User Manual

Revision 1.001
English

NMEA 2000 / PROFIBUS Slave - Converter

(Order Code: HD67252-A1)

for Website information:
www.adfweb.com?Product=HD67252-A1

for Price information:
www.adfweb.com?Price=HD67252-A1

Benefits and Main Features:

- Very easy to configure
- Low cost
- PROFIBUS Baudrate up to 12M
- Wide supply input range
- Galvanic isolation
- Industrial temperature range: -40°C / 85°C (-40°F / 185°F)

HD67252-A1

For others Gateways / Bridges:

CANopen to Modbus

See also the following links:
www.adfweb.com?Product=HD67001 (Modbus RTU Master)
www.adfweb.com?Product=HD67502 (Modbus RTU Slave)
www.adfweb.com?Product=HD67004 (Modbus TCP Master)
www.adfweb.com?Product=HD67505 (Modbus TCP Slave)

For others Gateways / Bridges:
For **CAN bus 2.0A** and/or **CAN bus 2.0B** to **Modbus**

See also the following links:
www.adfweb.com?Product=HD67011 (Modbus RTU Slave)
www.adfweb.com?Product=HD67012 (Modbus RTU Master)
www.adfweb.com?Product=HD67514 (Modbus TCP Slave)
www.adfweb.com?Product=HD67515 (Modbus TCP Master)

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

INDEX:

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	12/07/2010	Dp	All	First release version
1.001	08/03/2013	Nt	All	Added new chapters

WARNING:

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

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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 or give us a call if you need it.

CONNECTION SCHEME:

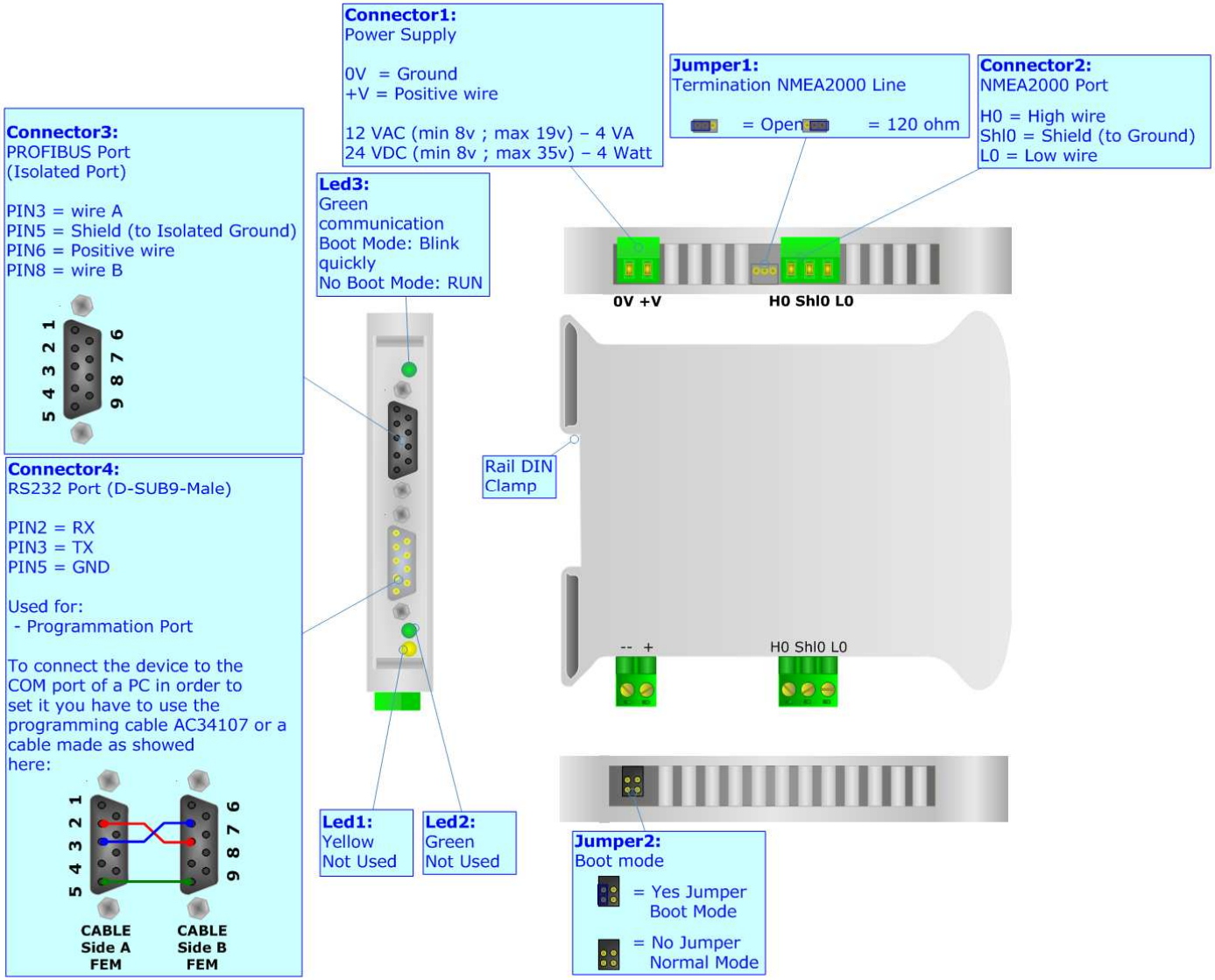


Figure 1: Connection scheme for HD67252-A1

CHARACTERISTICS:

The Configurable NMEA 2000 from/to PROFIBUS Gateway allows the following characteristics:

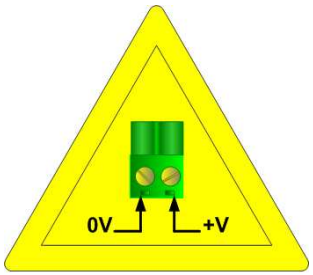
- Two-directional information between network NMEA 2000 and PROFIBUS;
- Eletrical isolation between two buses;
- Connect engines based on NMEA 2000 to the PLC or connect other peripherals like joysticks or other input/output devices;
- Temperature range -40°C to 85°C.

POWER SUPPLY:

Recommended Power Supply	
VDC	**VAC**
24v	**12v**

VDC		VAC	
Vmin	**Vmax**	**Vmin**	**Vmax**
8v	**35v**	**8v**	**19v**

Caution: Not reverse the polarity power .



CONFIGURATION:

You need Compositor SW67252 software on your PC in order to perform the following:

- Define the parameter of the NMEA 2000;
- Define the parameter of the PROFIBUS;
- Receive NMEA 2000 frames;
- Transmit NMEA 2000 frames;
- Create a GSD File.

USE OF COMPOSITOR SW67553:

To configure the Gateway, use the available software that runs with Windows, called SW67252. It is downloadable on the site www.adfweb.com and its operation is described in this document.

When launching the SW67252 the right window appears (Fig. 2).

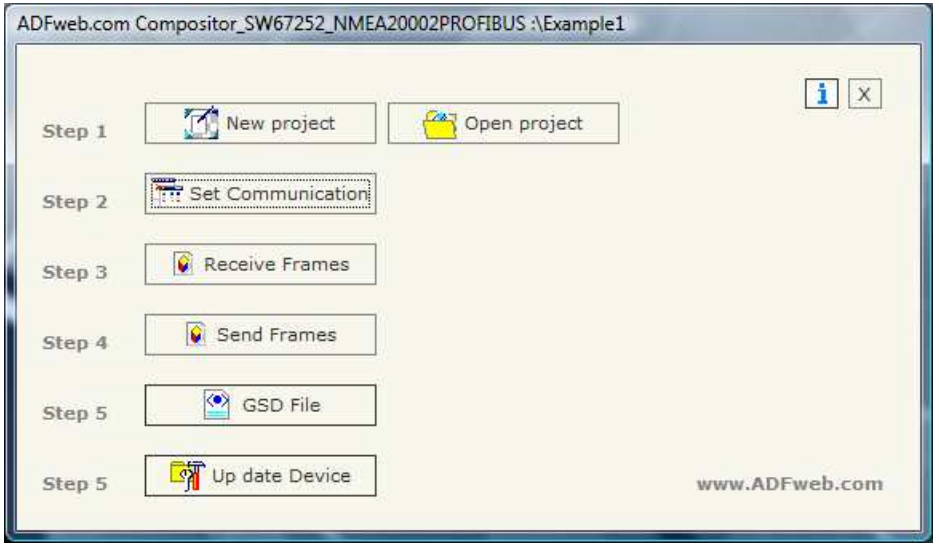


Figure 2: Main window for SW67252

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 a Programmable NMEA 2000 to PROFIBUS 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";**
- **"Receive Frame";**
- **"Send Frame".**

SET COMMUNICATION:

This section defines the fundamental communication parameter of two Buses, NMEA 2000 and PROFIBUS.

By Pressing the "Set Communication" button from the main window for SW67252 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The window is divided in two sections, one for the NMEA 2000 and the other for the PROFIBUS.

The means of the fields for "NMEA 2000" are:

- In the field "Baud Rate" the velocity of the NMEA 2000 bus is defined;
- If the field "Send Frame on Data Change" is checked, the frames are sent when the data are changed; otherwise if the field "Send Frame Every xx ms" is checked you have to insert a value in the field and then the frames defined in the "Send Frames" table are sent every xx ms;
- In the field "TimeOut Data" insert a time; when this time is elapsed and the data isn't reliable, in the register you can read "FFFF". It is possible to use this function only for the "Receive Frames";
- If the field "Enable Peer to Peer" is checked, the gateway accepts all the ID that have the PGN inserted in the "Receive Frames" section.
- If the field "Filter FECA" is checked when the FECA PGN arrives the gateway puts the values in Standby. If the time, expressed in milliseconds and written at the right side of "Filter FECA", is elapsed and there aren't arrived the frames of Transport Protocol the gateway put the data of FECA into PROFIBUS array. Otherwise if the Transport Protocol arrives before the time is elapsed the gateway put his data into PROFIBUS array discarding the data of FECA. When this field is checked the values aren't updated when the FECA frame arrive but there is an offset of xx ms. You can use this function if there is only one NMEA 2000 device in the network;

The means of the fields for "PROFIBUS" are:

- In the field "ID Dev." the address for the PROFIBUS side is defined;
- If the field "Module for every NMEA 2000 Frame" is checked, when you create the "GSD File" every NMEA 2000 Frame is inserted in a Module, otherwise if this field is not checked a Module contains up to 64 byte.

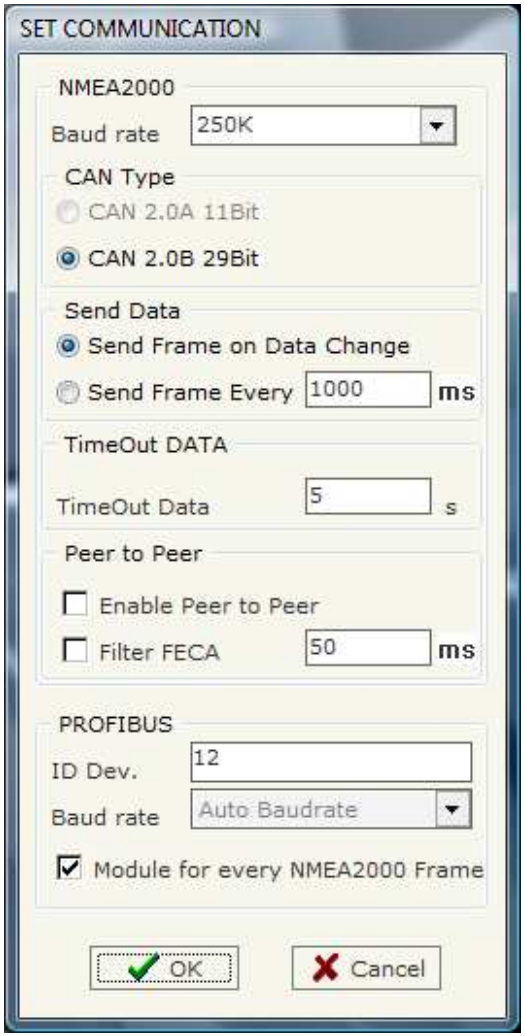


Figure 3: "Set Communication" window

RECEIVE FRAMES:

By pressing the "Receive Frames" button from the main window for SW67252 (Fig. 2) the window "Receive Frames" appears (Fig. 4).

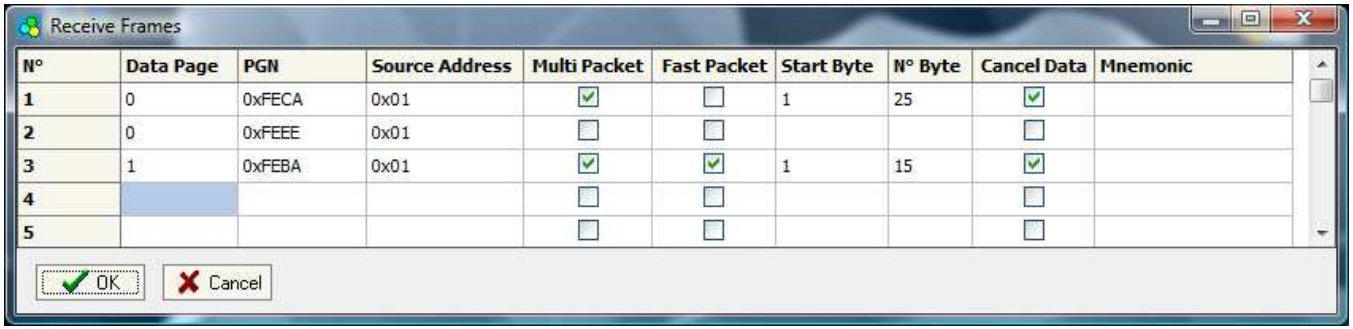


Figure 4: "Receive Frames" window

The data of the columns have the following meanings:

- In the field "Data Page" insert the data page, the value is 0 or 1 (usually is 0);
- In the field "PGN" insert the PGN of the data you would like to read from PROFIBUS to NMEA 2000 (it is an identifier);
- In the field "Source Address" insert the address of the device that sends the frame;
- If the field "Multi Packet" is checked the frame use transport protocol functions;
- If the field "Fast Packet" is checked the frame could use the Fast Packet Protocol functions;
- In the field "StartByte" insert the byte which you would start read, this field is enable only when the field multi frame is checked;
- In the field "N° Byte" insert the number of byte you would read, for example your start byte is 20 an N°byte is 10, you can read the byte from 20 to 30.
- If the field "Cancel Data" is checked, the data in the frame will be erased after the expiration of the "TimeOut Data";
- In the field "Mnemonic" the description for the frame is defined.

SEND FRAMES:

By pressing the "Transmit Frames" button from the main window for SW67252 (Fig. 2) the window "Transmit Frames" appears (Fig. 5).

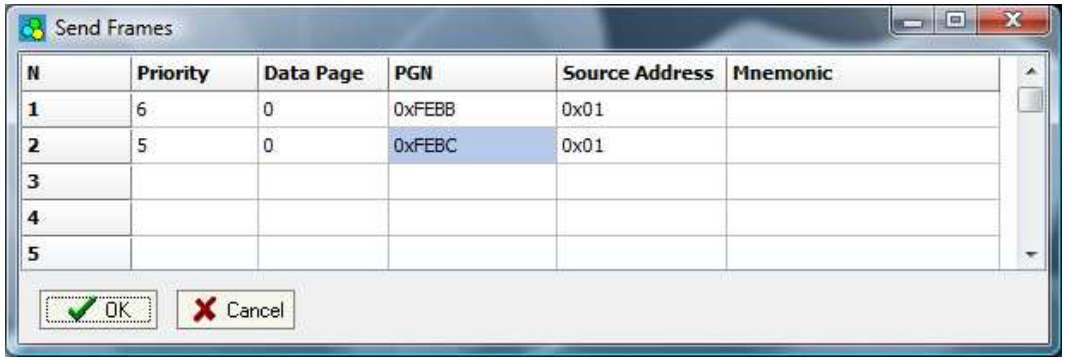


Figure 5: "Transmit Frames" window

The data of the columns have the following meanings:

- In the field "Priority" insert the priority of the Frame: in NMEA 2000 protocol it is a number among 0,1,2,3,4,5,6,7. The number "0" is the highest priority and "7" is the lowest;
- In the field "Data Page" insert the data page, the value is 0 or 1 (usually is 0);
- In the field "PGN" insert the PGN of the data you would like to write from PROFIBUS to NMEA 2000 (in NMEA 2000 protocol the PGN is an identifier);
- In the field "Source Address" insert the address of the device that sends the frame;
- In the field "Mnemonic" the description for the frame is defined.

GSD FILE:

By pressing the "GSD File" button it is possible to save the GSD file for the PROFIBUS side.
With this feature you can save the configuration of the gateway of the PROFIBUS side.

UPDATE DEVICE:

Section "Update device" (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");
- Turn ON the device;
- Check the "BOOT Led". It must blink quickly (For more info see the "Connection scheme");
- 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;
- Disconnect the RS232 Cable;
- Turn ON the device.

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

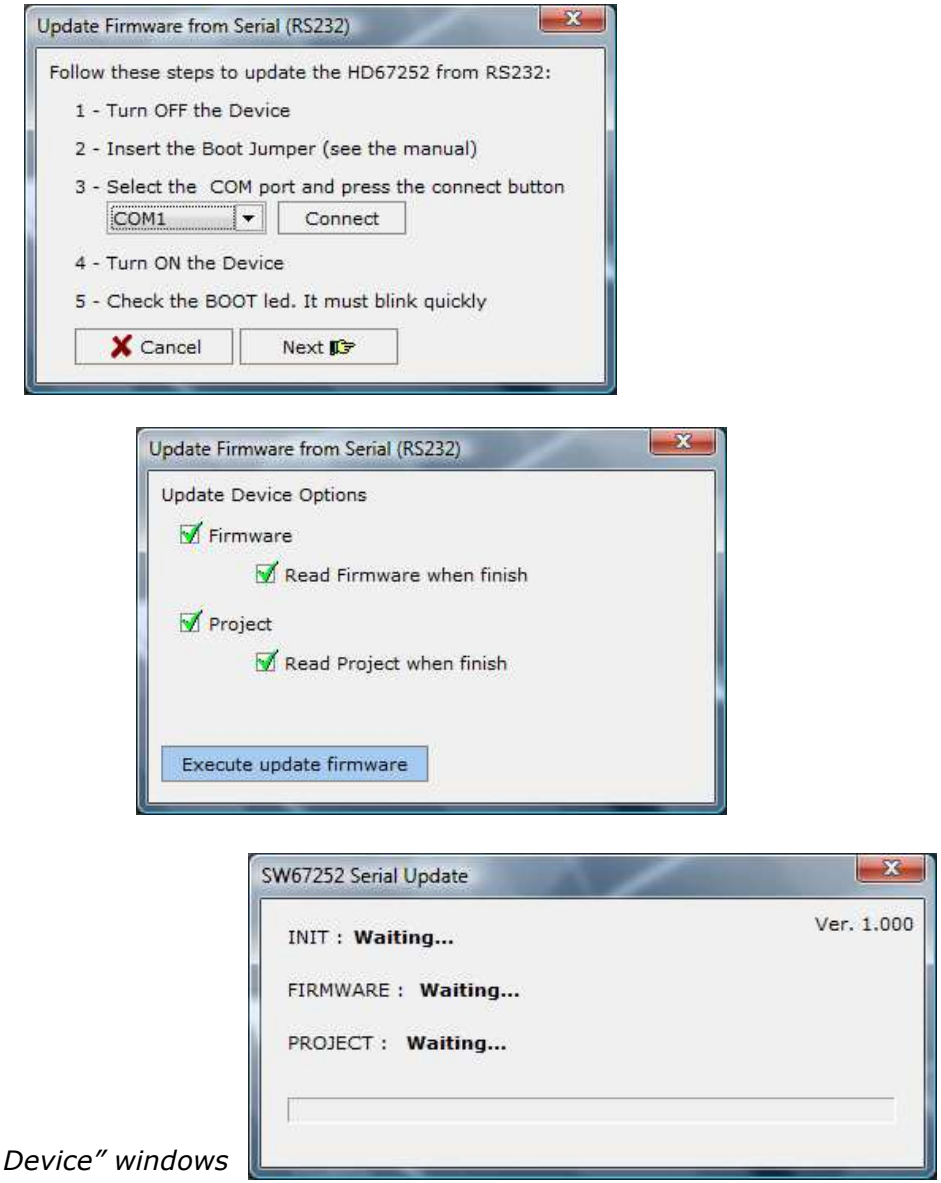


Figure 6: "Update Device" windows

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.

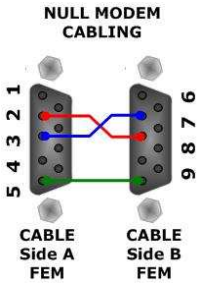


Figure 7: Null modem cabling

MECHANICAL DIMENSIONS:

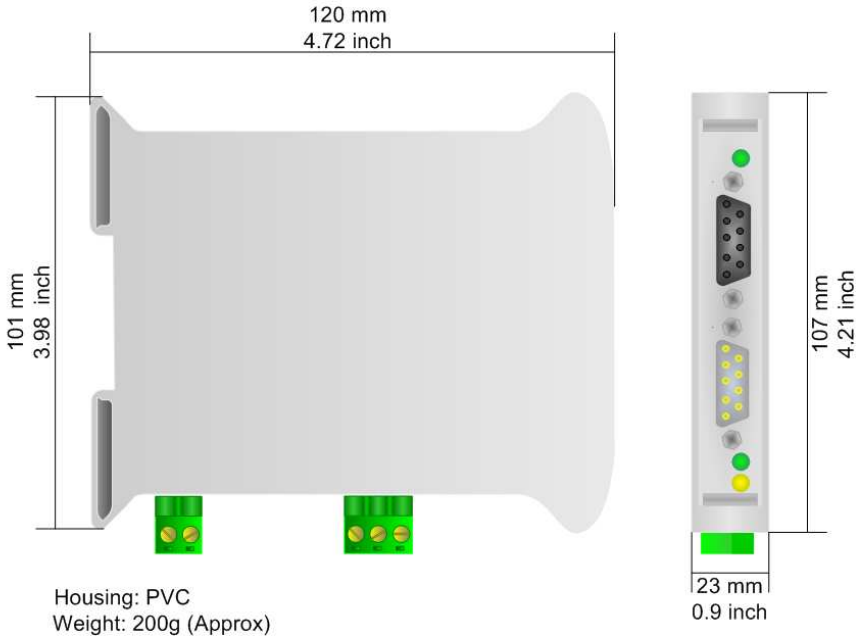


Figure 8: Mechanical dimensions scheme

ORDER CODE:

Order Code: **HD67252-A1** **-** NMEA 2000 / PROFIBUS 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.
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
HD67121	Gateway CANopen / Canopen	www.adfweb.com?product=HD67121
HD67502	Gateway CANopen / Modbus - RTU	www.adfweb.com?product=HD67502
HD67505	Gateway CANopen / Modbus – Ethernet TCP	www.adfweb.com?product=HD67505
HD67134	Gateway CANopen / DeviceNet	www.adfweb.com?product=HD67134
HD67117	CAN bus Repeater	www.adfweb.com?product=HD67117
HD67216	CAN bus Analyzer	www.adfweb.com?product=HD67216