

# User Manual

Revision 1.012  
English

## CAN Analyzer Hardware and Software

(Order Codes: HD67316-U-D1  
HD67316-E-A1)

for Website information:

[www.adfweb.com?Product=HD67316](http://www.adfweb.com?Product=HD67316)

for Price information:

[www.adfweb.com?Price=HD67316-U-D1](http://www.adfweb.com?Price=HD67316-U-D1)

[www.adfweb.com?Price=HD67316-E-A1](http://www.adfweb.com?Price=HD67316-E-A1)

### Benefits and Main Features:

- ▶ CAN Analyzer Advanced 2.0A, 2.0B (11 and 29 bit identifier);
- ▶ Free updating to lifetime;
- ▶ Master DeviceNet utility;
- ▶ 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)



HD67316-U-D1

HD67316-E-A1



Tools

### CAN Tools:

- ▶ CAN Monitor
- ▶ CANopen Monitor
- ▶ DeviceNet Monitor
- ▶ DeviceNet Master
- ▶ CAN sender
- ▶ File tracking
- ▶ Network Manager
- ▶ COB-ID filter
- ▶ SDO and PDO filter
- ▶ Mask filter



Similar Products

For others Gateways / Bridges:

### CAN /RS232

See also the following link:

[www.adfweb.com?Product=HD67290](http://www.adfweb.com?Product=HD67290)

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)

**INDEX:**

	Page
INDEX	2
UPDATED DOCUMENTATION	2
REVISION LIST	2
WARNING	2
TRADEMARKS	2
SECURITY ALERT	3
INTRODUCTION	4
THE SOFTWARE	4
FUNCTION	6
VIEW	9
FORMS	10
-FORMS → CAN MONITOR	11
-FORMS → CAN SENDER	15
-FORMS → CANOPEN MONITOR	17
-FORMS → NETWORK MANAGER	19
-FORMS → DEVICENET	21
TRACE	22
BASIC CONCEPTS ABOUT CAN	23
BASIC CONCEPTS ABOUT CANOPEN	24
ABORT CODE DESCRIPTION	27
UPDATE NEW FIRMWARE	28
CONNECTION SCHEME	32
POWER SUPPLY	34
USB	34
ETHERNET	35
LEDS	35
CAN	37
MECHANICAL DIMENSIONS	38
ORDERING INFORMATIONS	39
ACCESSORIES	39
DISCLAIMER	40
OTHER REGULATIONS AND STANDARDS	40
WARRANTIES AND TECHNICAL SUPPORT	41
RETURN POLICY	41
PRODUCTS AND RELATED DOCUMENTS	41

**UPDATED DOCUMENTATION:**

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**REVISION LIST:**

Revision	Date	Author	Chapter	Description
1.010	01/12/2011	FI	All	Software changed (v3.201)
1.011	01/02/2012	FI	All	Revision
1.012	08/02/2013	Nt	All	Added new chapters
1.013	30/05/2013	FI	All	Added USB driver link

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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.

**INTRODUCTION:**

The CAN Analyzer is a powerful, flexible and economic instrument which develops and verifies system based in CAN-CANopen-DeviceNet-J1939-NMEA 2000.

This product allows the study and configuration of CANopen systems, using a user interface that permits a simple access to devices and their objects.

The instrument is composed of the following: module hardware with a USB/Ethernet interface that connects to a personal computer and a CAN terminal that connects to the line and software for MS Windows.

The driver of USB can be downloaded from here: [www.adfweb.com/download/filefold/SW67119.zip](http://www.adfweb.com/download/filefold/SW67119.zip).

**THE SOFTWARE:**

To obtain software please go to [www.adfweb.com/home/download/download.asp](http://www.adfweb.com/home/download/download.asp).

(This manual is referenced to the last version of the software present on our web site). The software works with MSWindows (MS 2000, XP, Vista, Seven, 8; 32/64bit).When launching the SW67411 the below window appears (Fig. 1).

The software is composed of various windows that are controllable from a main window which allows access to the different CAN Analyzer functions (Fig. 1).



Figure 1: Main window for SW67216

**Status Desc indicates:**

- Packet receive: the number of CAN bus packages received from the hardware device;
- Packet discarded Filter: the number of the CAN bus packages discarded from the hardware device;
- Packet error controller the number of CAN bus packages discarded erroneously from the Controller CANbus;
- Send Filter - Bad Filter - Filter Ok: the state of the filter configurable from the software.

**Status LED indicates:**

- Cr: Color gray if the CAN Bus network was not activated. Color yellow if the CAN Bus network is active;
- Tr : Color red if sending data to the Hw CAN Analyzer device. Color gray if there isn't problems;
- Tp: Color red if the CAN Transmitters are occupied. Color green if there isn't problems;
- Ov : Color red if overwriting is verified within the receive CAN. Color green if there isn't problems;
- Wl : Color red if there are communications errors on the CAN during transmission and reception. Color green if there isn't problems;
- Bo : Color red if the CAN bus network is always in error. Color green if there isn't problems.

The Bus Load indicates the load level on the line. Normally, a line does not carry a load over 30%. A long period of time with an abnormal load may indicate that the applications are excessively using the BUS.

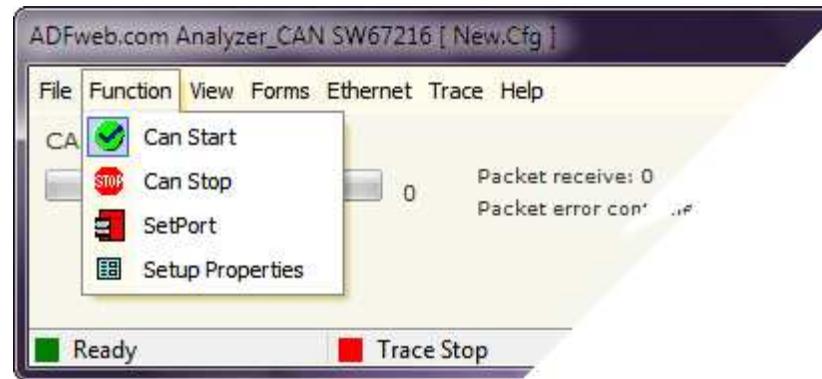
This could be caused by an incorrect cable connection (use of the terminal resistors) or the presence of device that functions at a different BAUD RATE than the one set in the analyzer.

The "menu" and "tool bar" access a series set-up possibilities such as:

- communication configuration;
- baud rate of the bus;
- turning on and off the hardware.

## FUNCTION

In this menu it is possible to Start/Stop the analysis of the CAN network, set the parameters of the Analyzer and the parameters of the CAN bus.



### FUNCTION → CAN START

By selecting the "**CAN Start**" button under "**Function**" menu, the analysis is started.

### FUNCTION → CAN STOP

By selecting the "**CAN Stop**" button under "**Function**" menu, the analysis is stopped.

**FUNCTION → SETPORT:**

By selecting the **SetPort** button under **Function** menu it is possible to select the type of hardware in use and define the parameters of communication.

For the "Serial Type (HD67216)" and "USB Type (HD67316-U-D1)" it's only necessary to select to what **COM port** the device is connected (Fig. 2).

For the "Ethernet Type (HD67316-E-D1)" it is necessary to insert the **IP Address**, **SubNet Mask**, **Gateway** and **Port** used for the connection to the device (Fig. 3). All these information are set to the device when the update of parameters was performed.

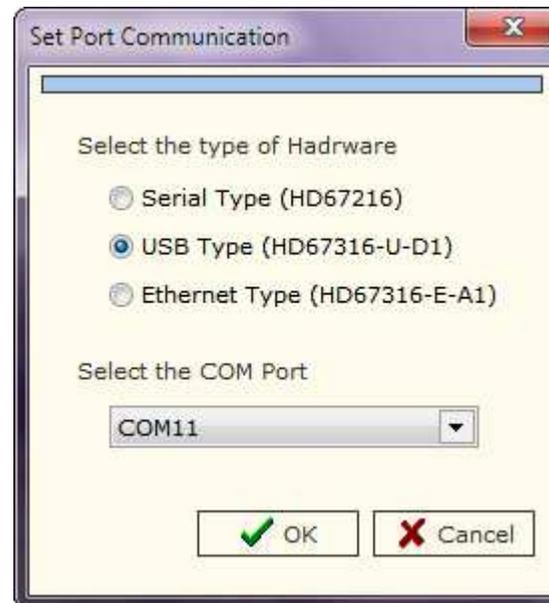


Figure 2: "Set Port Communication" window for "Serial Type" & "USB Type"

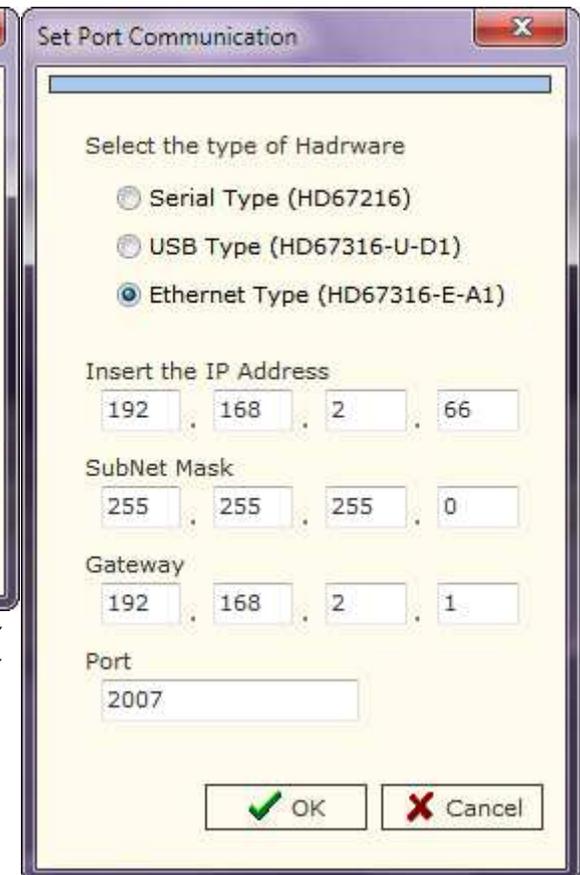


Figure 3: "Set Port Communication" window for "Ethernet Type"

**FUNCTION → SETUP PROPERTIES:**

By selecting the **Setup Properties** button under **Function** menu it is possible to set the properties of CAN bus.

In this menu is possible set the Protocol between **Standard** (CAN2.0A) or **Extended** (CAN2.0B).

By checking the **Tx Passive** field the analyzer doesn't reply with the Ack frame to a CAN frame.

In the section **Baudrate (kBit/s)** there is the list of Baud that is possible to select for set the CAN baudrate. It is possible to select only one value.

By checking the **Show only CIA Baudrates** it is possible to select only the baudrates defined by CIA. Otherwise it is possible to select also no standard baudrates.

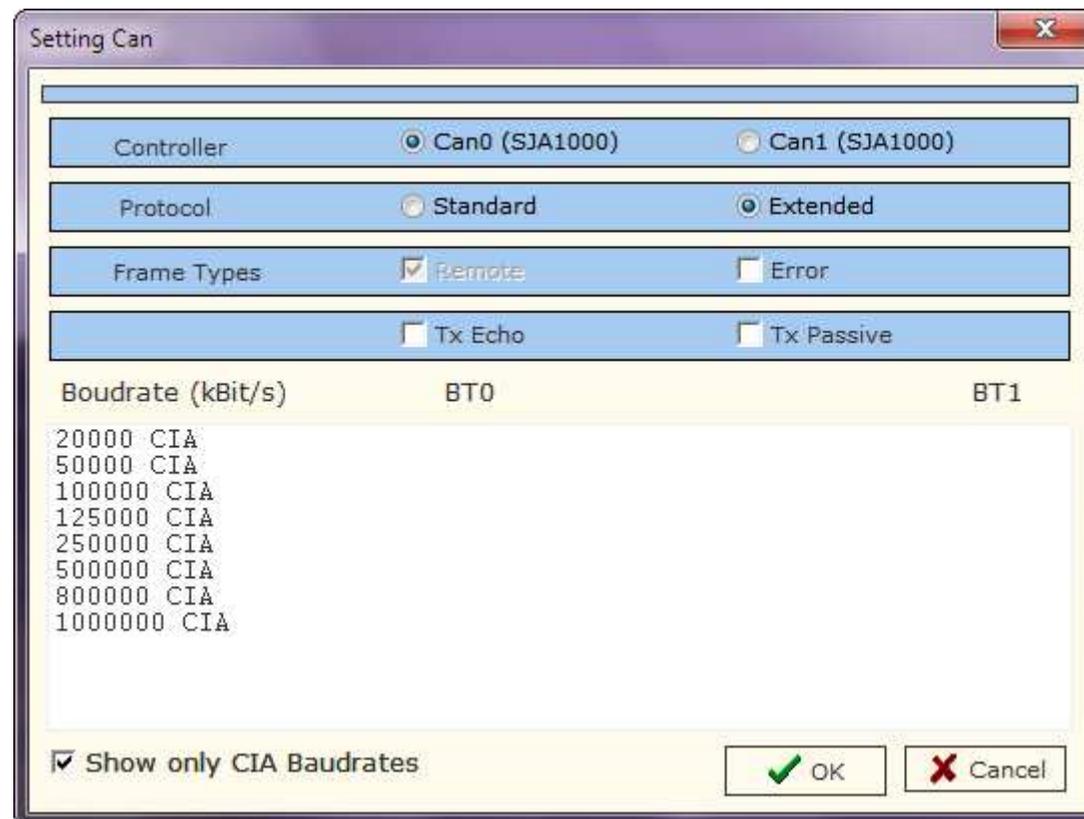


Figure 4: "Setting Can" window

**VIEW:**

In this menu it is possible to select what see in the Main window.



With the “**View/Hide Tool bar**” button it is possible to show/hide the toolbar with the commands of the menu.

The “**View Form List**” controls the opening of the windows that access the various CAN Analyzer functions.

With the “**Hardware Status**” button it is possible to show/hide the information of Bus Load, Packet and Status Led.

**FORMS:**

In this menu it is possible to select which forms see.



The "**CAN Monitor**" is a window that allows the visualization of the BUS data at the package level.

The "**CAN Sender**" is a window that allows CAN packages to be send into CAN line.

The "**CANOpen Monitor**" is a window that allows for the visualization of BUS data, interpreting it as CANopen packages.

The "**Network Manager**" is a window that allows for control of the CANopen modules inserted in the line. It can scan the network to find modules and for each one, it reads the object dictionary.

The "**DeviceNet**" is a window that allows the control of a slave DeviceNet.

**FORMS → CAN MONITOR:**

This is the window that allows the visualization of the bus data at the package level and its columns mean the following:

- **"Time"**: indicates the time in which data is received;
- **"ID (HEX)"**: indicates the Identifier;
- **"Data (HEX)"** indicates the data byte of the CAN package ( they can be from 0 to 8 );
- **"ASCII"** is the representations of the received data in ASCII character.

The buttons on the tool bar allow the following actions:

- **"Export Excel"** allows the exportation of the entire content of the grid as a text file;
- **"CAN Start"** and **"CAN Stop"** is used for activate or stop the writing of the packages in the grid;
- **"Clear"** eliminates the grid content;
- **"Lock Recent Entities"** visualizes the last CAN package;
- **"Scroll/Overwrite Mode"** serves in the choice to write all packages one after another in the grid or to write all of them in the same row;
- **"COB-ID List"** permits to see the COB that arrives and see the update of their value;
- **"Filter"** opens the window for filter set-up.

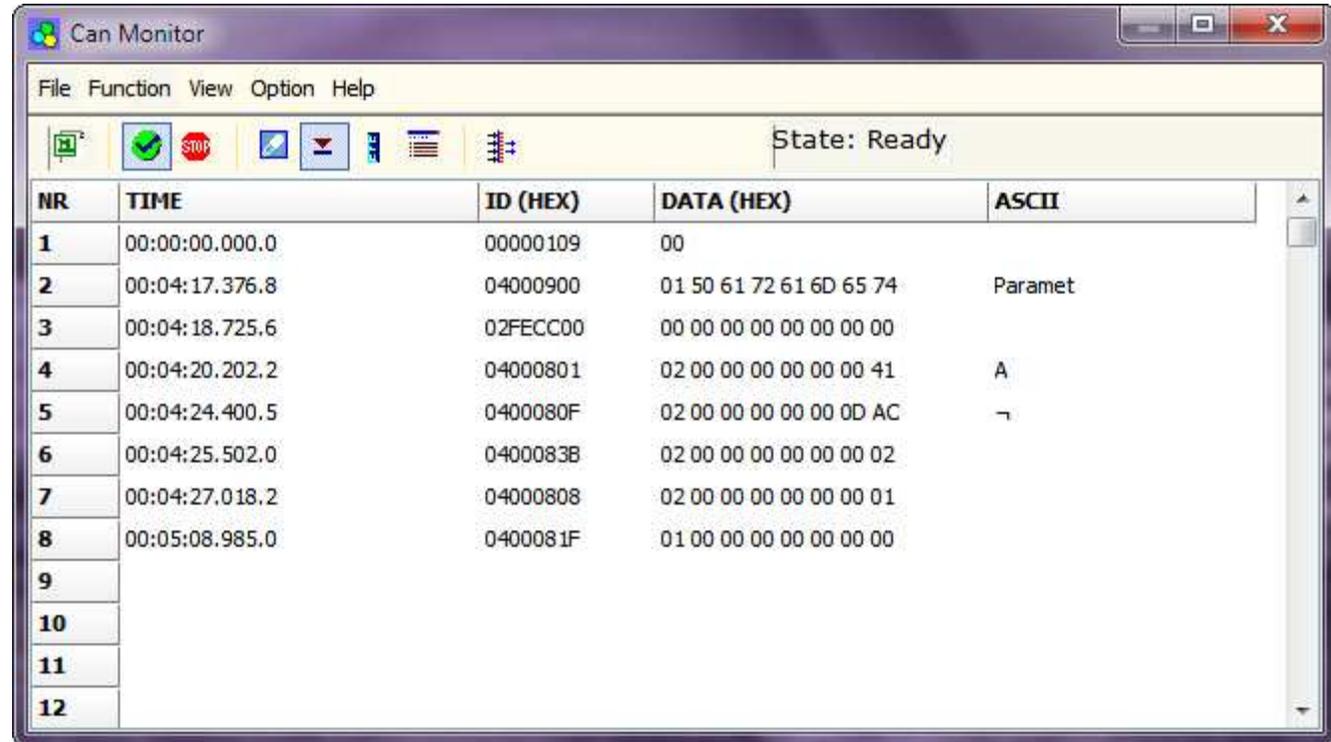


Figure 5: "CAN Monitor" window

FILTER FOR CAN2.0A (STANDARD)

The filter is an instrument that allows the hardware module to eliminate package that it does not want to be visualized in the CAN Monitor window. (Note: the filter reacts on the Identifier section of the package)

By pressing the "Filter" button from the "Can Monitor" window the "Filter" window (if protocol is standard CAN2.0A) appears (Fig. 6).

On the set-up windows for the filter, there are two lists:

- on the right, the list of the Identifiers (\$0-\$7FF) of the packages to be visualized;
- On the left, those lists to be eliminated.

To modify the lists, use the keys "<<", ">>", "ALL" and "NONE" to move an Identifier from one list to another, bring them to the right (shown) or the left (hidden).

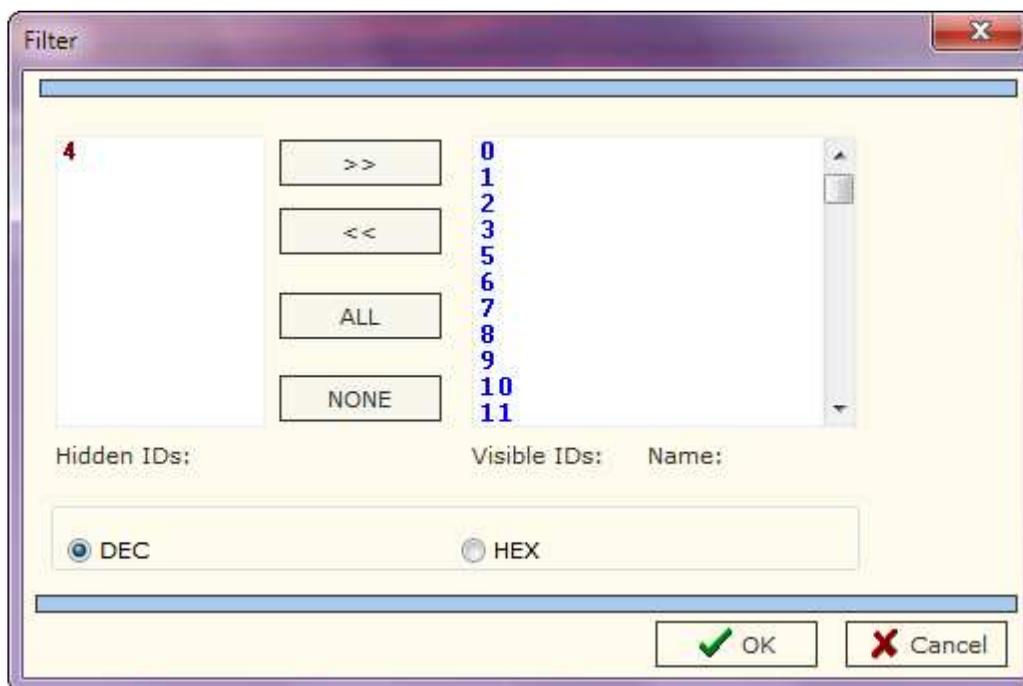


Figure 6: "Filter" window for Standard Protocol

FILTER FOR CAN2.0B (EXTENDED): COB-ID FILTER

When the protocol is extended (CAN2.0B) by pressing the **“Filter”** button from the “Can Monitor” window the “Filter CAN 2.0B/J1939” window appears (Fig. 7).

In this window there are:

- A text area on the left for insert the COB-ID in the filter;
- A big area on the right for display the COB-ID inserted;
- Two buttons for add or delete the COB-ID;
- Two options for set the filter to “Type Positive” or “Type Negative”.

For insert a COB-ID in the filter you have to digit the COB-ID in the first text area and click on the **“ADD”** button. Now the COB ID compare on the right box. For delete a COB-ID you have to select the COB-ID to remove and click on the **“DELETE”** button.

You can choose two type of the filter: positive or negative, by clicking on the relative option:

- **“Type Positive”**: on the CAN monitor you visualize only the COB-ID added;
- **“Type Negative”**: on the CAN monitor you visualize all COB-ID except the COB-ID added.

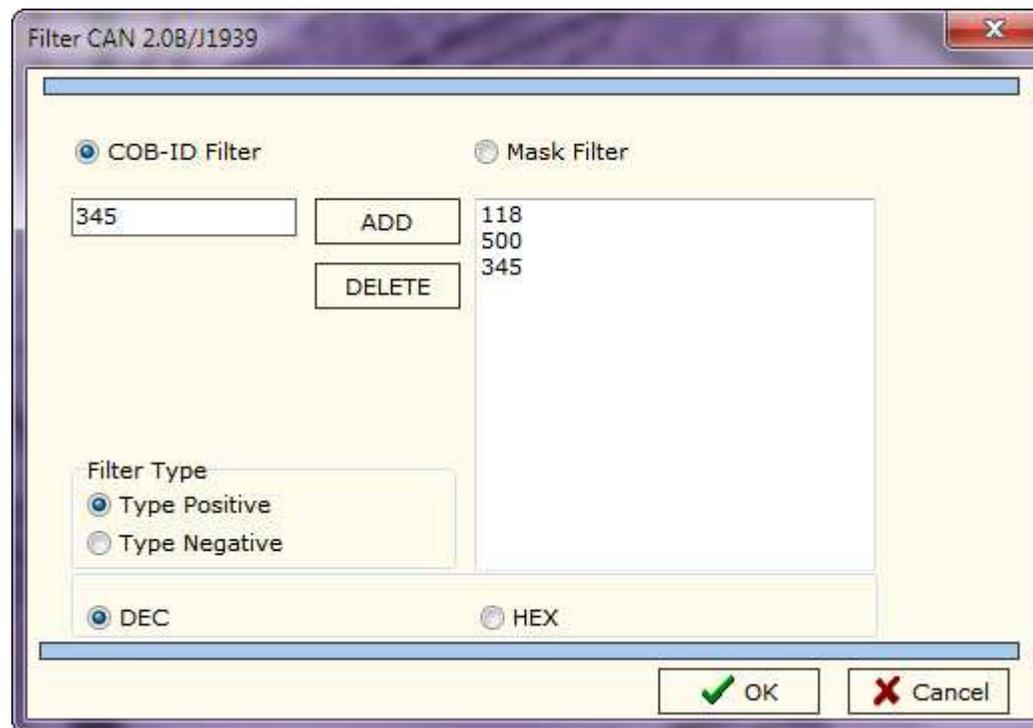


Figure 7: “Filter” window for Extended Protocol: COB-ID Filter



**FORMS → CAN SENDER:**

It allows for data to be send in the network. The package is built by its Identifier and its data.

The window allows a list of packages to be created, then are visualized on the grid.

To add a new package, write the values in the text fields and then choose "Edit New". The new package extends the table at the first available row. Otherwise, to modify a row, select it and choose the option "Edit Modify". "Edit del" eliminates the selected row.

From the "Function Menu", choose "Transmit Current Object" to send the package one single time. Choose "Transmit Cycle" to send it cyclically.

The "Debug" function send only the selected package, if the main checkbox on top is checked. For select the package to be sent you have to check the debug on the end of the line.

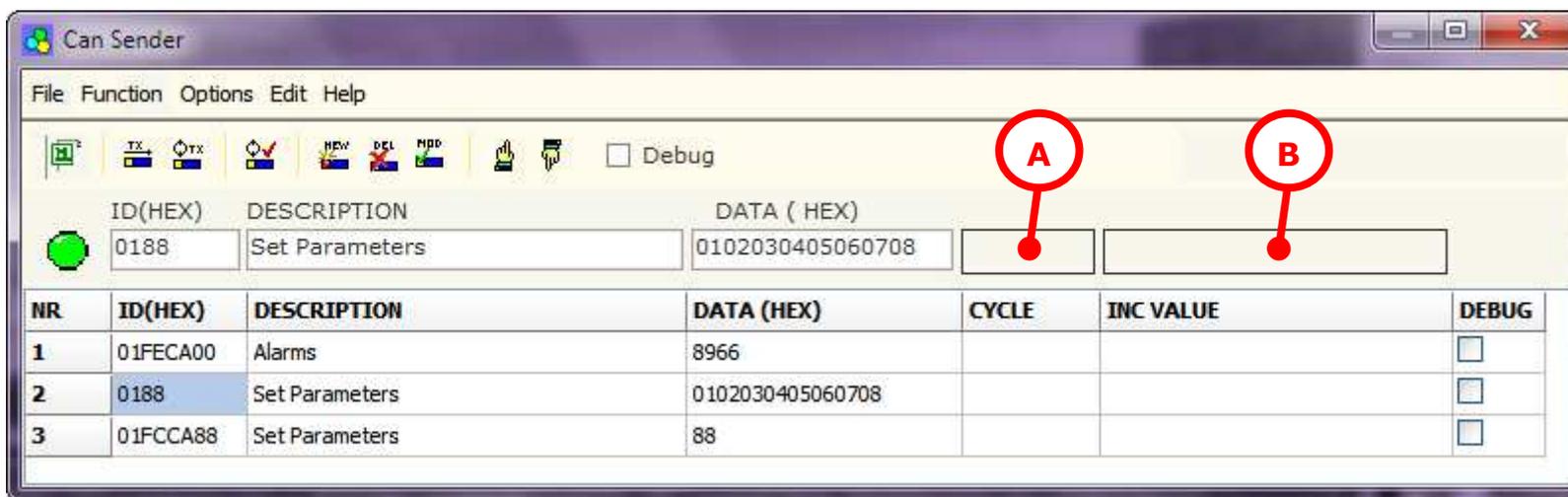


Figure 9: "CAN Sender" window

For each defined packet it is possible to define a cycle time that it is used for transmit of the frame cyclically.

For assign this time you have to select the desired frame and press the button marked with "A". The right window appears (Fig. 10).

In that it is possible to define the "**Timer Tics (mS)**" that is the cyclic time used for send the packet and the "**Start Byte**" from 1 to 8.

Once the package to be sent are set-up: select the row dedicated to the package to be send and click on the transmission:

- "**Transmit Current Object**": to send one time;
- "**Transmit Cyclic**": to send cyclically, if the Cycle Options are set-up.

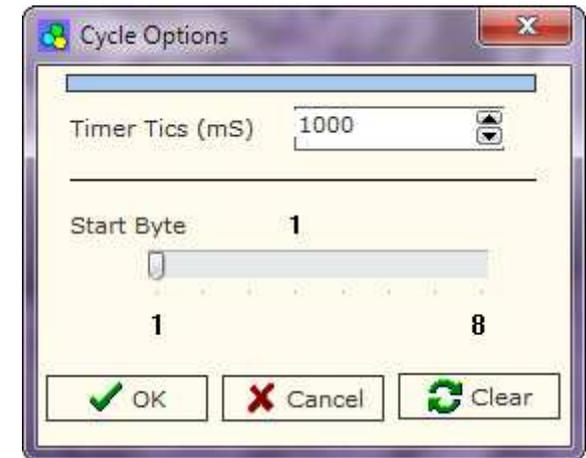


Figure 10: "Cycle Option" window

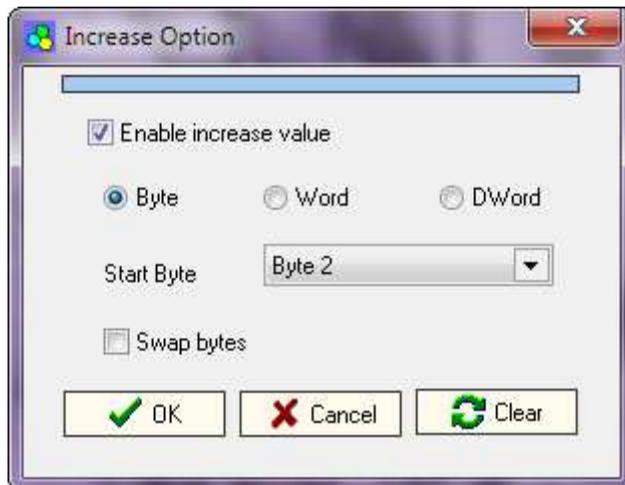


Figure 11: "Increase Option" window

For each defined packet it is possible to increase automatically the value of the data. For do that you have to select the desired frame and press the button marked with "B". The right window appears (Fig. 11).

It is possible to enable the increase of the value by checking the field "**Enable increase value**"; select the amount of bytes used for the increase ("**Byte**"=1, "**Word**"=2, "**DWord**"=4); select the "**Start Byte**" and also swap, by checking the "**Swap bytes**" field it is possible to select which of 2 or 4 bytes used for the increase is increased first.

**FORMS → CANOPEN MONITOR:**

It allows for data to be sent in the network. The package is built by its Identifier and its data.

It is a window that allows the BUS data to be visualized, interpreting the data as specified by the CANopen.

The columns mean the following:

- **"Time"**: Indicates the time that data is received;
- **"Node"**: Address of the device associated with the package (1-127);
- **"Object"**: Indicates the type of object;
- **"Data"**: Indicates the data related to the package (the contents depend on the type of package).

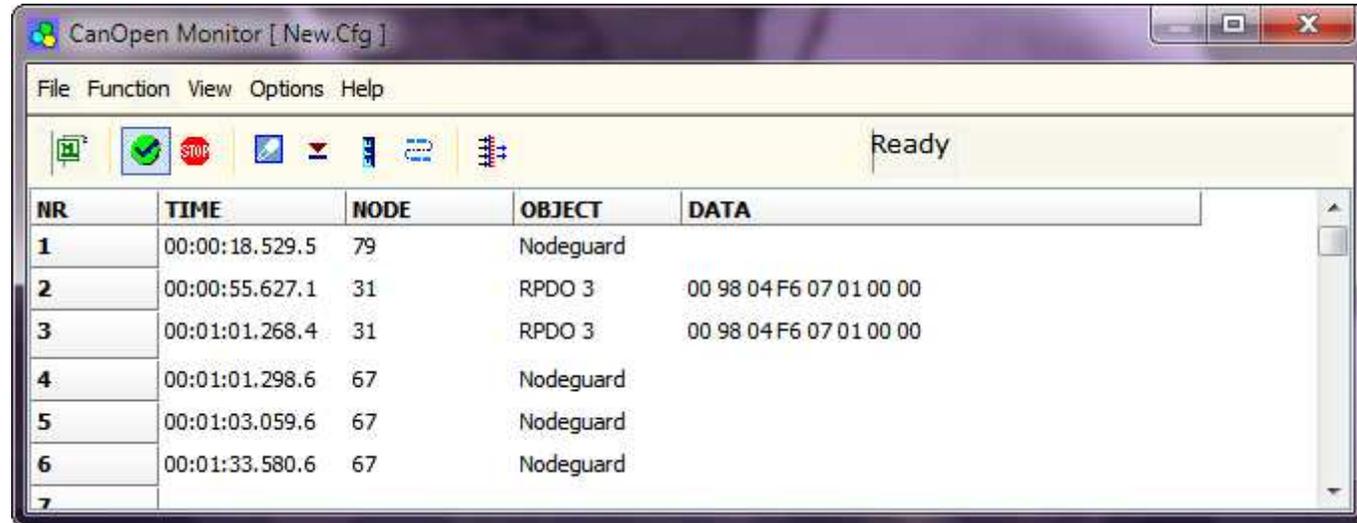


Figure 11: "CANopen Monitor" window

The tool bar allows for the following actions:

- **"Export Excel"**: allows for the exportation of the entire contents of the grid as a text file;
- **"CAN Start"** and **"CAN Stop"**: activate or stop the writing of the packages in the grid;
- **"Clear"** eliminates the grid content;
- **"Lock Recent Entities"** visualizes the last CAN package;
- **"Scroll/Overwrite Mode"**: serves in the choice to write all the packages one after another in the grid or to write all of them in the same row;
- **"Filter"** opens the window for filter set-up.

The filter is an instrument that allows the hardware module to eliminate package that it does not want to visualized in the CANopen Monitor window.

By pressing the **Filter** button from the "CanOpen Monitor" window the "Filter" window appears (Fig. 12):

The set-up window of the filter allows every type of package to be visualized or not based on a specific address.

It is possible to set the filters on **"SDO"**, **"PDO"**, **"EMCY"**, **"NMT"**, **"SYNC"**, **"TIME"**, **"NGNG"** frames.

To modify the lists, use the keys **"<<"**, **">>"**, **"ALL"** and **"NONE"** to move an Identifier from one list to another, bring them to the right (shown) or the left (hidden).

The CANopen monitor window is valid only for standard protocol.

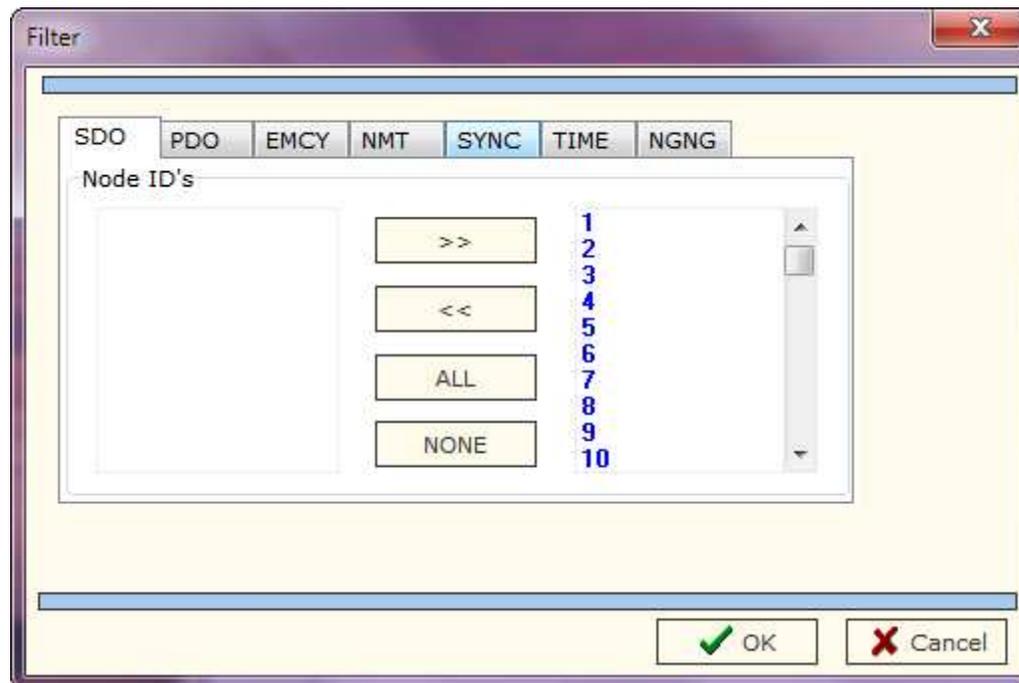


Figure 12: "Filter" window

**FORMS → NETWORK MANAGER**

The "Network Manager" window (Fig. 13) allows certain operations, designed for the analysis of CANopen devices.

It is possible to scan the network through this window.

In order to identify the presence of module within the network, it is possible to read the objects of a module's Object Dictionary and send the start package to the network.

Set-up the range of addresses for the scan in order to scan the network.

Press the "Scan" button and wait for this scan. The list of the node is filled in with the found nodes. These can be added to the Index and SubIndex.

The button "Add Node", "Add Index", "Add SubIndex", "Modify" and "Delete" allow for the elaboration of the objects list.

To read the value of an object through SDO, select the object from the list and press the button "Read" and the button "Write" to write it.

With the "EDS" button it is possible to add the EDS file for the defined node.

The Network manager window is valid only for standard protocol.

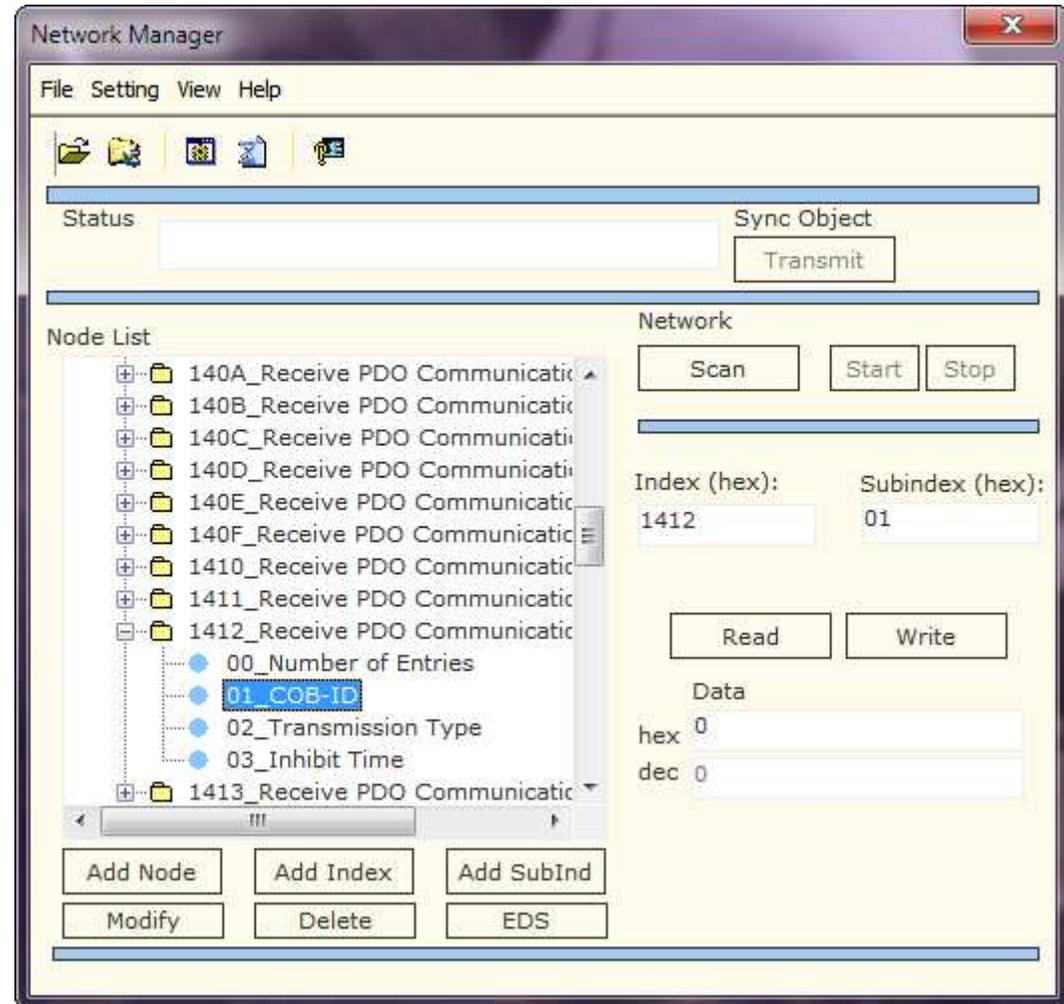


Figure 13: "Network Manager" window

By pressing the "EDS" button from the "Network Manager" window (Fig. 13) the window "Load EDS file" appears (Fig. 14):

By this window is possible to load an EDS file for CANopen. Can also set as part of EDS you would load by check the field:

- ✦ Insert Mandatory object;
- ✦ Insert optional object;
- ✦ Insert manufacturer object.

When the EDS is loaded on the network manager is possible see the various object of CANopen device (fig. 13).

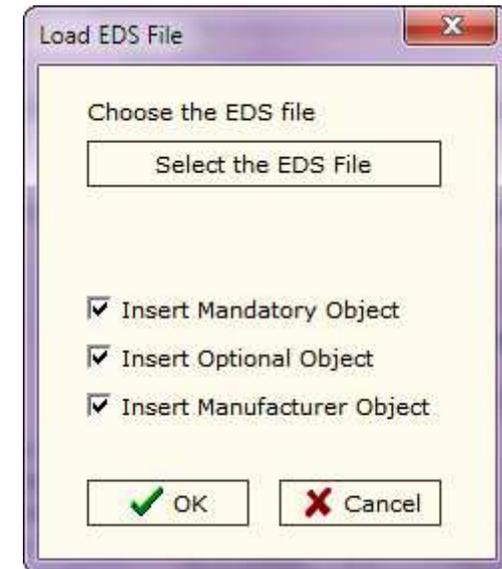


Figure 14: "Load EDS File" window

**FORMS → DEVICENET:**

With the button "Device NET", you can access the window for the DeviceNET's Master simulation (Fig. 15).

In the window "Device NET Master Emulator", you must write the device's address only, then push the START button in order to visualize the input and output data.

In the left column you can put the data that DeviceNet's Master must write in DeviceNET's net.

In order to change the data's value, it is enough: to select the data, to write its value in the editbox on the list and to push the SEND button.

In the right column you can view all data of the slave. This column can be only read.

Push the STOP button in order to stop communication with the slave.

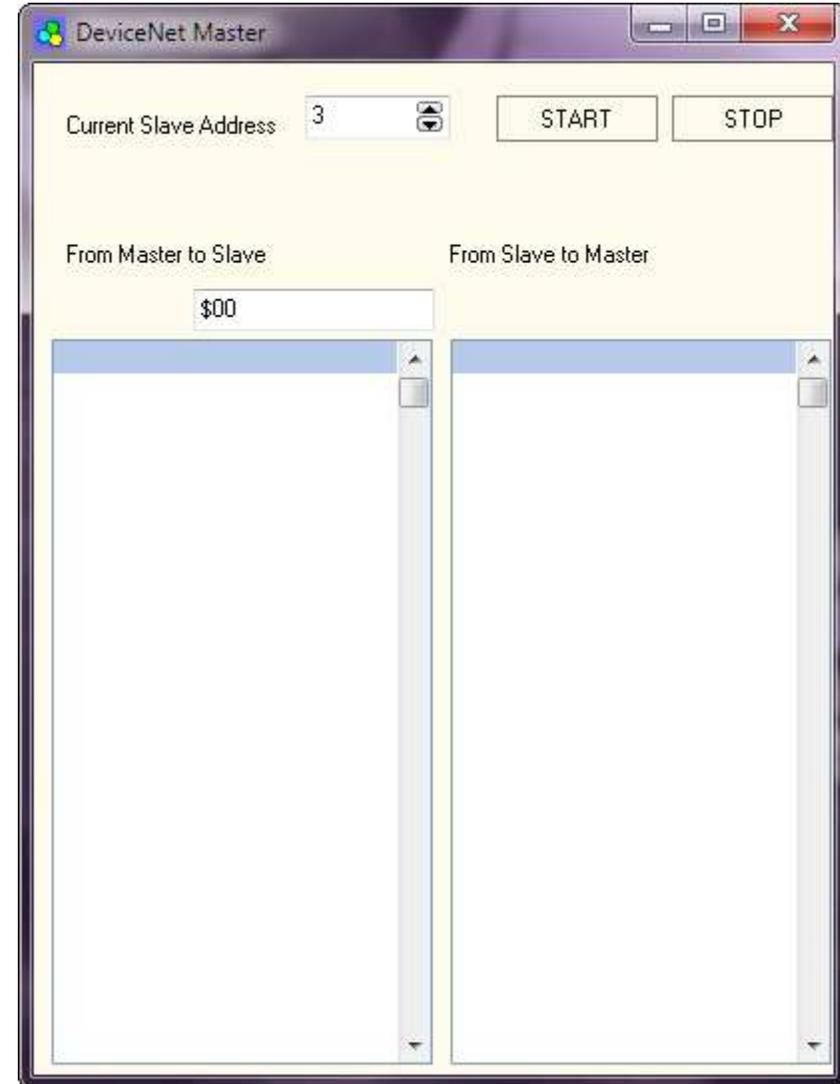


Figure 15: "DeviceNet Master" window

## TRACE

In this menu it is possible to start/stop the saving of data into a trace.



The **Start File Trace** opens a window (Fig. 16) that allows to define the settings of the trace.

It is possible to create many small files instead of a big one by checking the field **Enable MultiFiles** and selecting in the field **Change file when arrive to ... x 100000 records** how many records to be saved into a file.

The **Stop File Trace** stops the trace.

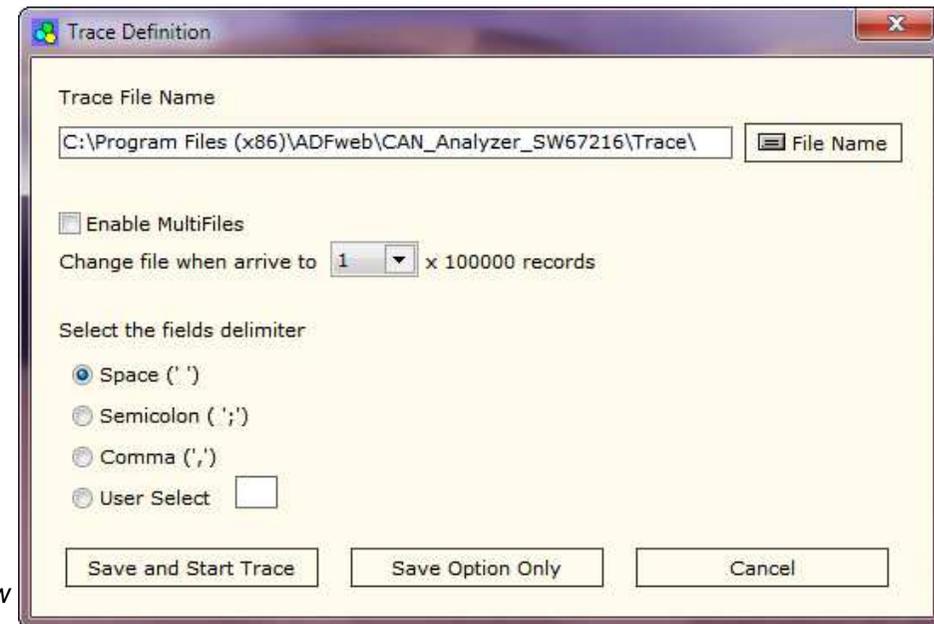


Figure 16: "Trace Definition" window

**BASIC CONCEPTS ABOUT CAN:**

The CAN Bus is a bus that use simple twisted cable as a physical support. It allows for the communications between several devices at the same time on the same network through an automatic control on the part of the hardware driver, package priority. It is used often in the automotive field and by automated industry.

A CAN package is composed of several parts:

- 11/ 29 bits of the Identifier;
- up to 8 bytes of data;
- and other CRC bits.

The COB-ID serves to define the priority of the BUS package (note: the lower the values, the higher is the bus priority).

The COB-ID bits are, in effect, defined as dominant if zero and recessive if one.

The CAN Hardware Driver and the CAN Controller (generally, the microprocessor) if there is an error during the transmission of the package, they suspend the transmission and recuperate the information automatically. This automation permits a high level of security and therefore is used in critical situations.

**BASIC CONCEPTS ABOUT CANOPEN:**

The CANopen is a protocol based on CAN that defines a series of set-up rules for package and interactions in which devices can communicate.

Also, CANopen brings to the generation of profiles made to standardize communication with generic modules such as I/O, Encoder, etc.

Above all, CANopen defines diverse typologies of the package, distinguished base on the COB-ID of the CAN Package (see the table below).

COB-ID	
\$00	Network management
\$80	Sync
\$80+devadd	Emcy
\$180+devadd \$200+devadd	txPDO 1 rxPDO 1
\$280+devadd \$300+devadd	txPDO 2 rxPDO 2
\$380+devadd \$400+devadd	txPDO 3 rxPDO 3
\$480+devadd \$500+devadd	txPDO 4 rxPDO 4
\$700+devadd	Nodeguarding
\$600+devadd \$580+devadd	SDO request SDO response

In the table, for every package "devadd" (the device address), there is a value up to \$7F. A CANopen network can have up to 127 devices ("devadd" begins from 1).

We add a brief description of the meaning of the 8 bytes of data for each type of package.

*Network management* (Cob ID 0x00)

Byte 1 :  
Identifies the type of command  
Byte 2 :  
Identifies the node that receives the command  
Byte 3-4-5-6-7-8 :Reserved

*Sync Message* (Cob ID 0x80)

Byte 1-2-3-4-5-6-7-8 :  
Absent

*Emergency Object* (Cob ID 0x80 - 0xFF )

Byte 1 : LSB Error Code  
Byte 2 : MSB Error Code  
Byte 3 : Error Register  
Byte 4-5-6-7-8 : Manufacturer Specific Error Field

*Timestamp Message* (Cob ID 0x100)

Byte 1-2-3-4 :  
time expressed in milliseconds  
Byte 5-6 :  
Number of days  
Byte 7-8 :Reserved

*Transmit Pdo n° 1* Cob ID 0x180 a 0x1FF

Byte 1-2-3-4-5-6-7-8 : databytes

*Receive Pdo n° 1* (Cob ID 0x200 a 0x27F)

Byte 1-2-3-4-5-6-7-8 : databytes

*SDO Read Response* (Cob ID 0x580 a 0x5FF )

Byte1 : 010X.YY11 (0x40)  
YY  
Indicates how many byte of the 4 data possibilities do not contain data.  
X  
Indicates a bit which has an indifferent value (don't care)  
Byte 2 : index byte low  
Byte 3 : index byte high  
Byte 4 : subindex  
Byte 5,6,7,8 : Data bytes

*SDO Read Request* (Cob ID 0x600 a 0x67F )

Byte1: 010X.XXXX (0x40)  
X  
Indicates a bit which has an indifferent value (don't care)  
Byte 2 index byte low  
Byte 3 index byte high  
Byte 4 subindex  
Byte 5,6,7,8 Reserved

*SDO Write Response* (Cob ID 0x580 a 0x5FF )

Byte1 : 011X.XXXX (0x60)  
Indicates a bit which has an indifferent value (don't care)  
Byte 2 : index byte low  
Byte 3 : index byte high  
Byte 4 : subindex  
Byte 5,6,7,8 : Data bytes



*SDO Write Request (Cob ID 0x600 a 0x67F)*

Byte1 : 001X.YY11 (0x20)

YY

Indicates how many byte of the 4 data possibilities do not contain data.

X

Indicates a bit which has an indifferent value (don't care)

Byte 2 : byte index byte low

Byte 3 : byte index byte high

Byte 4 : subindex

Byte 5,6,7,8 : Reserved

*SDO Abort (CobID 580+id)*

CobID 600+id

Byte 1 100X.XXX (0x80)

Byte 2 index byte low

Byte 3 index byte high

Byte 4 subindex

Byte 5,6 Additional code

Byte7 Error code

Byte 8 Error class

Codici Error class

00 NO ERROR

05 SDO SERVICE

06 SDO ACCESS

08 SDO OTHER

Error code :

01 UNSUPP\_ACCESS

02 NONEXIST\_OBJECT

03 INCONS\_PARA

04 ILLEG\_PARA

06 HARDWARE\_FAULT

07 TYPE\_CONFLICT

09 INCONS\_OBJ\_ATTR

0A RES\_NOT\_AVAIL

**ABORT CODE DESCRIPTION:**

- 0503 0000h Toggle bit not alternated.
- 0504 0000h SDO protocol timed out.
- 0504 0001h Client/server command specified not valid or unknown.
- 0504 0002h Invalid block size (block mode only).
- 0504 0003h Invalid sequence number (block mode only).
- 0504 0004h CRC error (block mode only).
- 0504 0005h Out of memory.
- 0601 0000h Unsupported access to an object.
- 0601 0001h Attempt to read a write only object.
- 0601 0002h Attempt to write a read only object.
- 0602 0000h Object does not exist in the object dictionary.
- 0604 0041h Object cannot be mapped to the PDO.
- 0604 0042h The number and length of the objects to be mapped would exceed PDO length.
- 0604 0043h General parameter incompatibility reason.
- 0604 0047h General internal incompatibility in the device.
- 0606 0000h Access failed due to an hardware error.
- 0607 0010h Data type does not match, length of service parameter does not match.
- 0607 0012h Data type does not match, length of service parameter too high.
- 0607 0013h Data type does not match, length of service parameter too low.
- 0609 0011h Sub-index does not exist.
- 0609 0030h Value range of parameter exceeded (only for write access).
- 0609 0031h Value of parameter written too high.
- 0609 0032h Value of parameter written too low.
- 0609 0036h Maximum value is less than minimum value.
- 0800 0000h general error.
- 0800 0020h Data cannot be transferred or stored to the application.
- 0800 0021h Data cannot be transferred or stored to the application because of local control.
- 0800 0022h Data cannot be transferred or stored to the application because of the present device state.
- 0800 0023h Object dictionary dynamic generation fails or no object dictionary is present (e.g. object dictionary is generated from file and generation fails because of a file error).

## UPDATE NEW FIRMWARE:

### ON HD67316-U-D1:

For update the firmware version of HD67316-U-D1 it is necessary to download from this link [www.adfweb.com/download/filefold/USB\\_SW67316\\_Update.zip](http://www.adfweb.com/download/filefold/USB_SW67316_Update.zip) the files that are necessary for do the operation.

After extracting the archive you have to launch the executable "USB\_SW67316\_Update.exe" file. The window that appears is shown in Fig. 3.

The steps to do are:

- Connect the device to an USB port and press the "Update COMport List" button;
- Select the COM port where the device is attached (USB port is virtualized like a serial);
- Press the "Update Device" button and select the file "FW\_USB\_SW67316.sim".

When in the log field appears this "Update made with success" sentence the updating is finished correctly.

If doesn't appears, try to repeat the operations.

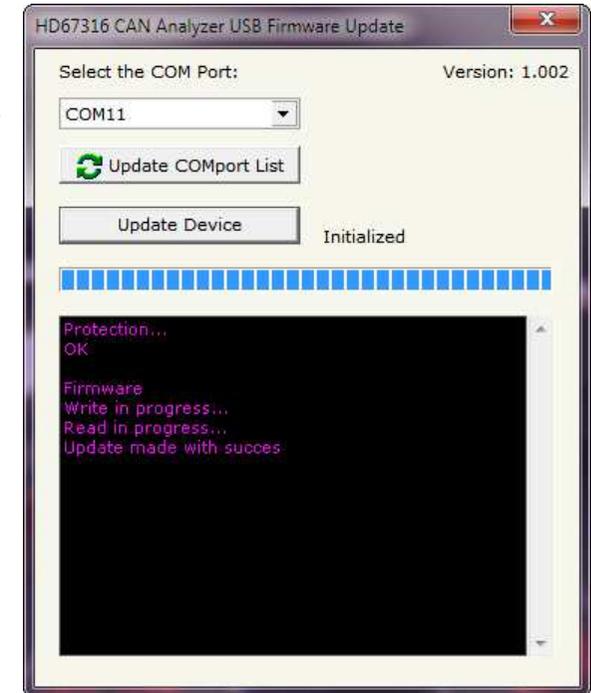


Figure 3: HD67316 CAN Analyzer USB Firmware Update

**ON HD67316-E-A1:**

For update the firmware version or changing the Ethernet parameters of HD67316-E-A1 it is necessary to download from this link [www.adfweb.com/download/filefold/SW67216.zip](http://www.adfweb.com/download/filefold/SW67216.zip) the files that are necessary for do the operation.

You have to install the SW67216 program, launch it (Fig.4 appears) and follow these instructions:

- Connect the Ethernet cable to the Analyzer and feed it;
- Go to "Function" → "SetPort", select "Ethernet Type (HD67316-E-A1)" and press the "OK" button;
- Go to "Ethernet" → "Configuration" and select or "By Serial" if you don't know the settings of Ethernet parameters; or "By Ethernet" if you know the IP Address and the Port.



Figure 4: Main window of SW67216



**Note:**

When you install a new version of the software it is better if the first time you do the update of the Firmware in the HD67316-E-A1 device. And also for the first update you have to use the Serial RS232.

USE OF "BY SERIAL"

The window (Fig. 5) is divided in two sections, one for the data of Ethernet and the other for the actual update.

The parameters that are necessary to set are: "**IP Address**", "**SubNet Mask**", "**Default Gateway**", "**Port**".

These operations must be made before starting the update:

- Turn off the Device;
- Connect the Null Modem Cable form your PC to the Gateway;
- Insert the Boot Jumper (For more info see Fig. 17);
- Turn on the device;
- Check the BOOT Led. It must blink quickly (see LEDS section).

Then, after selecting the correct COM port you have to select the operations you want to do. You can select only "**Firmware**", only "**Project**" or both of them. Then press the "**UPDATE**" button.

When appears Fig. 6 the update will be completed with success. At this point you can:

- Turn off the device;
- Disconnect the Boot jumper;
- Disconnect the RS232 Cable;
- Turn on the device.

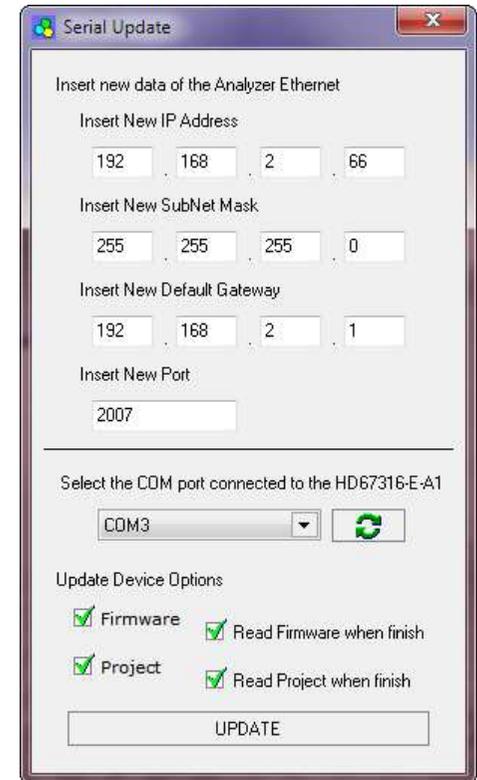


Figure 5: Update "By Serial" window

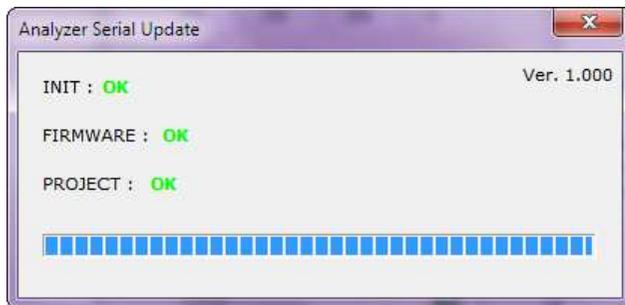


Figure 6: "Update Device" window

USE OF "BY ETHERNET"

It is possible to do the Ethernet update only if you know the actual IP Address, Subnet Mask and Port that are programmed into the device. Otherwise you must use the Serial Update.

It is possible to put the device on Boot Mode (through the Jumper2) and update the device. For use this procedure you have to:

- Turn off the Device;
- Connect the Null Modem Cable form your PC to the Gateway;
- Insert the Boot Jumper (For more info see Fig. 17);
- Turn on the device;
- Check the BOOT Led. It must blink quickly (see LEDS section).

The window (Fig. 7) is divided in two sections, one for the data of Ethernet and the other for the actual update.

The parameters that are necessary to set are: "IP Address", "SubNet Mask", "Default Gateway", "Port".

After inserting the actual "IP Address" and the actual "Port" you have to select the operations you want to do. You can select only "Firmware", only "Project" or both of them. Then press the "UPDATE" button.

When appears Fig. 8 the update will be completed with success. At this point you can:

- Turn off the device;
- Disconnect the Boot jumper;
- Disconnect the RS232 Cable;
- Turn on the device.

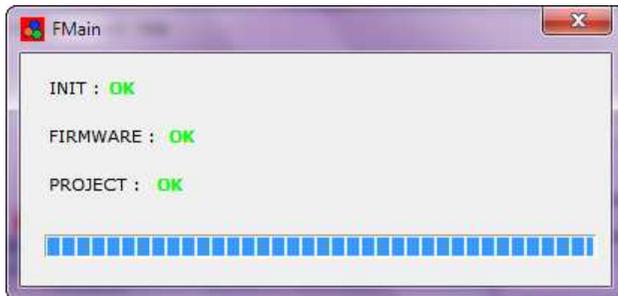


Figure 8: "Update Device" window

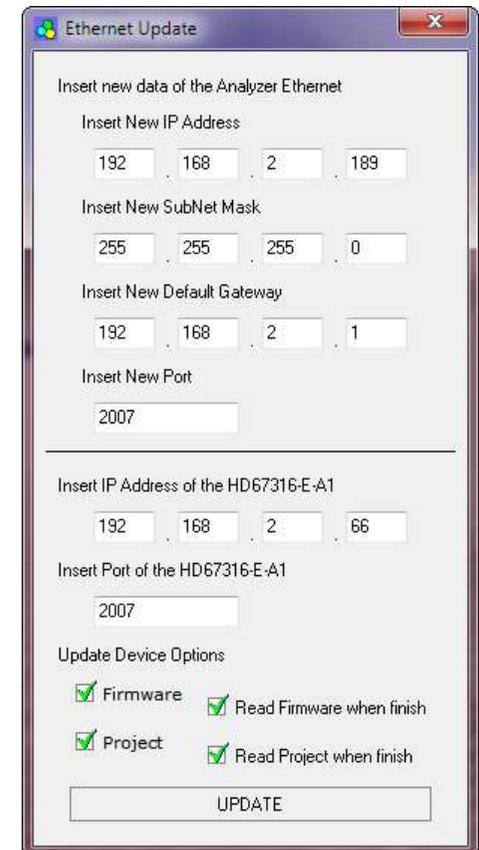


Figure 7: Update "By Ethernet" window

**CONNECTION SCHEME:**

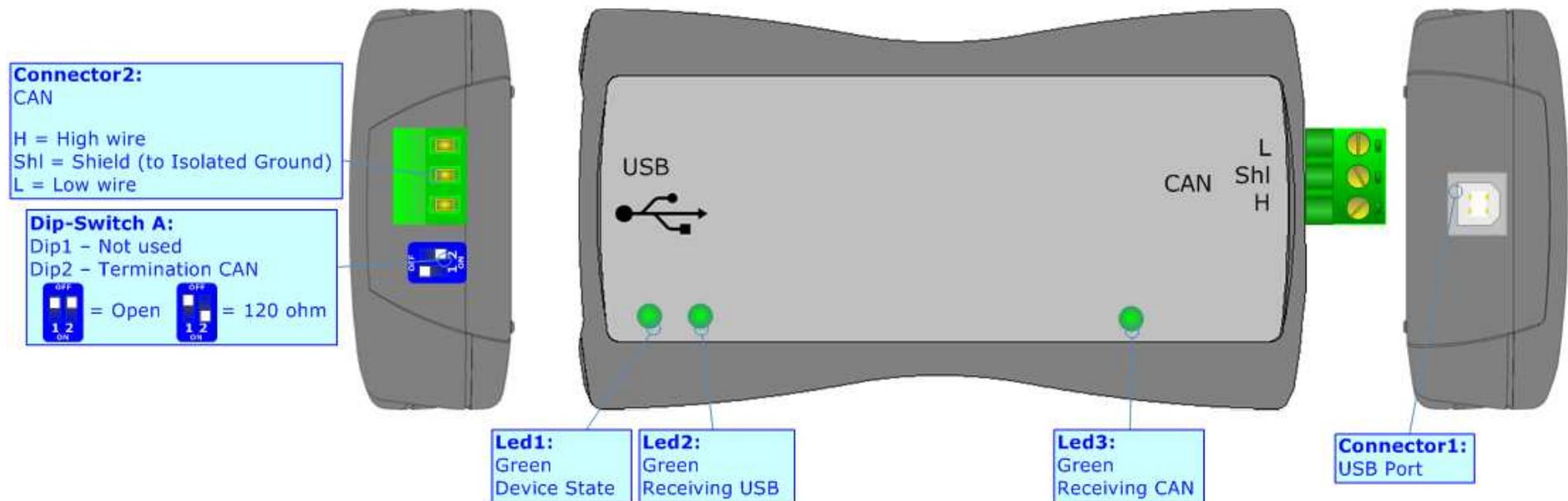


Figure 16: Connection scheme for HD67316-U-D1

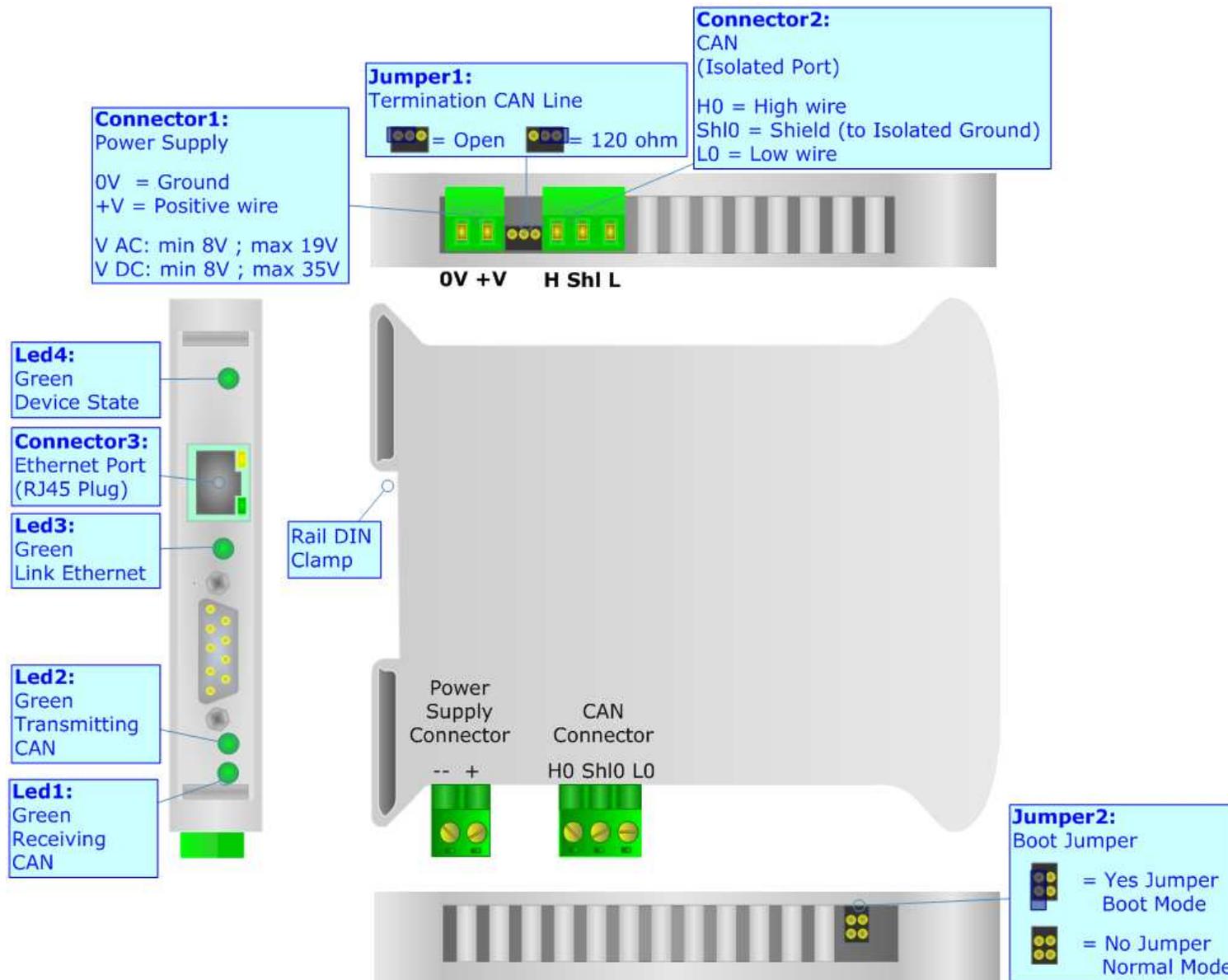


Figure 17: Connection scheme for HD67316-E-A1

**POWER SUPPLY:**

The HD67316-U-D1 device don't need an external power supply for work. The alimентация is given by USB port.

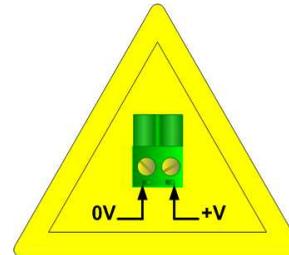
The HD67316-E-A1 can be powered at 8...19V AC and 8...35V DC. For more details see the two tables below.

VAC 		VDC 	
Vmin	Vmax	Vmin	Vmax
8V	19V	8V	35V

Consumption at 24V DC:

Device	W/VA
HD67316-E-A1	3.5

**Caution: Not reverse the polarity power**



HD67316-E-A1

**USB:**

The USB connector (Connector1) of HD67316-U-D1 is a Type-B Female. So the cable must be a Type-B Male.

**ETHERNET:**

The Ethernet connection must be made using Connector3 of HD67390-E-A1 with at least a Category 5E cable. The maximum length of the cable should not exceed 100m. The cable has to conform to the T568 norms relative to connections in cat.5 up to 100 Mbps. To connect the device to an Hub/Switch is recommended the use of a straight cable, to connect the device to a PC/PLC/other is recommended the use of a cross cable.

**LEDS:**

The device HD67316-U-D1 has got three LEDs that are used to give information of the functioning status. The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Device State (Green)	Blink slowly (~2Hz)	Blink quickly
2: Receiving USB (Blue)	<b>Blink slowly:</b> No frame is received <b>Blink quickly:</b> Frame received on USB	Blink quickly
3: Receiving CAN (Blue)	<b>Blink slowly:</b> No frame is received <b>Blink quickly:</b> Frame received on CAN	Blink quickly

The device HD67316-E-A1 has got four LEDs that are used to give information of the functioning status. The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Receiving CAN (Green)	<b>Blink slowly (~2Hz):</b> No frame is received <b>Blink quickly:</b> A frame is received	Blink quickly
2: Transmitting CAN (Green)	Blink slowly (~2Hz)	Blink quickly
3: Link Ethernet (Green)	<b>ON:</b> Ethernet Cable connected <b>OFF:</b> Ethernet Cable disconnected	<b>ON:</b> Ethernet Cable connected <b>OFF:</b> Ethernet Cable disconnected
4: Device State (Green)	Blink slowly (~2Hz)	Blink quickly

**CAN:**

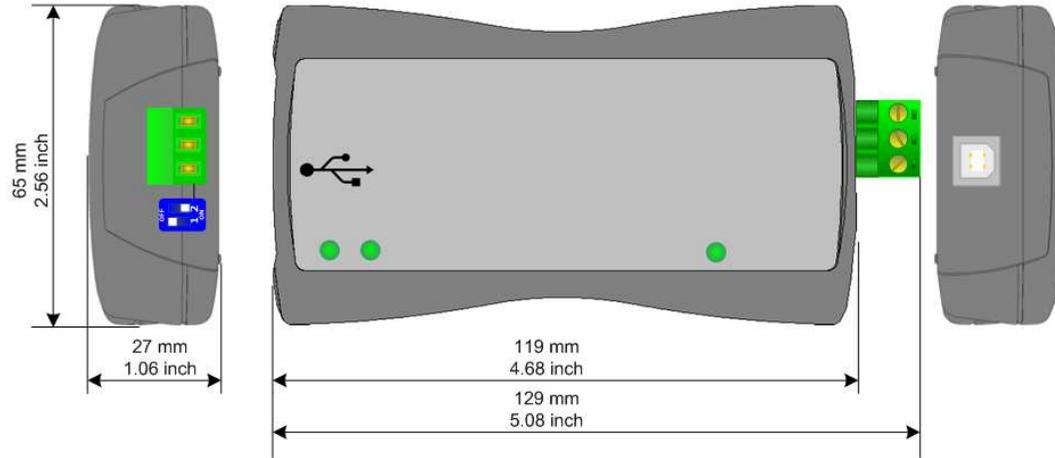


The termination of CAN line, with a 120Ω resistor, in the HD67390-U-D1 is made by putting the “Dip2” of “Dip-Switch A” at “ON” position. The termination of CAN line, with a 120Ω resistor, in the HD67390-E-A1 is made by inserting a jumper like in the figure above.

Characteristics of the cable:

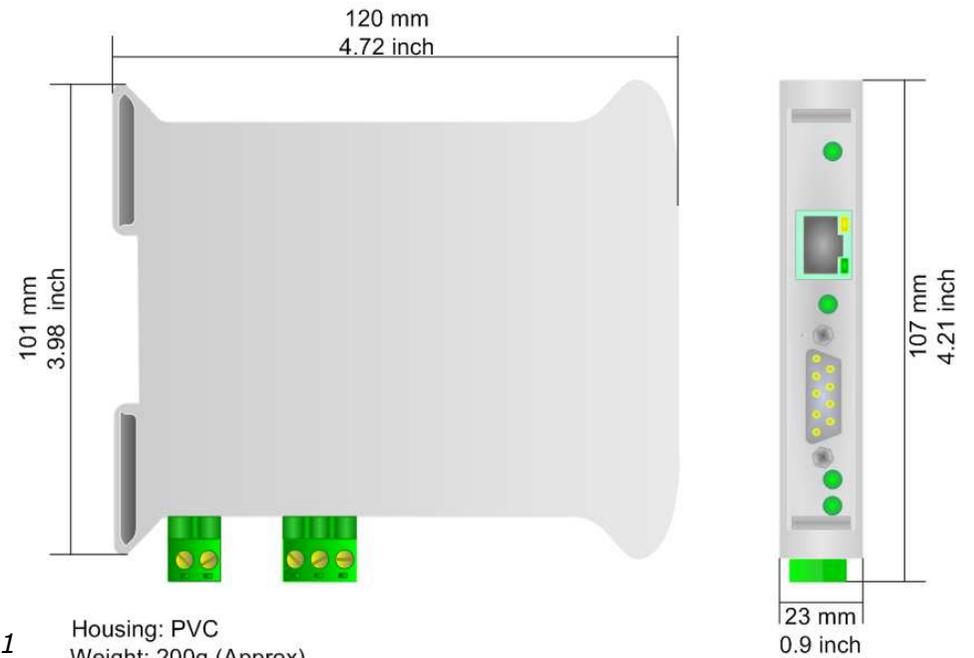
<b>DC parameter:</b>	Impedance	70 Ohm/m
<b>AC parameters:</b>	Impedance	120 Ohm/m
	Delay	5 ns/m
<b>Length</b>	<b>Baud Rate [bps]</b>	<b>Length MAX [m]</b>
	10 K	5000
	20 K	2500
	50 K	1000
	100 K	650
	125 K	500
	250 K	250
	500 K	100
	800 K	50
	1000 K	25

**MECHANICAL DIMENSIONS:**



Housing: PVC  
Weight: 200g (Approx)

Figure 18: Mechanical dimensions scheme for HD67316-U-D1

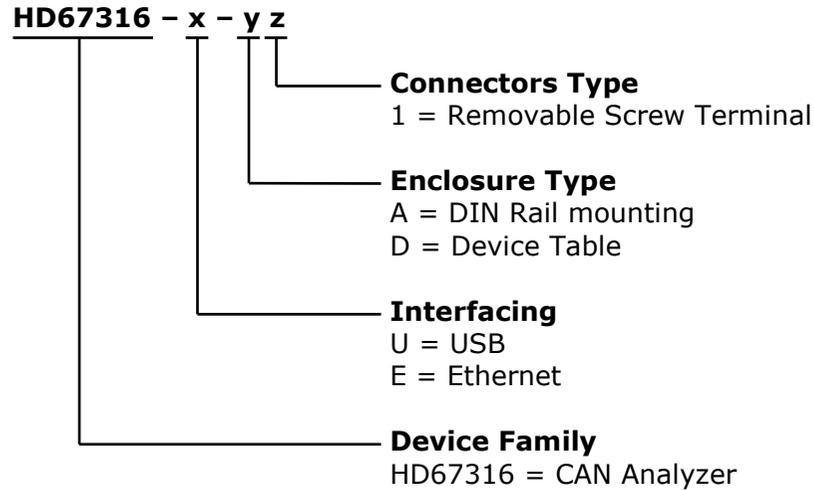


Housing: PVC  
Weight: 200g (Approx)

Figure 19: Mechanical dimensions scheme for HD67316-E-A1

**ORDERING INFORMATIONS:**

The ordering part number is formed by a valid combination of the following:



- Order Code: **HD67316-U-D1** - CAN Analyzer, USB version, device table
- Order Code: **HD67316-E-A1** - CAN Analyzer, Ethernet version, 35mm DIN Rail mounting

**ACCESSORIES:**

- 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
HD67121	Gateway CANopen / Canopen	<a href="http://www.adfweb.com?product=HD67121">www.adfweb.com?product=HD67121</a>
HD67001	Gateway CANopen / Modbus – RTU Master	<a href="http://www.adfweb.com?product=HD67001">www.adfweb.com?product=HD67001</a>
HD67004 HD67005	Gateway CANopen / Modbus – Ethernet TCP	<a href="http://www.adfweb.com?product=HD67004">www.adfweb.com?product=HD67004</a>
HD67134	Gateway CANopen / DeviceNet	<a href="http://www.adfweb.com?product=HD67134">www.adfweb.com?product=HD67134</a>
HD67117	CAN bus Repeater	<a href="http://www.adfweb.com?product=HD67117">www.adfweb.com?product=HD67117</a>