window

The COB inserted in this table is the data written from the Modbus:

- In the field "COB" insert the COB of the CAN bus frame;
- In the field "IP Address" insert the IP address of Modbus device that contains the Modbus data;
- In the field "Register Address" insert the register that contains the Modbus data;
- In the field "Address Device" insert the address of Modbus device that contains the Modbus data;
- In the field "Type" insert the type of Modbus register that you would like to read:
  - Coil status;
  - Input status;
  - Holding register;
  - Input register.
- In the field "N° Register" insert the number of consecutive registers you configured;
- In the field "Mnemonic" you can insert a brief description.

For example:

If we want to write the 4 Holding Register at address 200 (Fig. 7) we must send a CANbus frame with COB ID=0014 and 8 bytes of data (Fig. 8-1); they are the value of the registers Modbus that they want to set.

If the Modbus write command is correctly received, into CANbus you found the echo of the frame transmitted (Fig. 8-2).

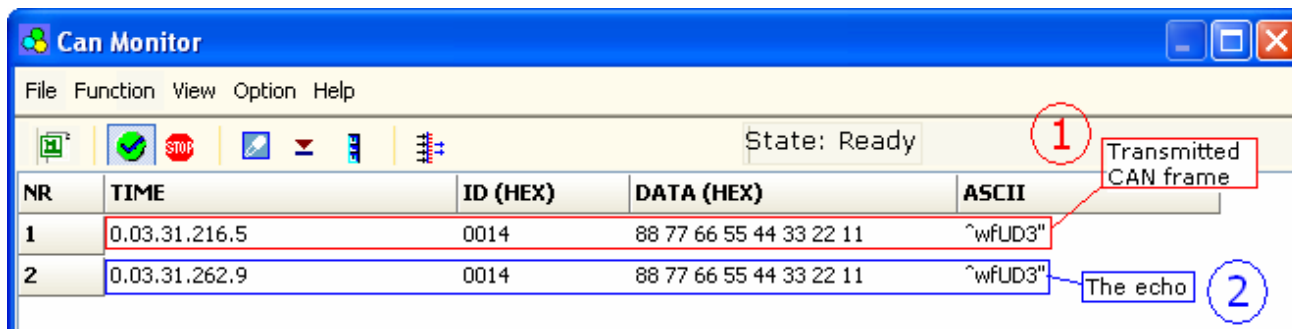


Figure 8: "Can Monitor" window for visualize the CAN frame for write request

If you are using a CAN Analyzer, you can see the window on the right. (For example you can see our CAN Analyzer at the following address: [http://www.adfweb.com/home/products/CAN\\_BUS\\_analyzers.asp](http://www.adfweb.com/home/products/CAN_BUS_analyzers.asp) )

**UPDATE DEVICE:**

Section "Update Device":

Insert the boot jumper (see figure 1).

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.

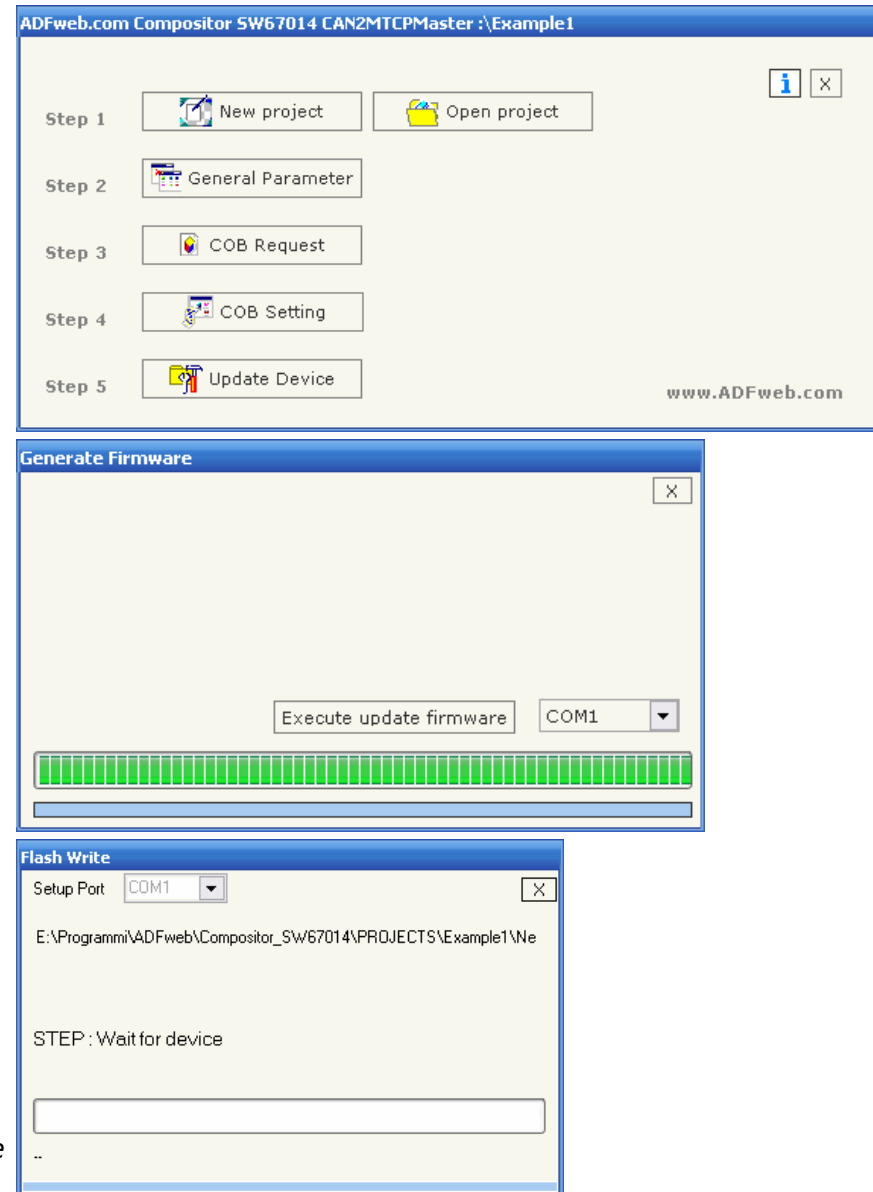


Figure 9: Update device procedure

**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.

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

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:**

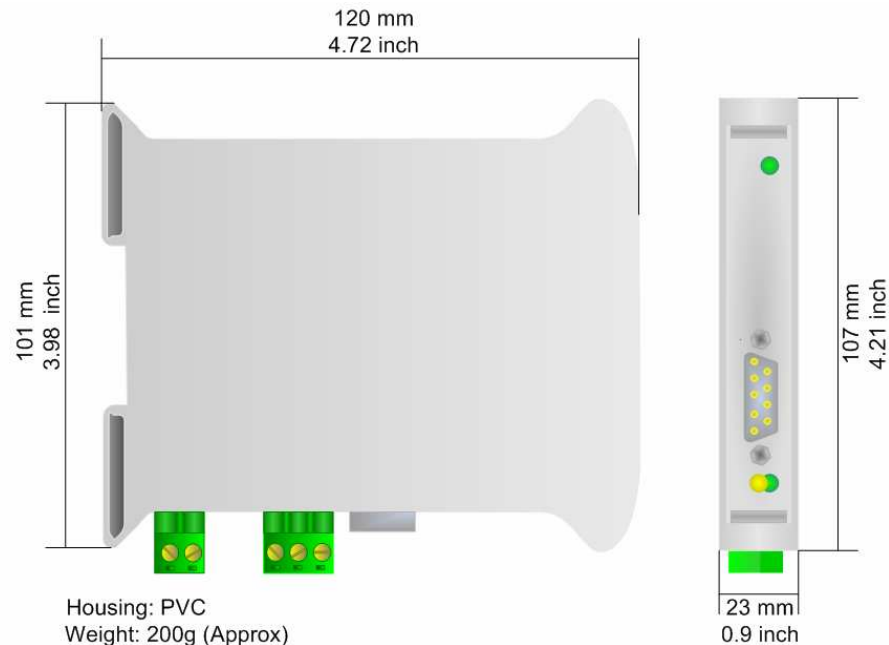


Figure 10: Mechanical dimensions scheme

**ORDER CODE:**

Order Code: **HD67014** - Gateway – CAN to Modbus TCP Client (to connect a Modbus TCP Server)

**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

**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>