User Manual

Revision 1.000
English

- Power Supply 18…35V DC and 8…24 V AC
- Temperature range: -40°C/+85°C (-40°F/+185°F)

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.

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	13/03/2019	Tf	All	First release version

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, legal and safety regulation are required for each individual application. 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

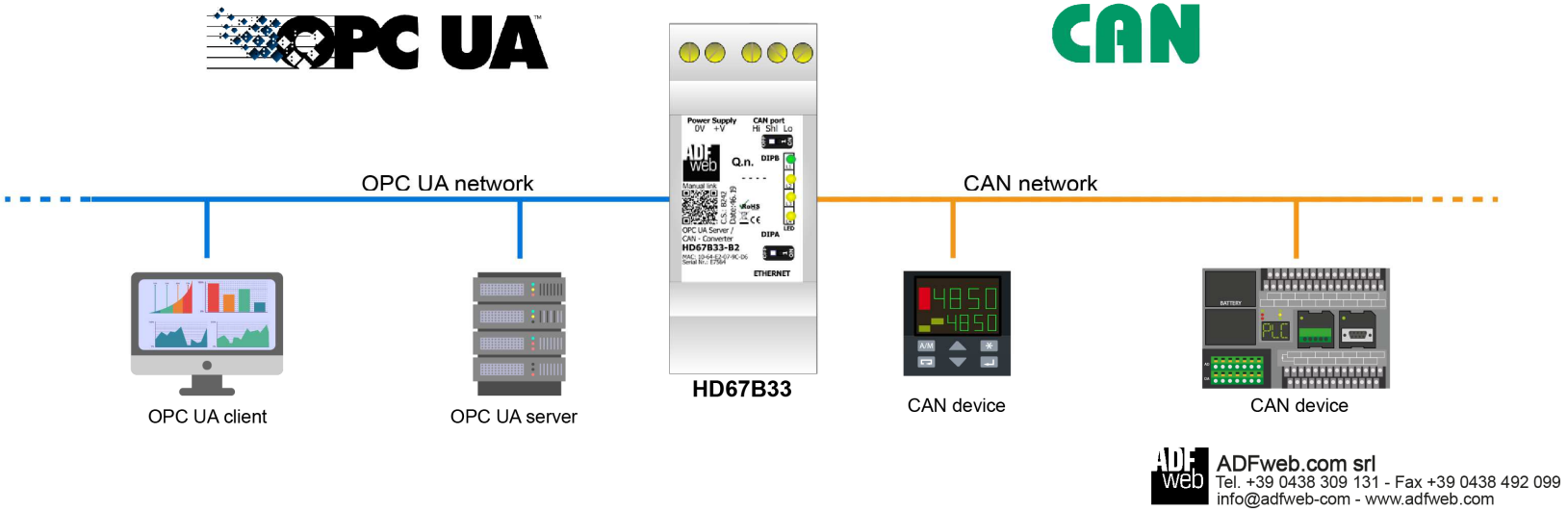
The device is state-of-the-art and is safe. The instruments can represent a potential hazard if they are inappropriately installed and operated by untrained personnel. These instructions refer to residual risks with the following symbol:

This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

CE CONFORMITY

The declaration is made by our company. You can send an email to or give us a call if you need it.

EXAMPLE OF CONNECTION:



CONNECTION SCHEME:

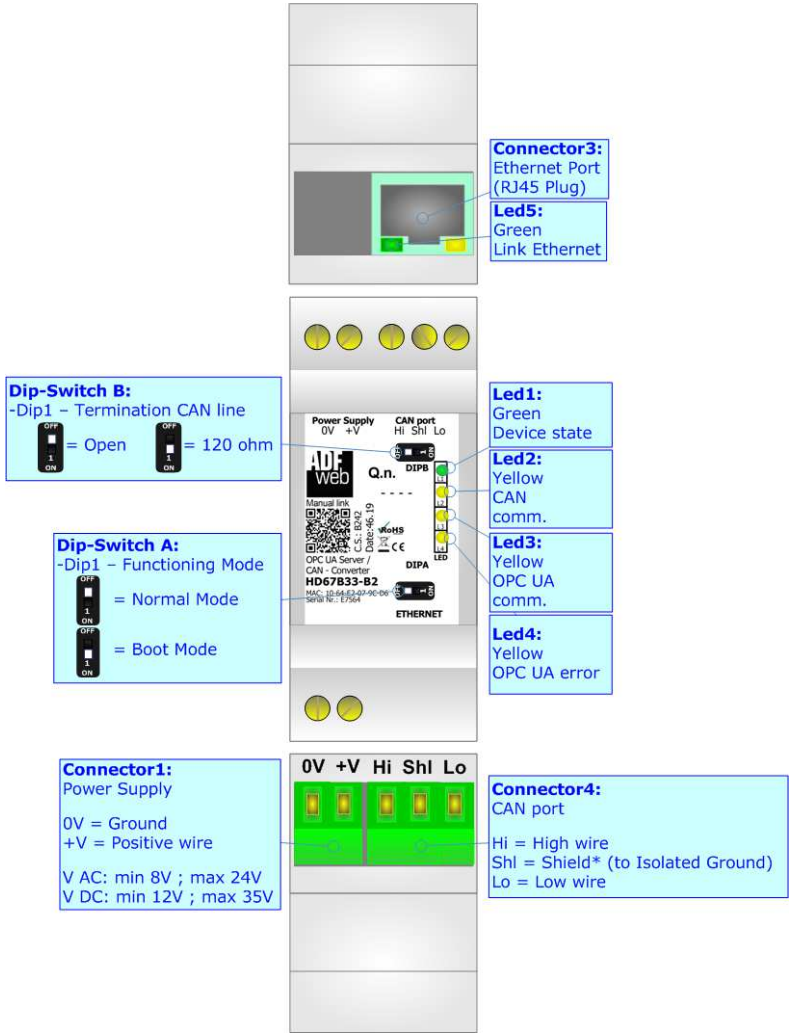


Figure 1: Connection scheme for HD67B33-B2

CHARACTERISTICS:

The HD67B33-B2 is a OPC UA Server / CAN converter.

It allows the following characteristics:

- Up to 1500 bytes in reading and 1500 bytes in writing;
- Two-directional information between CAN and OPC UA;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 8…24V AC or 12…35V DC;
- Wide temperature range: -40°C / 85°C [-40°F / +185°F].

CONFIGURATION:

You need Compositor SW67B33 software on your PC in order to perform the following:

- Define the parameter of OPC UA;
- Define the parameter of CAN line;
- Define CAN frames that the converter can accept;
- Define CAN frames that the converter can send;
- Define OPC UA variables that contains the data sent by CAN;
- Define OPC UA variables that contains the data to send to the CAN;
- Update the device.

POWER SUPPLY:

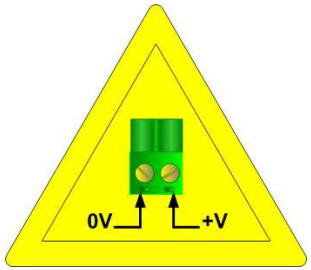
The devices can be powered between a wide range of tensions. For more details see the two tables below.

	VAC ~		VDC ⎓	
	Vmin	Vmax	Vmin	Vmax
HD67B33-B2	8V	24V	12V	35V

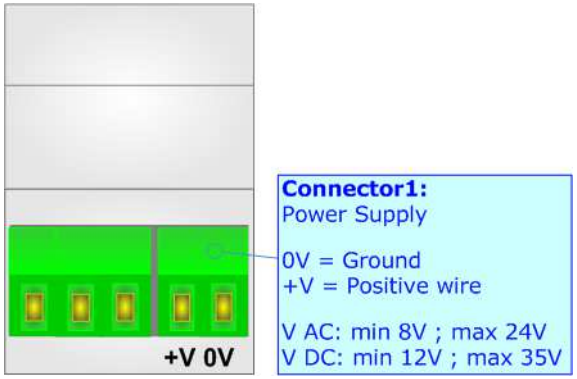
Consumption at 24V DC:

Device	W/VA
HD67B33-B2	4

Caution: Not reverse the polarity power



HD67B33-B2



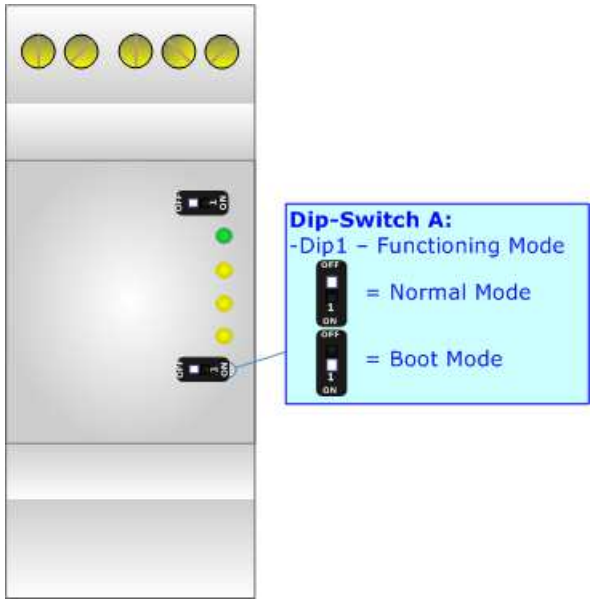
FUNCTION MODES:

The device has got two functions mode depending of the position of the Dip1 of 'Dip-Switch A':

- The first, with Dip1 in Off position (factory setting), is used for the normal working of the device.
- The second, with Dip1 in On position, is used for upload the Project/Firmware.

For the operations to follow for the updating (see 'UPDATE DEVICE' section).

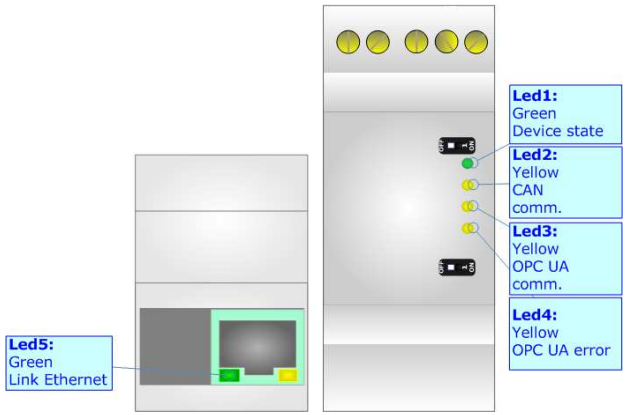
According to the functioning mode, the LEDs will have specifics functions (see 'LEDS' section).



LEDS:

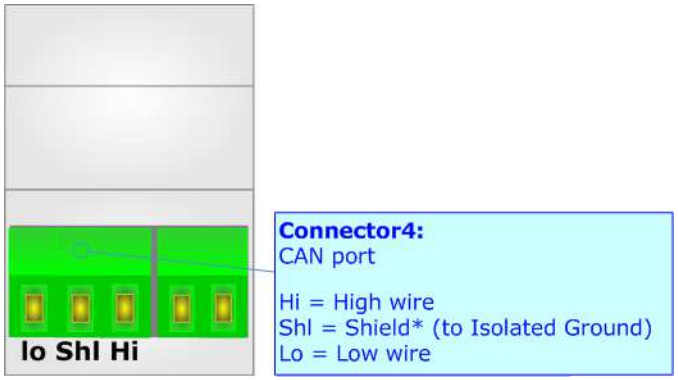
The device has got five LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Device State (green)	Blinks slowly (~1Hz)	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
2: CAN comm. (yellow)	**Flashing:** CAN message **OFF:** No CAN messages	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: OPC UA comm. (yellow)	**Flashing:** OPC UA request **OFF:** No OPC UA request	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: OPC UA error (yellow)	**ON:** An error has occurred **OFF:** The device is correctly running	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
5: Link Ethernet (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected



CAN:

For terminating the CAN line with a 120Ω resistor it is necessary that the Dip1 of 'Dip-Switch B' is at ON position.



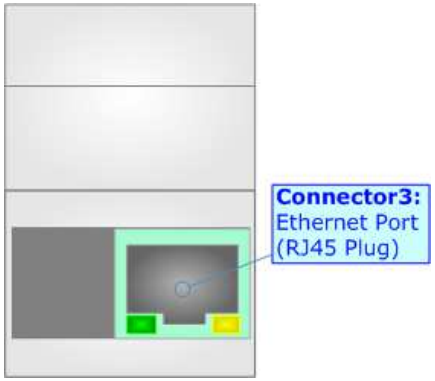
Cable characteristics:

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

ETHERNET:

The Ethernet connection must be made using Connector3 of HD67B33-B2 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.



USE OF COMPOSITOR SW67B33:

To configure the Converter, use the available software that runs with Windows called SW67B33. It is downloadable on the site www.adfweb.com and its operation is described in this document. *(This manual is referenced to the last version of the software present on our web site)*. The software works with MSWindows (XP, Vista, Seven, 8, 10; 32/64bit).

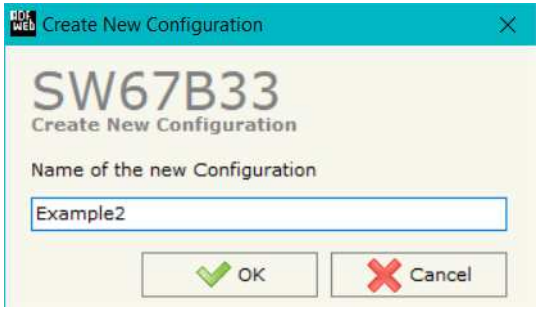
When launching the SW67B33, the window below appears (Fig. 2).

Note:
It is necessary to have installed .Net Framework 4.

Figure 2: Main window for SW67B33

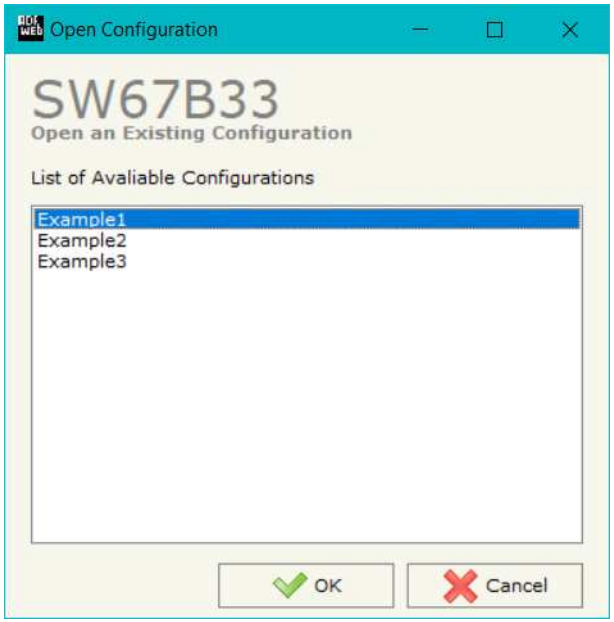
NEW CONFIGURATION / OPEN CONFIGURATION:

The "**New Configuration**" button creates the folder which contains the entire device's configuration.



A device's configuration can also be imported or exported:

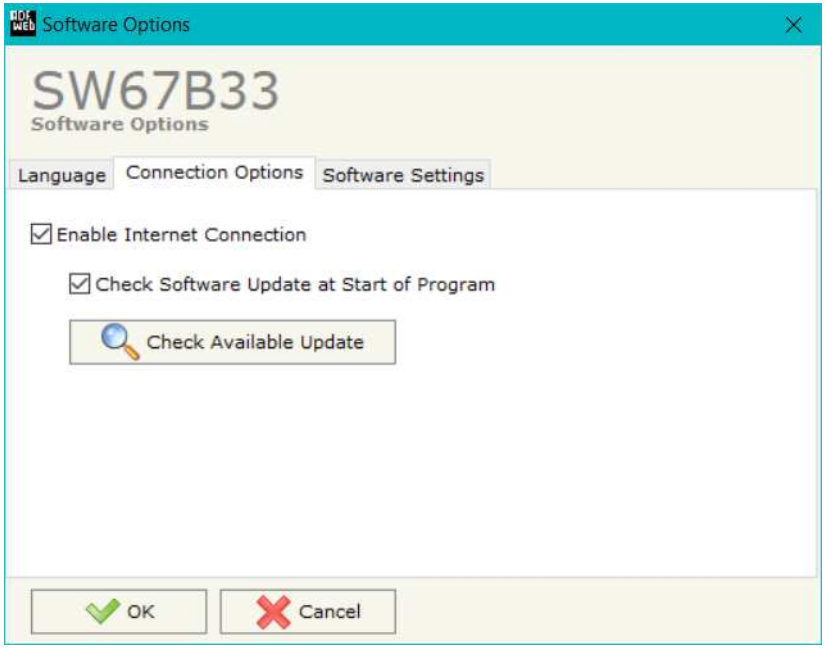
- To clone the configurations of a programmable "OPC UA Server / CAN - Converter" in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button "**Open Configuration**".



SOFTWARE OPTIONS:

By pressing the "**Settings**" ( ) button there is the possibility to change the language of the software and check the updatings for the compositor.

In the section "Language" it is possible to change the language of the software.



In the section "Connection Options", it is possible to check if there are some updatings of the software compositor in ADFweb.com website.
Checking the option "**Check Software Update at Start of Program**", the SW67B33 check automatically if there are updatings when it is launched.

In the section "Software Settings", it is possible to enable/disable some keyboard's commands for an easier navigation inside the tables contained in the different sections of the software.

SET COMMUNICATION:

This section define the fundamental communication parameters of two buses, OPC UA and CAN.

By Pressing the "**Set Communication**" button from the main window for SW67B33 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The means of the fields for "OPC UA Server" are:

- In the field "**IP Address**" the IP address for OPC UA side of the converter is defined;
- In the field "**SubNet Mask**" the SubNet Mask for OPC UA side of the converter is defined;
- In the field "**Gateway**" the default gateway of the net is defined. This feature can be enabled or disabled pressing the Check Box field. This feature is used for going out of the net;
- In the field "**DNS**" the IP Address of the DNS server is defined. This feature can be enabled or disabled pressing the Check Box field;
- In the field "**Port**" the port of OPC UA Server is defined.

The means of the fields for the "CAN" section are:

- In the "**Baudrate**" field the CAN baudrate is defined.

The means of the fields for "NTP" are:

- In the field "**Server URL**" the URL or the IP Address of the NTP Server is defined;
- In the field "**Poll Time (seconds)**" the polling time for the time synchronization is defined.

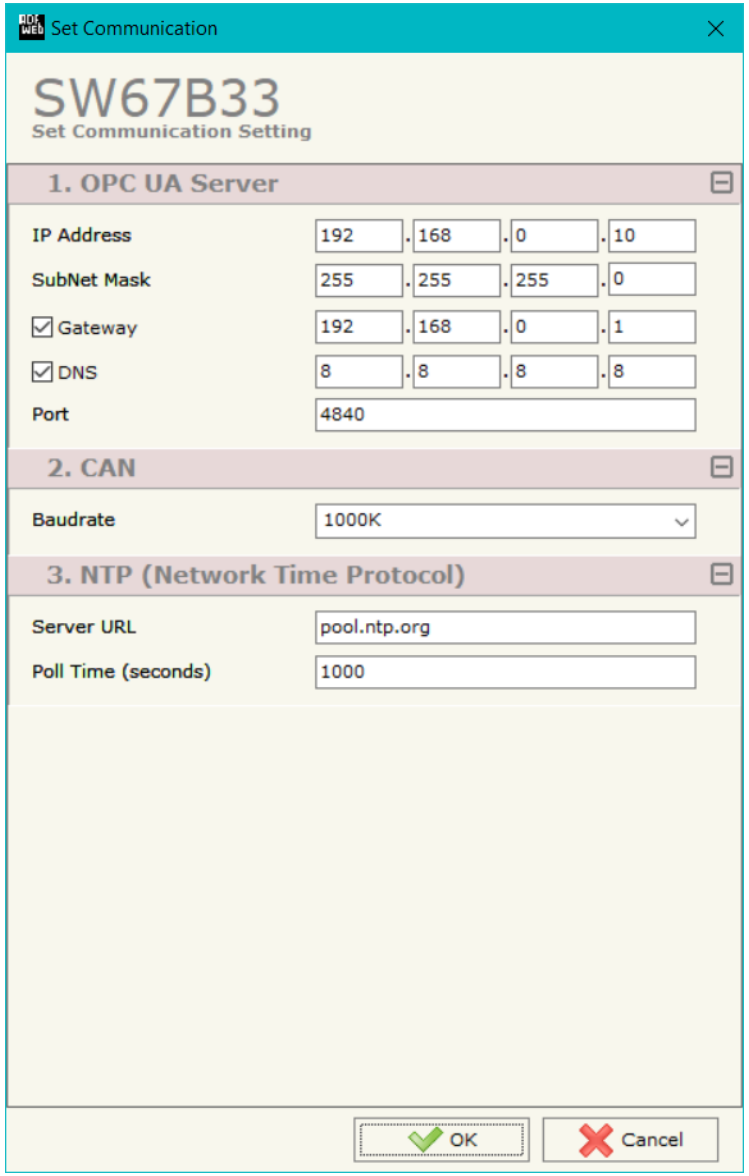


Figure 3: "Set Communication" window

OPC UA ACCESS:

By Pressing the "**OPC UA Access**" button from the main window for SW67B33 (Fig. 2) the window "OPC UA Server Access" appears (Fig. 4). This section is used to define the list of OPC UA variables to read/write.

Figure 4: "OPC UA Server Access" window

The means of the checkboxes inside the table are:

- In the field "**Type**" the data format of the OPC UA variable is defined;
- In the field "**Position**" the starting byte of the internal memory arrays where getting the value is defined;
- In the field "**Length**" the byte length of the OPC UA variable is defined;
- In the field "**Name**" the name of the OPC UA variable is defined;
- In the field "**R/W**" the access type of the OPC UA variable is defined;
- In the field "**Mnemonic**" a description of the OPC UA variable is defined.

RECEIVE FRAMES:

By pressing the "**Receive Frames**" button from the main window for SW67B33 (Fig. 2) the "Receive CAN Frames" window appears (Fig. 4). The COB inserted in this table contains the Output data of OPC UA side. These frames are accepted by the converter.

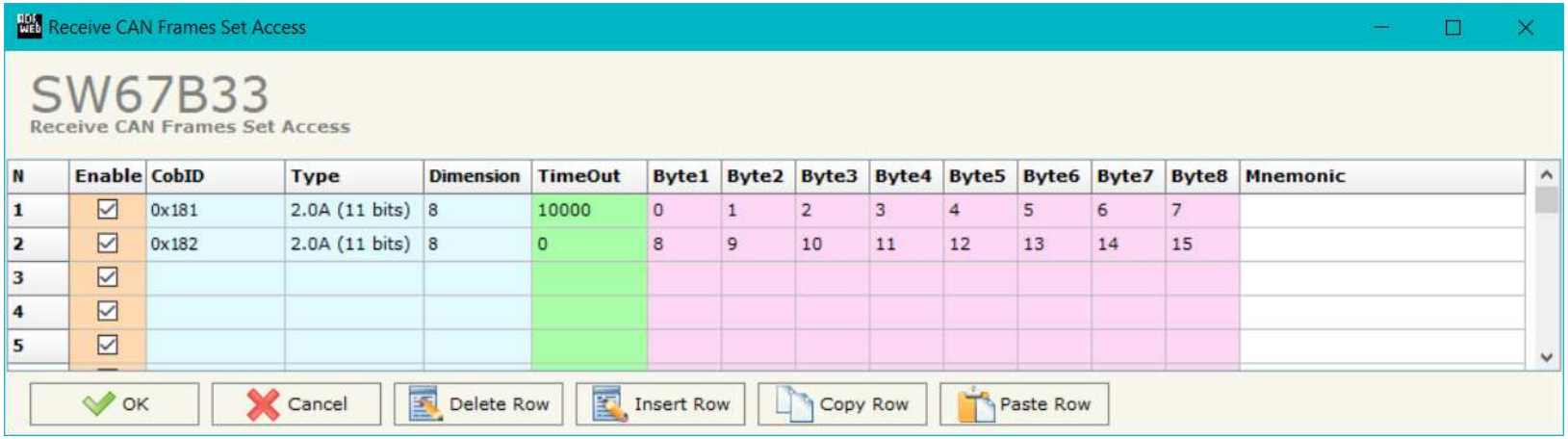


Figure 5: "Receive CAN Frames" window

The data of the columns have the following meanings:

- In the field "**Cob-ID**" the COB-ID of the CAN frame is defined;
- In the field "**Type**" it is possible to select which type of CAN packet use for this Cob-ID (2.0A (11 bits) or 2.0B (29 bits));
- In the field "**Dimension**" the number of byte of the CAN message is defined;
- The field "**TimeOut**" is used for put at zero the data on OPC UA side if the CAN frame doesn't arrives with a frequency less than the time expressed in the field. If the value in the field is '0', it means that this feature is disabled;
- In the Field "**Add B1**" the first byte where the data will be saved in the internal array is defined;
- In the Field "**Add B2**" the second byte where the data will be saved in the internal array is defined (only if **Dimension** > 1);
- In the Field "**Add B3**" the third byte where the data will be saved in the internal array is defined (only if **Dimension** > 2);
- In the Field "**Add B4**" the fourth byte where the data will be saved in the internal array is defined (only if **Dimension** > 3);
- In the Field "**Add B5**" the fifth byte where the data will be saved in the internal array is defined (only if **Dimension** > 4);
- In the Field "**Add B6**" the sixth byte where the data will be saved in the internal array is defined (only if **Dimension** > 5);

- In the Field "**Add B7**" the seventh byte where the data will be saved in the internal array is defined (only if **Dimension** > 6);
- In the Field "**Add B8**" the eighth byte where the data will be saved in the internal array is defined (only if **Dimension** > 7);
- In the field "**Mnemonic**" a brief description is defined.

SEND FRAMES:

By pressing the "**Send Frames**" button from the main window for SW67B33 (Fig. 2) the "Send CAN frames" window appears (Fig. 6). The COB inserted in this table contains the Input data of OPC UA side. These frames are sent by the Converter.

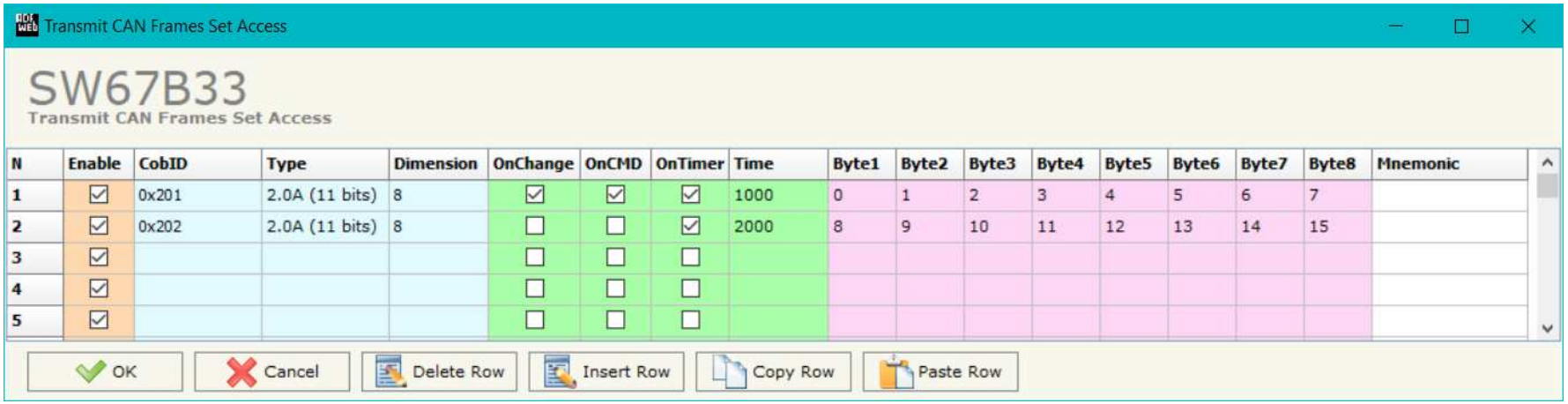


Figure 6: "Send CAN Frames" window

The data of the columns have the following meanings:

- In the field "**Cob-ID**" the COB-ID of the CAN frame is defined;
- In the field "**Type**" it is possible to select which type of CAN packet use for this Cob-ID (2.0A (11 bits) or 2.0B (29 bits));
- In the field "**Dimension**" the number of byte of the CAN message is defined;
- In the field "**Send Frame Type**" it is possible to select when sending the CAN frame. There are two options: the first is "**On Data Change**", the frame is sent when the data changes; the second is "**On Times**" and the frame is send cyclically;
- In the field "**Timer Send**" insert the interval used for the "Send Frame Type On Times". The time is in milliseconds;
- In the Field "**Add B1**" the first byte where the data will be loaded in the internal array is defined;
- In the Field "**Add B2**" the second byte where the data will be loaded in the internal array is defined (only if **Dimension** > 1);
- In the Field "**Add B3**" the third byte where the data will be loaded in the internal array is defined (only if **Dimension** > 2);
- In the Field "**Add B4**" the fourth byte where the data will be loaded in the internal array is defined (only if **Dimension** > 3);

- In the Field "**Add B5**" the fifth byte where the data will be loaded in the internal array is defined (only if **Dimension** > 4);
- In the Field "**Add B6**" the sixth byte where the data will be loaded in the internal array is defined (only if **Dimension** > 5);
- In the Field "**Add B7**" the seventh byte where the data will be loaded in the internal array is defined (only if **Dimension** > 6);
- In the Field "**Add B8**" the eighth byte where the data will be loaded in the internal array is defined (only if **Dimension** > 7);
- In the field "**Mnemonic**" a brief description is defined.

UPDATE DEVICE:

By pressing the "**Update Device**" button, it is possible to load the created Configuration into the device; and also the Firmware, if necessary. This by using the Ethernet port.

Figure 7: "Update device" windows

If you don't know the actual IP address of the device you have to use this procedure:

- Turn OFF the Device;
- Put Dip1 of 'Dip-Switch A' in ON position;
- Turn ON the device
- Connect the Ethernet cable;
- Insert the IP "**192.168.2.205**";
- Select which operations you want to do;
- Press the "**Execute update firmware**" button to start the upload;
- When all the operations are "OK" turn OFF the Device;
- Put Dip1 of 'Dip-Switch A' in OFF position;
- Turn ON the device.

If you know the actual IP address of the device, you have to use this procedure:

- Turn ON the Device with the Ethernet cable inserted;
- Insert the actual IP of the Converter;
- Select which operations you want to do;
- Press the "**Execute update firmware**" button to start the upload;
- When all the operations are "OK" the device automatically goes at Normal Mode.

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

Note:
When you receive the device, for the first time, you also have to update the Firmware in the HD67B33 device.

Warning:
If Fig. 8 appears when you try to do the Update try these points before seeking assistance:

- Check if the serial cable is connected between the PC and the device;
- Try to repeat the operations for the updating;
- Try with another PC;
- Try to restart the PC;
- Check the LAN settings;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows Seven, Vista, 8 or 10 make sure that you have the administrator privileges;
- In case you have to program more than one device, using the "UDP Update", you have to cancel the ARP table every time you connect a new device on Ethernet. For do this you have to launch the "Command Prompt" and write the command "arp -d". Pay attention that with Windows Vista, Seven, 8, 10 you have to launch the "Command Prompt" with Administrator Rights;
- Pay attention at Firewall lock.

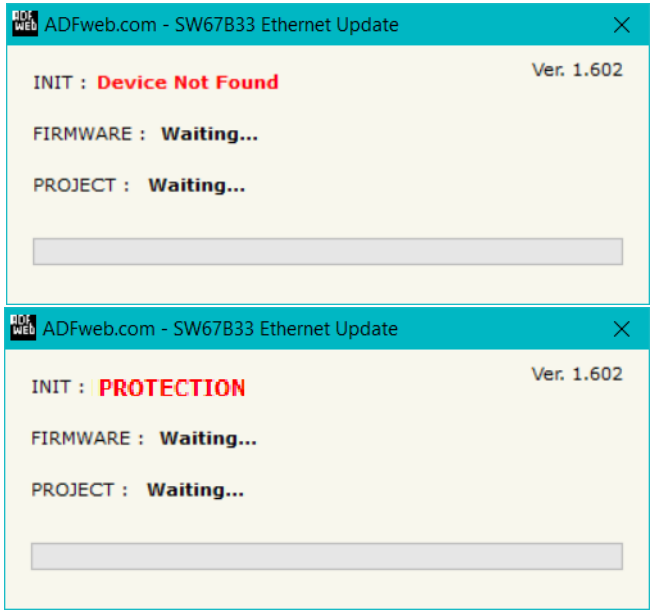
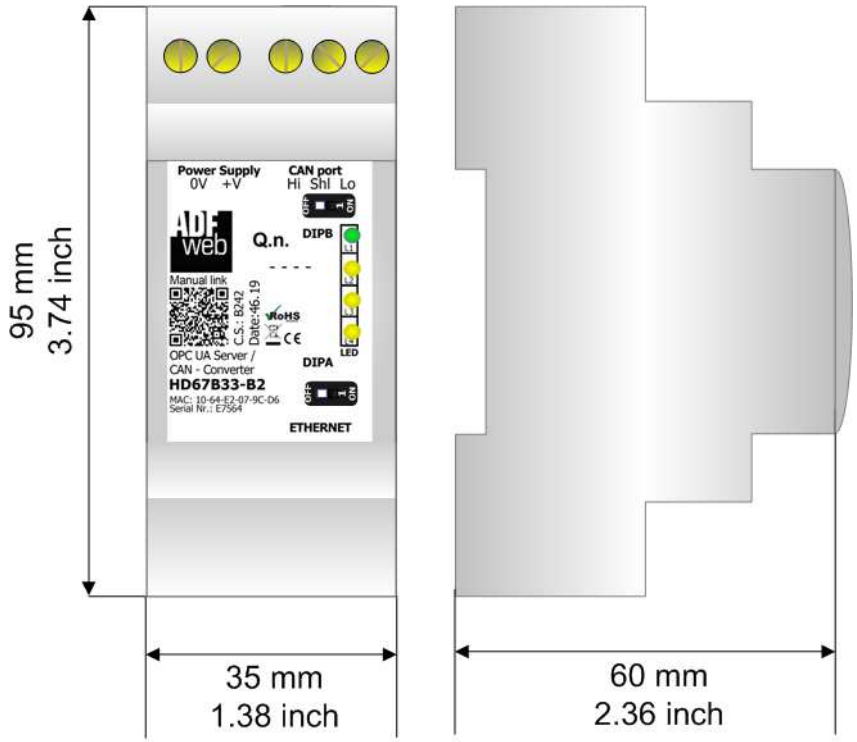


Figure 8: "Error" window

Warning:
In the case of HD67B33 you have to use the software "SW67B33": www.adfweb.com\download\filefold\SW67B33.zip.

MECHANICAL DIMENSIONS:



Housing: PVC
Weight: 200g
(Approx)

Figure 9: Mechanical dimensions scheme for HD67B33-B2

ORDERING INFORMATIONS:

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

HD67B33 – A 1

Connectors Type
1: Removable 5mm Screw Terminal

Enclosure Type
A: 1M, 35mm DIN Rail mounting

Device Family
HD67B33: OPC UA Server / CAN - Converter

Order Code: **HD67B33-A1** - OPC UA Server / CAN - Converter

ACCESSORIES:

Order Code: **AC34011** - 35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V DC
Order Code: **AC34012** - 35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 24 V DC

DISCLAIMER:

All technical content within this document can be modified without notice. The content of the document is a under continual renewal.
For losses due to fire, earthquake, third party access or other accidents, or intentional or accidental abuse, misuse, or use under abnormal conditions repairs are charged to the user. ADFweb.com S.r.l. will not be liable for accidental loss of use or inability to use this product, such as loss of business income. ADFweb.com S.r.l. shall not be liable for consequences of improper use.

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 impact of 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:

- 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.
- 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.

ADFweb.com S.r.l.
Via Strada Nuova, 17
IT-31010 Mareno di Piave
TREVISO (Italy)
Phone +39.0438.30.91.31
Fax +39.0438.49.20.99
www.adfweb.com