User Manual

Revision 1.000
English

Gateway / Bridge
Modbus TCP Client to Modbus RTU Slave
to connect a Modbus TCP Server

(Order Code: HD67510 – HD67510M)

for Website information:
www.adfweb.com?Product=HD67510

for Price information:
www.adfweb.com?Price=HD67510

Benefits and Main Features:

- Very easy to configure
- Low Cost
- Rail mountable
- Wide supply input range
- Opto-isolation for RS485
- Industrial temperature range: -30°C / 70 °C (-22°F / 158°F)

For others Gateways / Bridges:

Modbus RTU Master / Slave

See also the following links:
www.adfweb.com?Product=HD67001 (CANopen)
www.adfweb.com?Product=HD67002 (CANopen)
www.adfweb.com?Product=HD67011 (CAN)
www.adfweb.com?Product=HD67012 (CAN)

Modbus TCP Client to :

See also the following link :
www.adfweb.com?Product=HD67004 (**CANopen**)
www.adfweb.com?Product=HD67014 (**CAN**)

Modbus TCP Server to :

See also the following link :
www.adfweb.com?Product=HD67005 (**CANopen**)
www.adfweb.com?Product=HD67507 (**Modbus RTU Master**)
www.adfweb.com?Product=HD67515 (**CAN**)

Do you have an your customer protocol?
See the following links:
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

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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/ 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	06/02/2009	FI	All	First release version

WARNING:

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

TRADEMARKS:

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CONNECTION SCHEME:

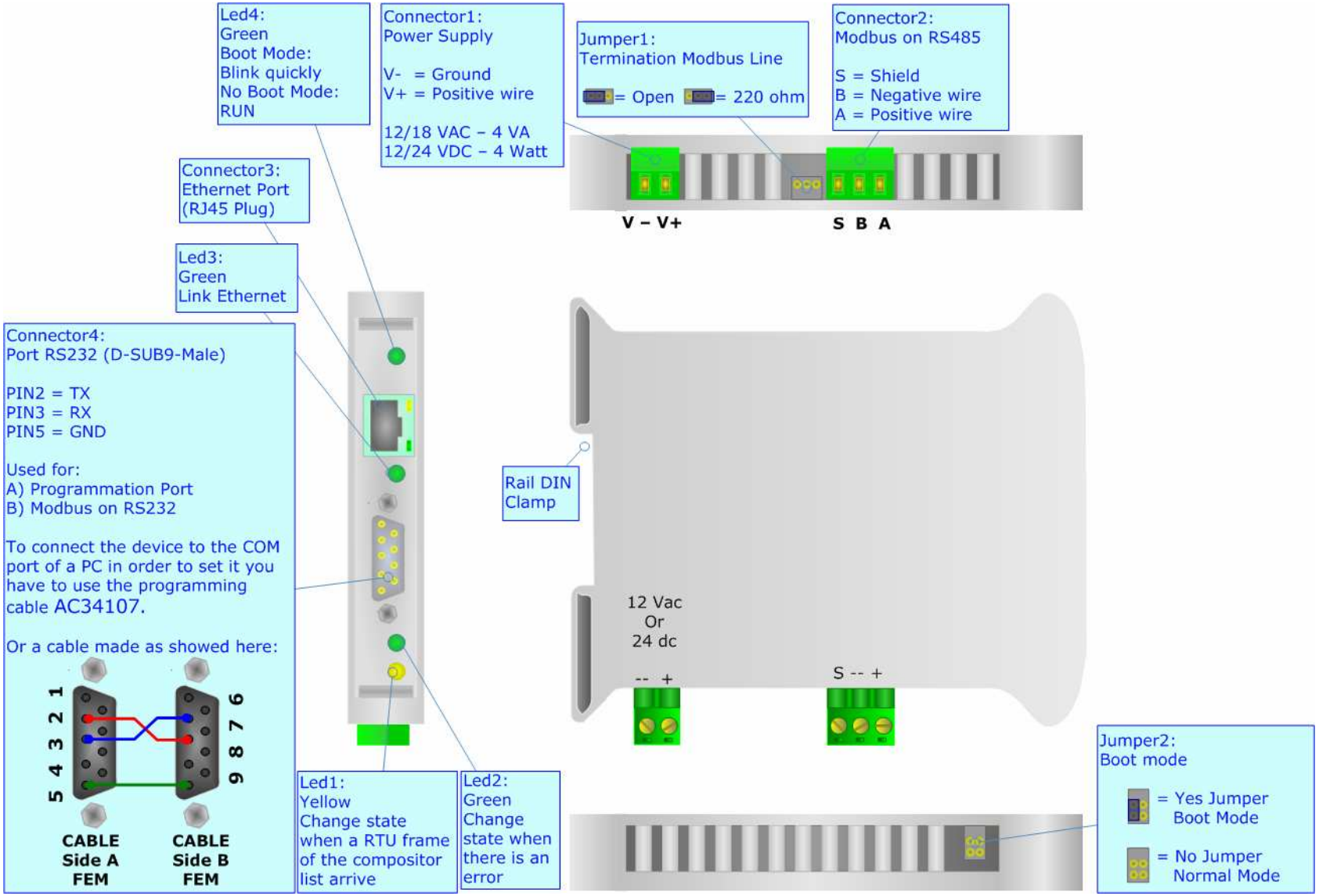

Figure 1: Connection scheme for HD67510

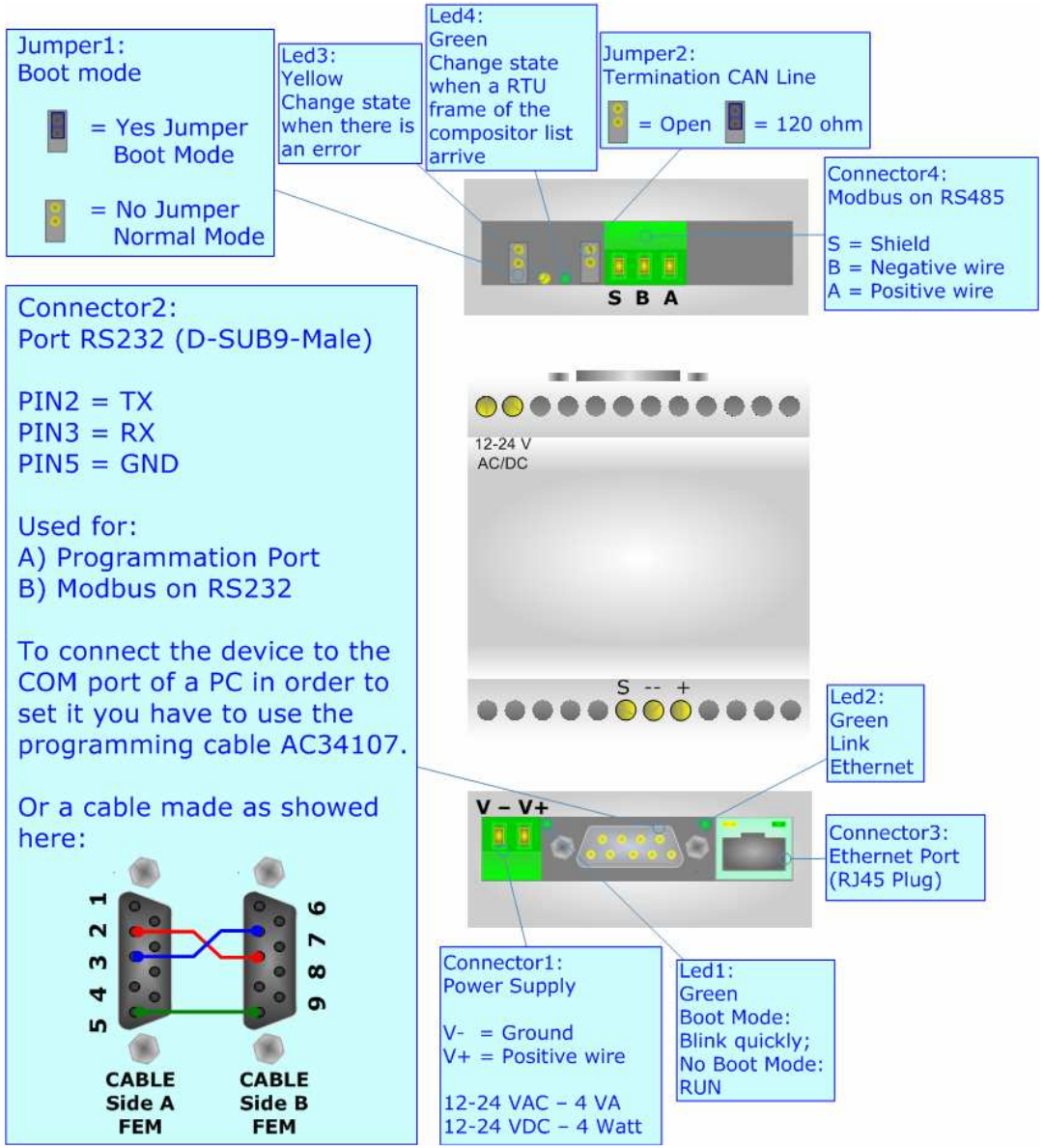

Figure 2: Connection scheme for HD67510M

CHARACTERISTICS:

The Modbus TCP to Modbus RTU Gateway allows the following characteristics:

- Power supply 12-24 VAC/DC (3 VA);
- Opto-isolation for RS485 ;
- RS232 ;
- Mountable on Rail DIN ;
- Temperature range -30°C to 70°C.

CONFIGURATION:

You need Compositor SW67510 software on your PC in order to perform the following:

- Define the parameter of Modbus TCP;
- Define the parameter of Modbus RTU;
- Compile the translate table.

USE OF COMPOSITOR SW67510:

To configure the Gateway, use the available software that runs with windows, called SW67510. It is downloadable on the site www.adfweb.com and its operation is described in this document.

When launching the SW67510 the following window appears (Fig. 3):

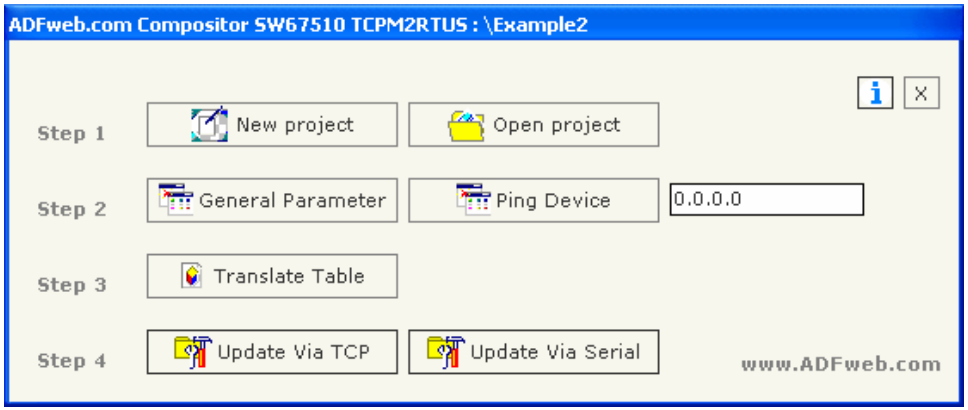

Figure 3: Main Window for SW67510

NEW PROJECT / OPEN PROJECT:

The "New Project" button creates the folder which contains the entire device configuration.
A device configuration can also be imported and exported:

- To clone the configurations of the Gateway in order to configure another Gateway 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".

GENERAL PARAMETER:

This section defines the fundamental communication parameters of two buses, Modbus TCP and Modbus RTU**.**

By pressing the "General parameter" button from the main window for SW67510 (Fig. 3) the window "General Parameter" appears (Fig. 4).

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

The means of the fields for Modbus TCP are:

- In the field "IP Address" insert the IP address that you want to give to HD67510 gateway;
- In the field "Subnet Mask" insert the Subnet Mask;
- In the field "Port" insert the number of port;
- If the field "Don't disconnect the socket" is checked, when the gateway receive the TCP response doesn't disconnect the opened socket (open the socket only at the first RTU request and then the socket remain opened); otherwise for every RTU request the gateway open the socket and when receive the TCP response close it;
- If the field "Normal Mode (Translate Table)" is checked, the address of RTU request is compared with the list of compositor;
- If the field "Work with Fix IP" is checked the gateway doesn't see the "Translate Table" but send every request to a fixed IP defined under.

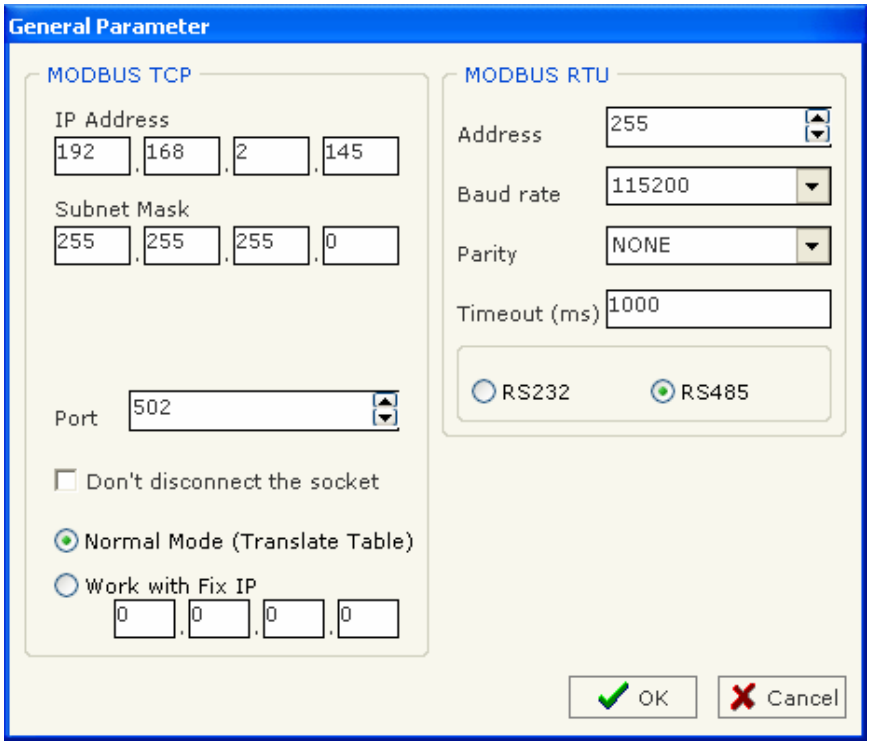

Figure 4: "General Parameter" window

The means of the fields for Moebus RTU are:

- In the field "Address" the address device is defined;
- In the field "Baud Rate", the velocity of the Modbus RTU is defined;
- In the field "Parity", the Modbus RTU parity is defined. It is possible to use "NONE" or "EVEN" or "ODD" parity;
- In the field "Timeout (ms)" insert the maximum time that the device attends for the answer from the Slave interrogated;
- If "RS232" is checked the serial line in use for Modbus RTU is the RS232; otherwise is the RS485.

TRANSLATE TABLE:

By pressing the "Translate Table" button from the main window for SW67510 (Fig. 3) the window "Set Translate Table" appears (Fig. 5):

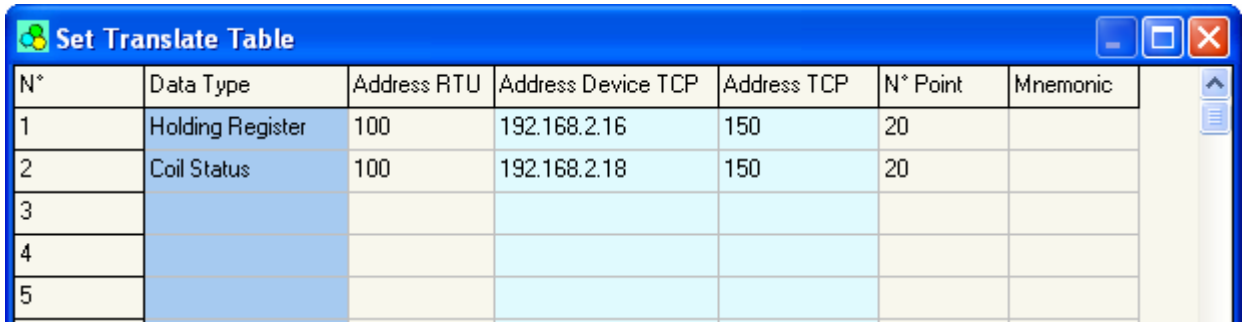

Figure 5: "Set Translate Table" window

The data of the columns have the following meanings:

- In the field "Data Type" it is possible to select the type of data that is being considered;
- In the field "Address RTU" insert the virtual address of the present data in a device in the TCP Modbus;
- In the field "Address Device TCP" insert the address of the device on the Modbus TCP that contains the data;
- In the field "Address TCP" insert the address of the data on the TCP device;
- In the field "N° Point" insert the number of consecutive data that you want to configure. For example, you create Address TCP=150, Address RTU=100 and N° point = 20, the following gets set-up automatically**:** addresses TCP 151, 152, 153… …161 and the variables RTU 101, 102, 103… …161;
- In the field "Mnemonic" it is possible to insert a description.

Example 1:

If you want, from RTU network, read a data in the TCP network on the device at:

- Address 192.168.2.145;
- Through Gateway WORD 151 (Address TCP);
- Address RTU 101.

In the above scenario:

Specify the type of data between:

- Coil Status (bit in read and write);
- Input Status (bit in read);
- Holding Register (word in read and write);
- Input Register (word in read).

From the side of the MODBUS RTU

- Address of data to read.

From the side of the MODBUS TCP:

- Address of the device to interrogate;
- Address of data to read on device.

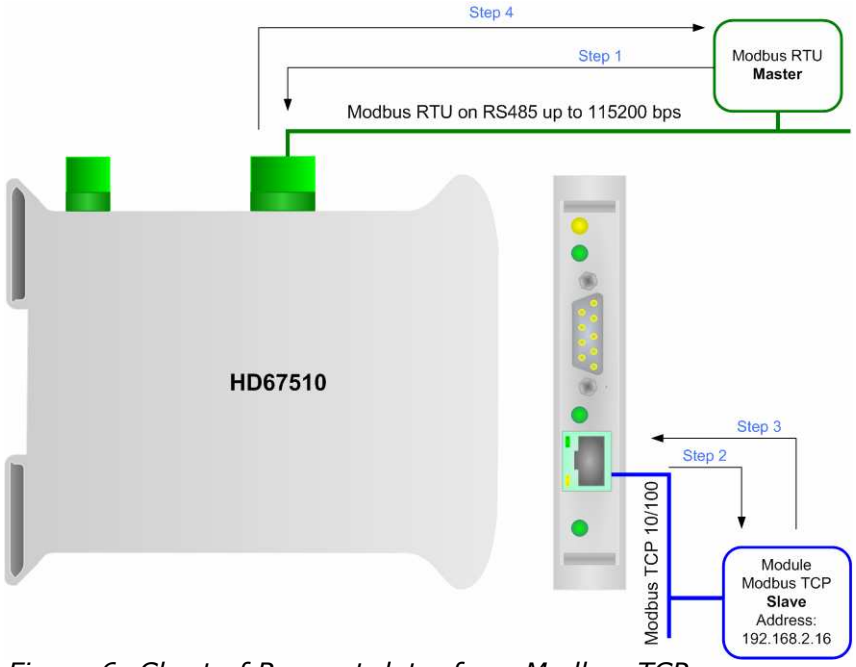

Figure 6: Chart of Request data from Modbus TCP

Step 1: Request to the gateway from "Holding Register" in address 101;
Step 2: Request by the gateway from "Holding Register" in address 151 to the device with 192.168.2.16 ID;
Step 3: Response to the gateway from "Holding register" in address 151;
Step 4: Response to the RTU Master of the device with 192.168.2.16 ID.

If the TCP slave responds with an exception, that exception code will be transmitted to the RTU master. In the case where the TCP slave does not respond within the estimated time defined by the Timeout parameter, an exception response will be given error code $36.

UPDATE DEVICE VIA TCP:

Section "Update Via TCP" (Fig. 7):

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

- Connect the Ethernet cable from your PC to the gateway;
- Insert the IP address of the HD67510 gateway;
- If it is necessary make a ping to ensure that the device is present press the "Ping" button;
- Press the "Next" button;
- Select operations you want to do. It is possible to select only Firmware or only Project or both;
- Press the "Execute update firmware" to start the upload.

When all operations are "OK" the Configuration / Firmware on the device is correctly updated.

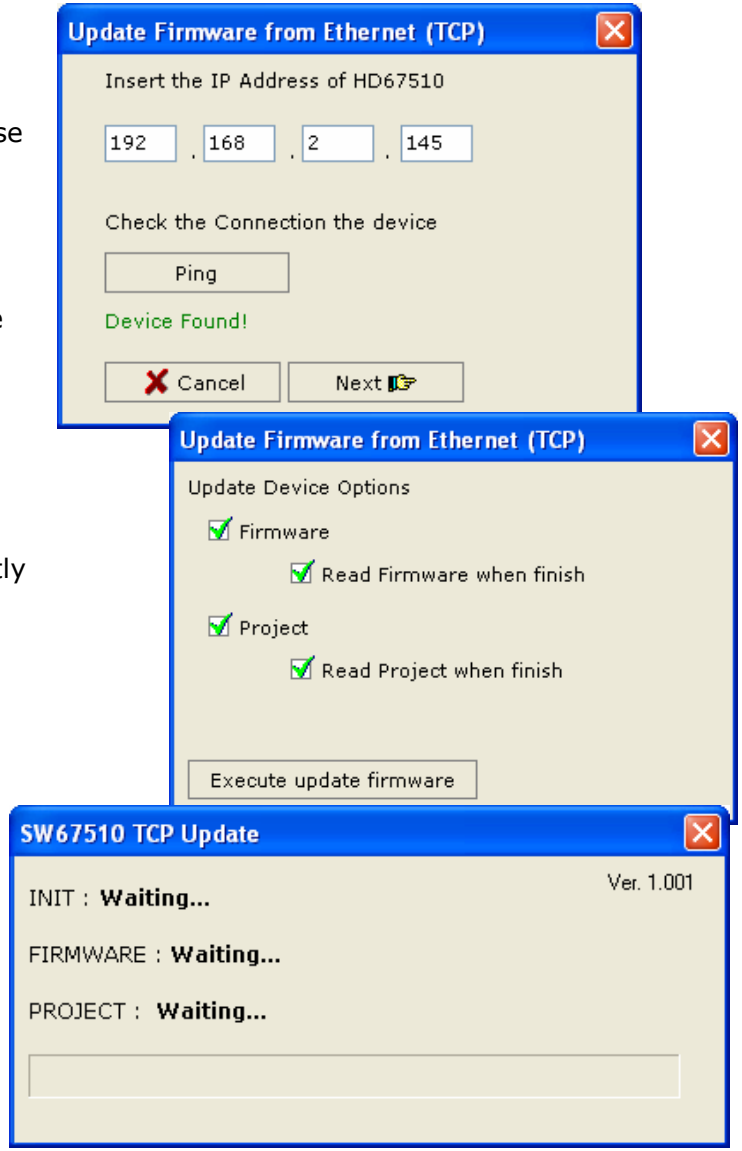

Figure 7: Update Device Via TCP

UPDATE DEVICE VIA SERIAL:

Section "Update Via Serial" (Fig. 8):

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 (see the Fig. 1 for more info);
- Turn on the device;
- Check the "Boot Led". It must blink quickly (see the Fig. 3 for more info);
- Select COM port and press the "Connect" button;
- Press the "Next" button;
- Select operations you want to do. It is possible to select only Firmware or only Project or both;
- Press the "Execute update firmware" to start the upload;
- When all 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.

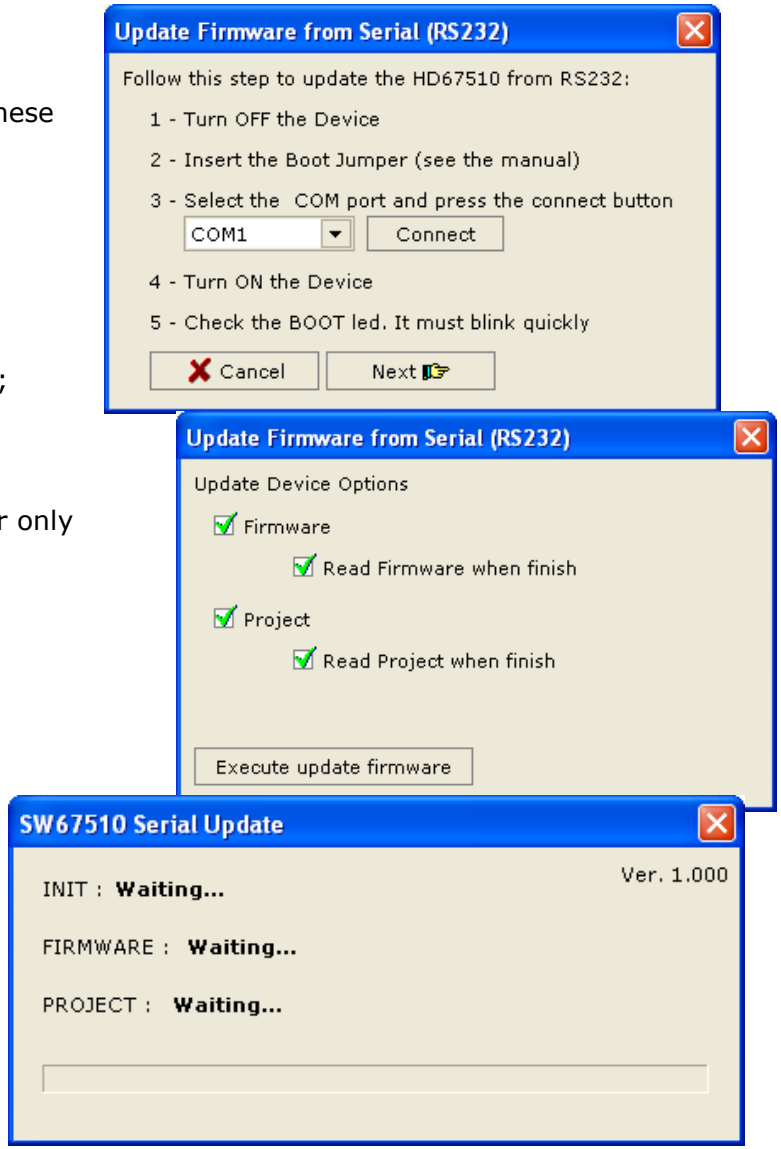

Figure 8: Update Device Via Serial

CHARACTERISTICS OF THE CABLES:

Ethernet cable:

The connection at Ethernet socket must be made with a Ethernet cable with a RJ45 plug.

RS232 cable:

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.

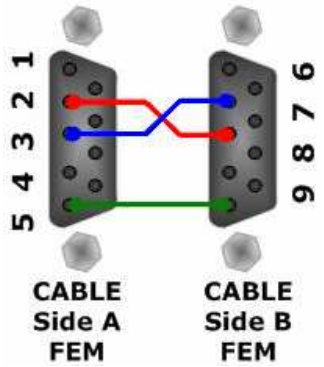

Figure 9: Null Modem cable

MECHANICAL DIMENSIONS:

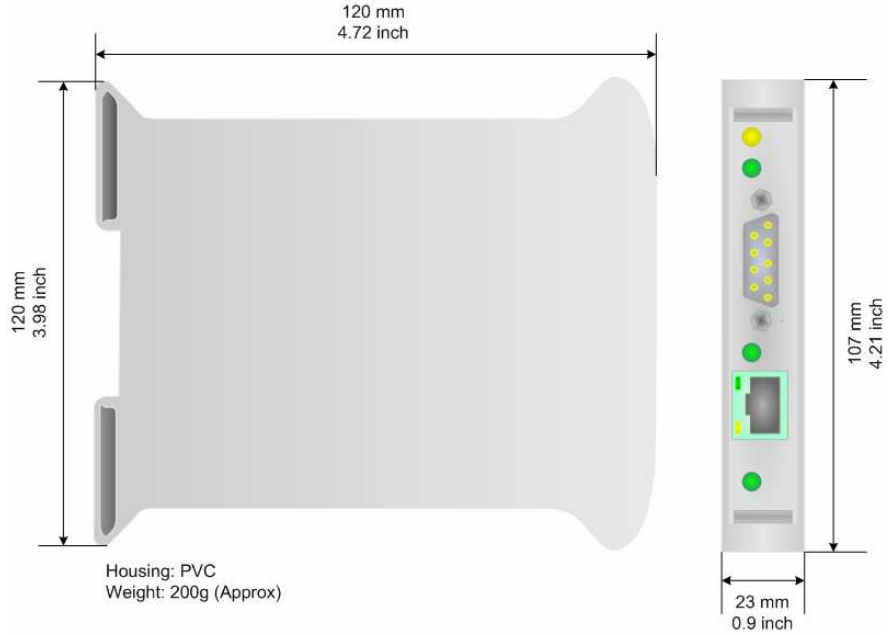

Figure 10: Mechanical dimensions scheme for HD67510

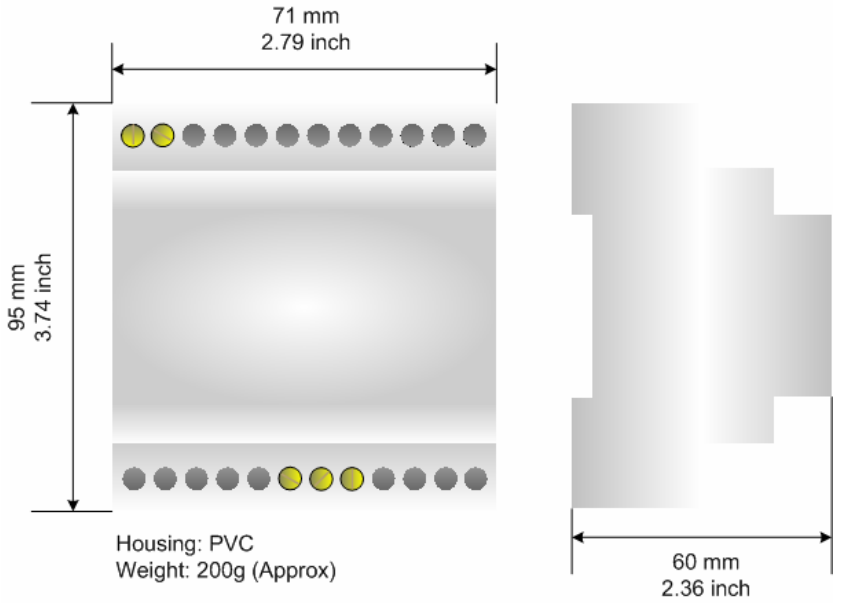

Figure 11: Mechanical dimensions scheme for HD67510M

ORDER CODE:

Order Code: **HD67510** **-** Gateway – Modbus TCP Client to Modbus RTU slave
Order Code: **HD67510M** - Gateway – Modbus TCP Client to Modbus RTU Slave (different enclosure)

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.
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
HD67118	Converter RS232 to RS485 Isolated	www.adfweb.com?Product=HD67118
HD67119	Converter USB 2.0 to RS485 Isolated	www.adfweb.com?Product=HD67119
HD67007	Gateway Modbus TCP Server to RTU Master	www.adfweb.com?Product=HD67007
HD67010	Gateway Modbus TCP Client to RTU Slave	www.adfweb.com?Product=HD67010