

User Manual

Revision 1.002
English

CAN / CANopen / RS232 - Converter

(Order Code: HD67290)

for Website information:

www.adfweb.com?Product=HD67290

for Price information:

www.adfweb.com?Price=HD67290

Benefits and Main Features:

- ▶ CANbus 2.0A, 2.0B
(11 and 29 bit identifier);
- ▶ Free updating to lifetime;
- ▶ Opto-isolated CAN port;
- ▶ HW filter for CAN/CANopen packet;
- ▶ MAX baud rate 1Mb;
- ▶ Industrial temperature range
-40°C / 85°C (-40°F / 185°F)



HD67290

For others similar products:

CAN Analyzer

See also the following link:

www.adfweb.com?Product=HD67216

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 DC on the product’s box) and download the updated from our web site www.adfweb.com/download/

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	09/07/2004	Dp	All	First release version
1.001	1/04/2010	FT	All	Revision
1.002	08/02/2013	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 or give us a call if you need it.

CONNECTION SCHEME :

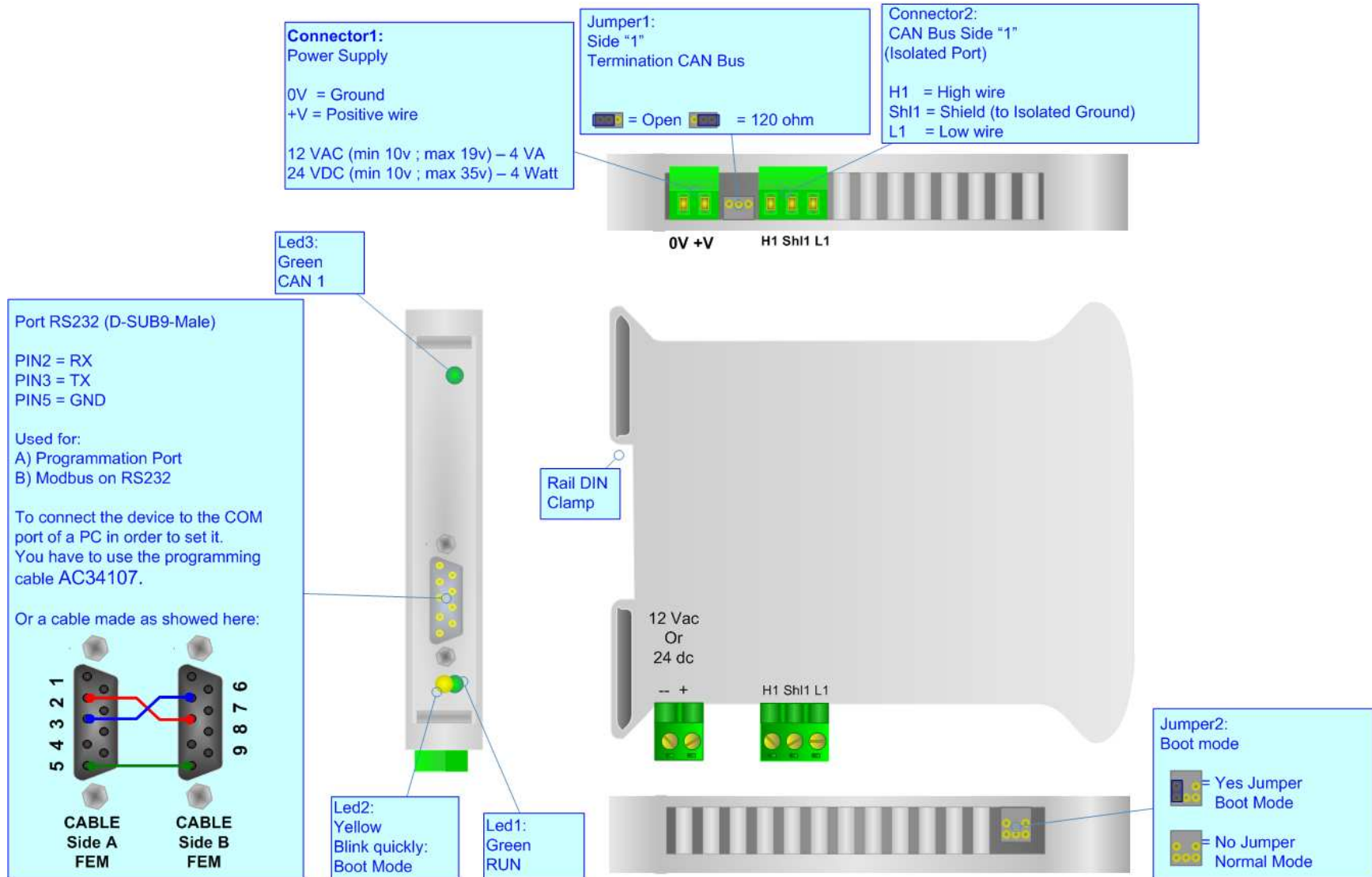


Figure 1: Connection scheme for HD67290

CHARACTERISTICS:

The CANbus from/to 232 allows the following characteristics:

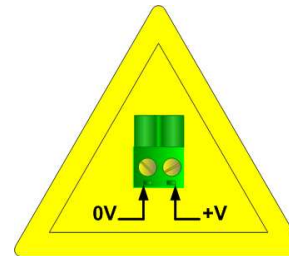
- Electrical isolation between two Buses;
- Filter of CAN frames;
- Temperature range -40°C to 85°C.

POWER SUPPLY:

Recommended Power Supply	
VDC	VAC
24v	12v

VDC		VAC	
Vmin	Vmax	Vmin	Vmax
10v	35v	10v	19v

Caution: Not reverse the polarity power .



HD67290

INTRODUCTION:

The CANbus from/to RS232 is a powerful, flexible and economic instrument for communicate through RS232 with system based in CAN-CANopen.

The instrument is composed of the following: module hardware with a RS232 interface that connects to a personal computer (or some other device with RS232) and a CAN terminal that connects to the line.

You need Compositor SW67290 software on your PC in order to perform the following:

- > Define the parameter of CANbus and Serial;
- > Define the Filter of the CANbus;

USE OF COMPOSITOR SW67290:

To configure the Gateway, use the available software that runs with Windows, called SW67290. It is downloadable on the site www.adfweb.com and its operation is described in this document.

When launching the SW67290 the right window appears (Fig. 2):

The following explains the function of the buttons:

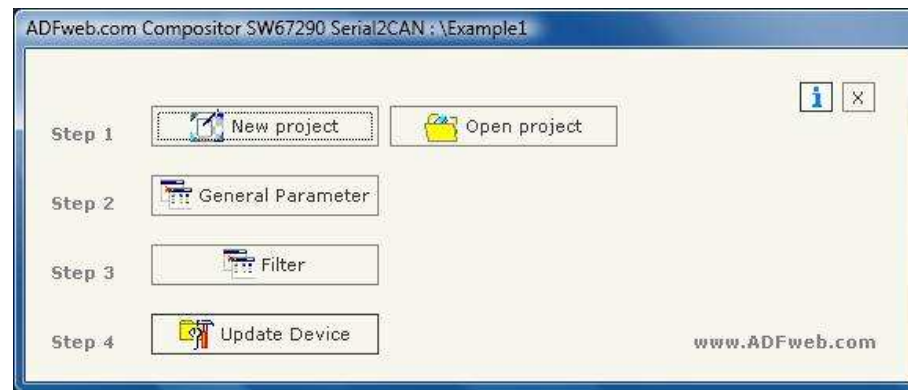


Figure 2: Main window for SW67290

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 CANbus from/to RS232 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:

GENERAL PARAMETER:

This section defines the fundamental communication parameters of two Buses, CANbus and RS232.

By pressing the "General Parameter" button from the main window for SW67290 (Fig. 2) the window "General Parameter" appears (Fig. 3):

- In the fields "Baud Rate", the velocity of the two buses are defined;
- In the field "Parity", the parity of RS232 is defined;
- In the section CAN, the type of CANbus can be changed. It can be 2.0A 11bit or 2.0B 29bit;



General Parameter

Serial

BaudRate 115200

Parity None

CAN

CAN Bus 2.0A 11Bit

CAN Bus 2.0B 29Bit

BaudRate 250

OK Cancel

Figure 3: "General Parameter" window

FILTER:

With the section "Filter" is possible define the hardware filter for CANbus. There are two windows for set it, the first for CAN2.0A filter and the second for the CAN2.0B.

By pressing the "Filter" button from the main window for SW67290 (Fig. 2) when is selected the CAN2.0A in General Parameter the window "Filter CAN 2.0A" appears (Fig. 4):

This window is used for indicate which COB-ID can pass the hardware filter. If the COB-ID is in the "Visible IDs" column when arrive a CAN frame with this Ids it will send in the RS232. Vice-versa if the ID is in the "Hidden IDs" column the frame will be discarded.

The ">>" button is used for take an ID from "Hidden IDs" column and put it in the "Visible IDs".

The "<<" button is used for take an ID from "Visible IDs" column and put it in the "Hidden IDs".

The "ALL" button is used for put all the IDs in the "Visible IDs" column.

The "NONE" button is used for put all the IDs in the "Hidden IDs" column.

The Hexadecimal and Decimal are used for see the IDs in Hexadecimal or Decimal representation

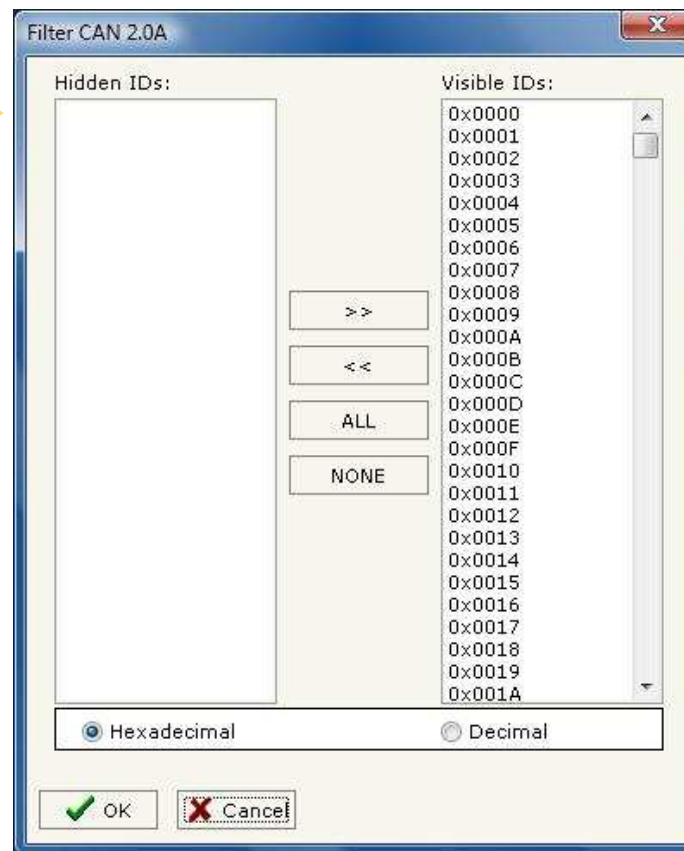


Figure 4: "Filter CAN 2.0A" window

By pressing the "Filter" button from the main window for SW67290 (Fig. 2) when is selected the CAN2.0B in General Parameter the window "Filter CAN 2.0B" appears (Fig. 5/6):

This window is used for indicate which COB-ID can pass the hardware filter. There are two way for set the Filter in CAN 2.0B, Cob-ID Filter (Fig. 5) and Mask Filter (Fig. 6)

Cob-ID Filter

In this mode if the Type positive is selected only the COB-ID indicate in the right list can be pass to the RS232. if the Type Negative is selected the COB-ID in the right list are discarded and all the rest pass to RS232.

The "ADD" button is used for insert a new ID in the list of COBs.

The "DELETE" button is used for delete an ID from the list of COBs.

The HEX and DEC are used for see the IDs in Hexadecimal or Decimal representation



Figure 5: "Filter CAN 2.0B" window. COB-ID Filter

Mask Filter

In this mode is possible to set a mask of COB-ID can pass the filter. The COB-ID have to be written in binary and the admitted value are 0, 1 and "x" where "x" indicate any value for that bit.

For example if the value is 10xx11 the admitted COB-ID are:

100011
 100111
 101011
 101111

The "ADD" button is used for insert a new ID in the list of COBs.

The "DELETE" button is used for delete an ID from the list of COBs.

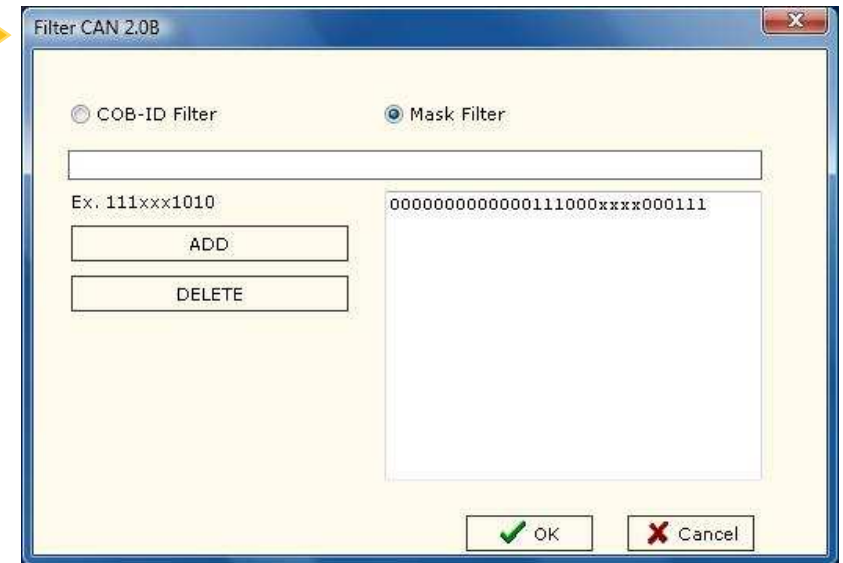


Figure 6: "Filter CAN 2.0B" window. Mask Filter

UPDATE DEVICE:

Section "UP Date 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, you must click the button "execute update firmware" on the principal window.

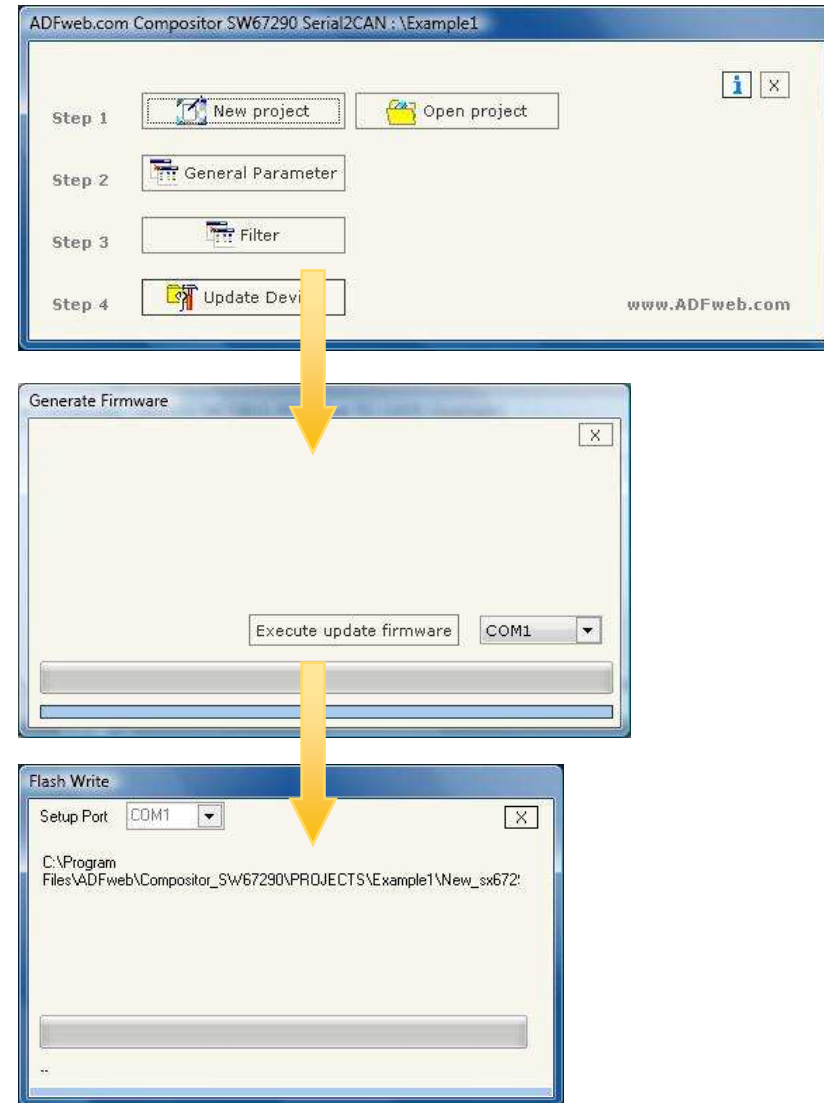


Figure 7: Update device procedure

SERIAL PROTOCOL

The Serial Protocol for send/receive the CAN frames is very simple. It use fifteen byte for every CAN frame and bytes is equal for both send and receive frame.

The serial frame si so made:

Byte 1	Start byte. This is always at 0xAA
Byte 2	COB-ID1
Byte 3	COB-ID2
Byte 4	COB-ID3
Byte 5	COB-ID4
Byte 6	Number of Byte
Byte 7	Data1
Byte 8	Data2
Byte 9	Data3
Byte 10	Data4
Byte 11	Data5
Byte 12	Data6
Byte 13	Data7
Byte 14	Data8
Byte 15	CRC

Start Byte

It is the first byte of the frame and it is always equal to 0xAA.

From COB-ID1 to COB-ID4

They are used for COB-ID of the CAN frame. If the CAN is 2.0A the COB-ID3 and COB-ID4 have to set to value 0. The COB-ID1 have the less significant bit and the COB-ID 4 have the most significant bit of the COB-ID

Number of Byte

It is the Number of Byte in the CAN Frame, it can be between 1 and 8.

From Data1 to Data8

They are used for the data of the frame. If your frame less of 8 byte the rest bytes have to set to value 0.

CRC

It is a byte that is make with the XOR of other byte from the start byte to Data8.

For example if the frame have a COB-ID equal to 0x1234567 and 8 byte of data 0x11 0x22 0x33 0x44 0x55 0x66 0x77 0x88, the frame will be so formed:

Byte 1	0xAA
Byte 2	0x67
Byte 3	0x45
Byte 4	0x23
Byte 5	0x01
Byte 6	0x08
Byte 7	0x11
Byte 8	0x22
Byte 9	0x33
Byte 10	0x44
Byte 11	0x55
Byte 12	0x66
Byte 13	0x77
Byte 14	0x88
Byte 15	0x2A

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:

DC parameter:	Impedance	70 Ohm/m
AC parameters:	Impedance	120 Ohm/m
	Delay	5 ns/m
Length	Baud Rate [bps]	Length MAX [m]
	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:

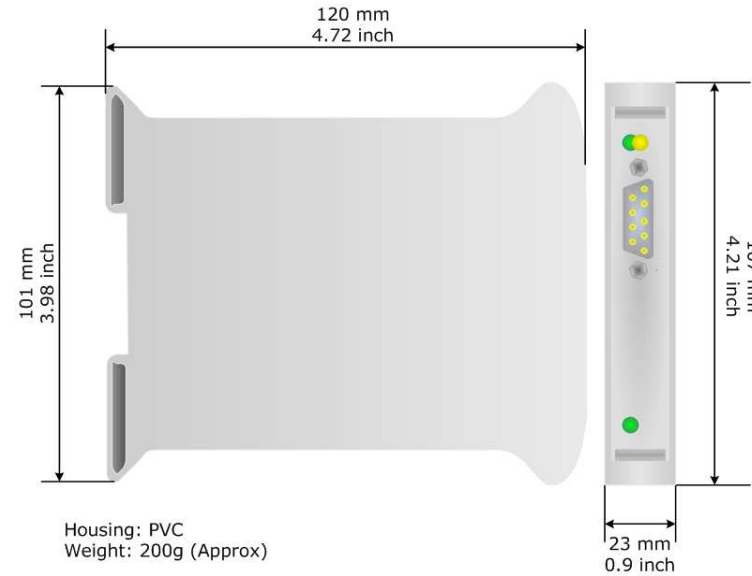


Figure 17: Mechanical dimensions scheme

ORDER CODE:

Order Code: **HD67290** - CAN / CANopen / RS232 - 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
- Order Code: **AC34103** - European Input - Power Supply 230V AC 50 – 12 V DC

DISCLAIMER


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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
HD67001	Gateway CANopen / Modbus – RTU Master	www.adfweb.com?product=HD67001
HD67004 HD67005	Gateway CANopen / Modbus – Ethernet TCP	www.adfweb.com?product=HD67004
HD67134	Gateway CANopen / DeviceNet	www.adfweb.com?product=HD67134
HD67117	CAN bus Repeater	www.adfweb.com?product=HD67117
HD67316	CAN bus Analyzer	www.adfweb.com?product=HD67216