User Manual

Revision 1.100
English

CAN / Modbus Master - Converter

(Order Code: HD67511-A1)

For Website information:
www.adfweb.com?Product=HD67511

For Price information:
www.adfweb.com?Price=HD67511-A1

Benefits and Main Features:

- Wide supply input range
- Triple isolation
- Industrial temperature range: -40°C / +85°C (-40°F / +185°F)

For other Gateways / Bridges:
CAN from/to Modbus
See also the following links:

www.adfweb.com?product=HD67012	(Modbus RTU Slave)
www.adfweb.com?product=HD67514	(Modbus TCP Master)
www.adfweb.com?product=HD67515	(Modbus TCP Slave)

CANopen from/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=HD67504	(Modbus TCP Master)
www.adfweb.com?product=HD67505	(Modbus TCP Slave)

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

User Manual

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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.

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.001	06/11/2013	Dp	All	Revision
1.002	26/06/2024	Ln	All	Revision
1.100	03/08/2026	Ln	All	New design

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:

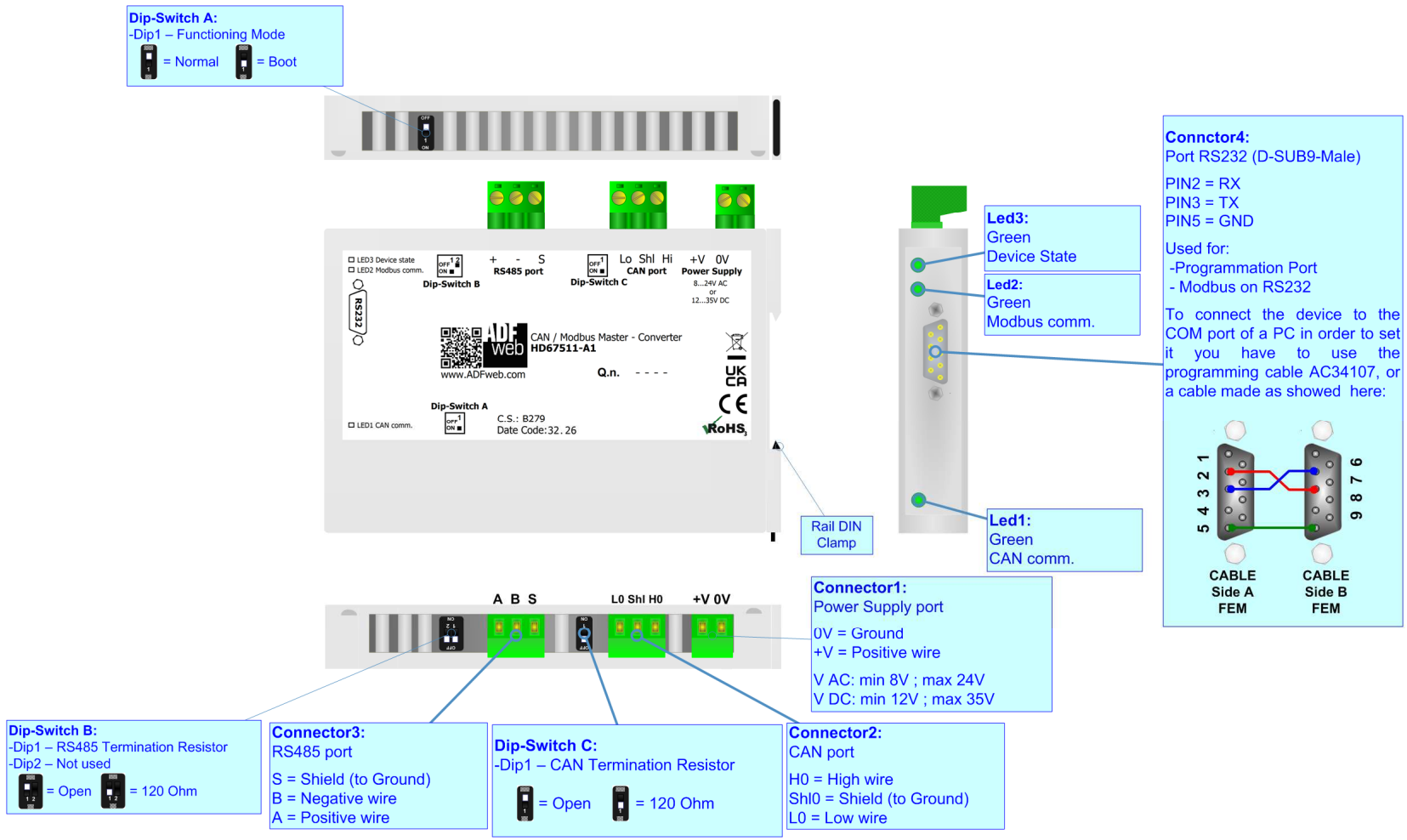


Figure 1: Connection scheme for HD67511-A1

CHARACTERISTICS:

The HD67511-A1 is a CAN / Modbus Master - Converter.

It allows the following characteristics:

- Up to 500 CAN frames in reading and 500 CAN frame in writing;
- Triple isolation between CAN - Power Supply, CAN - Serial, Power Supply - Serial.
- Two-directional information between CAN bus and Modbus bus;
- 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 SW67511 software on your PC in order to perform the following:

- Define the parameter of CAN line;
- Define the parameter of Modbus line;
- Define the CAN frames that the Converter can accept to read the information from the Modbus Slaves;
- Define the CAN frames that the Converter can accept to write the information to the Modbus Slaves;
- Update the device.

POWER SUPPLY:

The devices can be powered at 8…24V AC and 12…35V DC. For more details see the two tables below.

VAC ~		VDC ⎓	
Vmin	**Vmax**	**Vmin**	**Vmax**
8V	**24V**	**12V**	**35V**

Consumption at 24V DC:

Device	Consumption [W/VA]
HD67511-A1	3.5

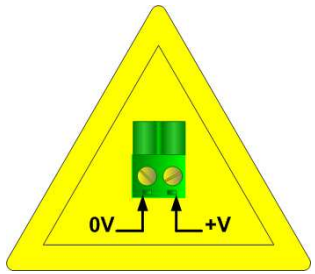
Caution: Not reverse the polarity power

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V AC: min 8V ; max 24V
V DC: min 12V ; max 35V





HD67511-A1

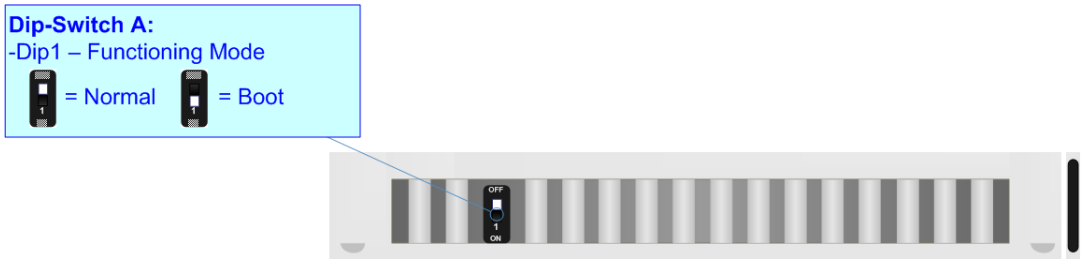
FUNCTION MODES:

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).

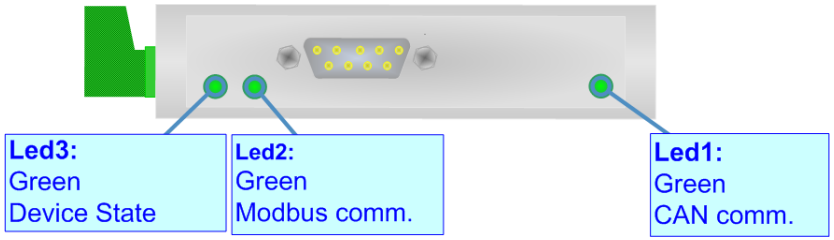
According to the functioning mode, the LEDs will have specifics functions (see 'LEDS' section).



LEDS:

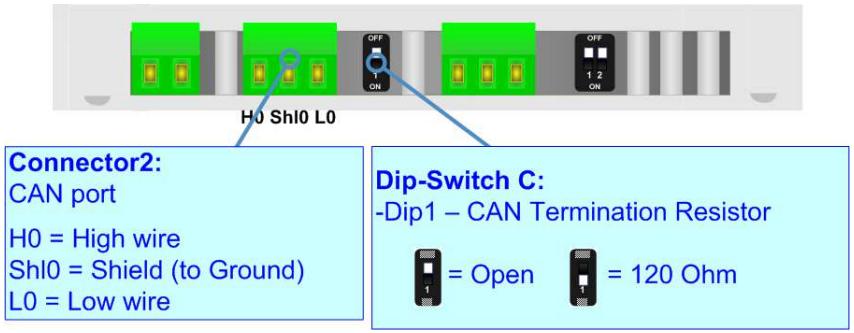
The device has got three LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: CAN comm. (green)	Blinks quickly when is receiving a CAN frame	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
2: Modbus comm. (green)	Blinks quickly when a Modbus request finish with success	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: Device State (green)	Blink slowly (~0.5Hz)	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress



CAN:

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



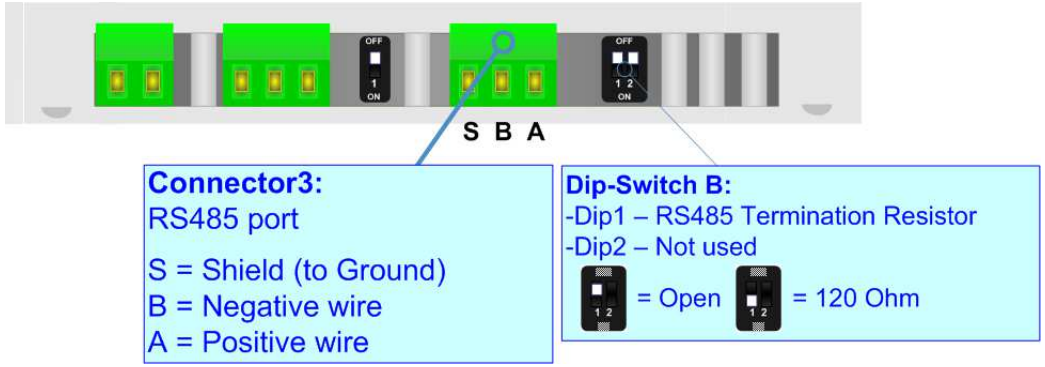
Cable characteristics:

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

RS485:

For terminate the RS485 line with a 220Ω resistor it is necessary to put ON the Dip1 of 'Dip-Switch B', like in figure.



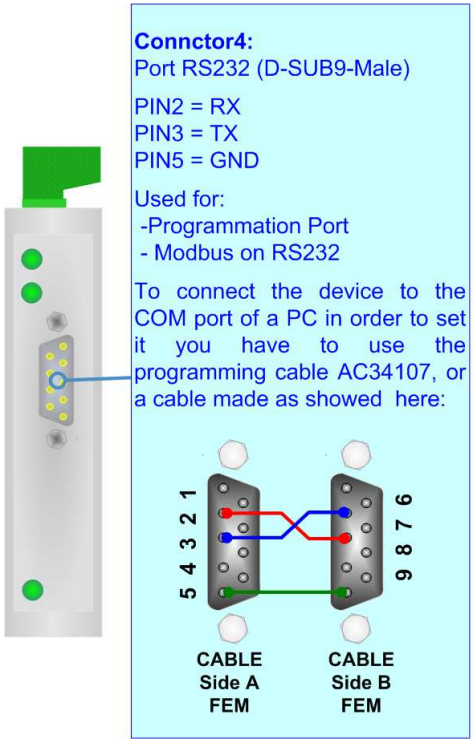
The maximum length of the cable should be 1200m (4000 feet).

Here some codes of cables:

- Belden: p/n 8132 - 2x 28AWG stranded twisted pairs conductor + foil shield + braid shield;
- Belden p/n 82842 - 2x 24AWG stranded twisted pairs conductor + foil shield + braid shield;
- Tasker: p/n C521 - 1x 24AWG twisted pair conductor + foil shield + braid shield;
- Tasker: p/n C522 - 2x 24AWG twisted pairs conductor + foil shield + braid shield.

RS232:

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.
The serial port is used for programming the device and for the Modbus communication.



USE OF COMPOSITOR SW67511:

To configure the Converter, use the available software that runs with Windows called SW67511. 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 or 11; 32/64bit).

When launching the SW67511, the window below appears (Fig. 2).

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

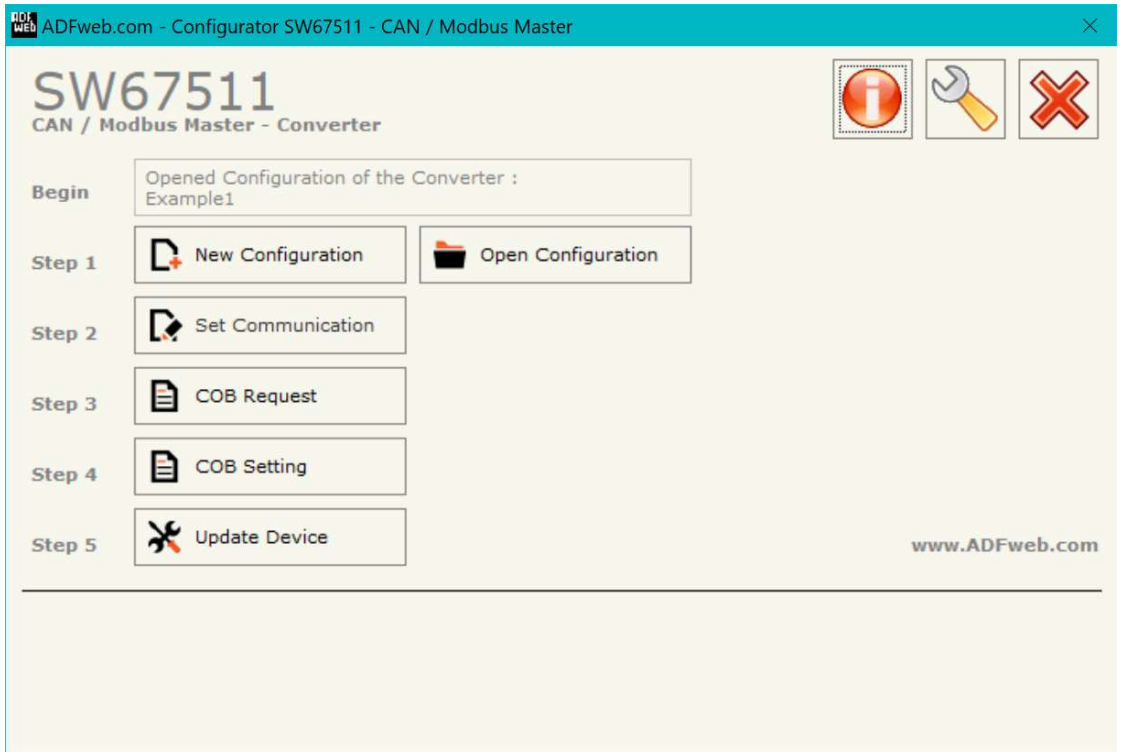
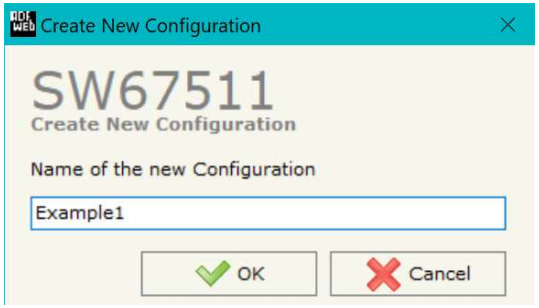


Figure 2: Main window for SW67511

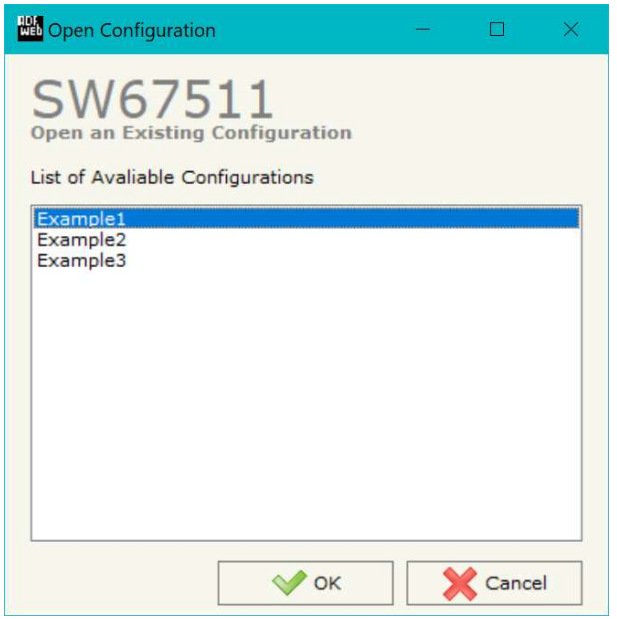
NEW CONFIGURATION / OPEN CONFIGURATION:

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 "CAN / Modbus Master - 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**".

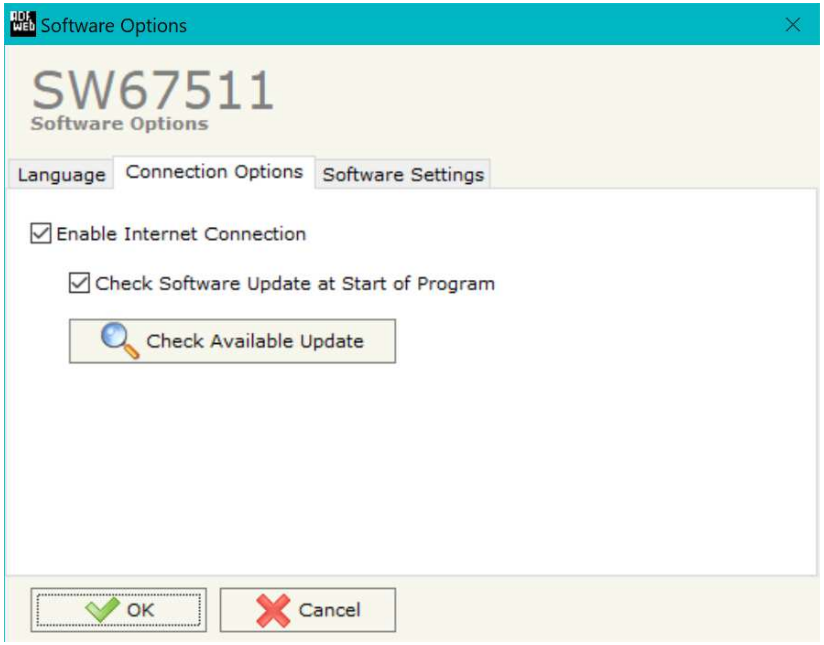


SOFTWARE OPTIONS:

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 SW67511 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 COMMINICATION:

This section defines the fundamental communication parameters of two buses, CAN and Modbus.

By pressing the "**Set Communication**" button from the main window for SW67511 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The means of the fields for "CAN" are:

- In the field "**Baudrate**", the velocity of the two buses is defined;
- If the field "**Enable HeartBeat**" is checked, the device sends CAN messages to the network to confirm its presence;
- In the field "**HB Time (ms)**", is the time between two HeartBeat messages (expressed in milliseconds);
- In the field "**HB CobID**", the COB-ID of the HeartBeat message is defined;
- In the field "**HB CAN Type**" the Protocol of HeartBeat message is defined (CAN 2.0A 11 bits or CAN 2.0B 29 bits);
- In the field "**HB Number Bytes**", the number of byte for the HeartBeat Message is defined;
- In the field "**HB Data Message (HEX)**", the bytes of the HeartBeat message is defined. The bytes have to be write in Hexadecimal and separated by a space (for example to insert the byte 1,2,3 and 255 the correct string is "01 02 03 FF").

The means of the fields for "Modbus Master" are:

- In the field "**Serial**" the port used for the Modbus is selected (RS232 or RS485);
- In the field "**Baudrate**" the baudrate for the serial line is defined;
- In the field "**Parity**" the serial parity is defined;
- In the field "**TimeOut (ms)**" the maximum time that the converter attends for the answer from the Slave interrogated is defined;
- In the field "**Cyclic Delay (ms)**" insert a time that pass between two Modbus request.

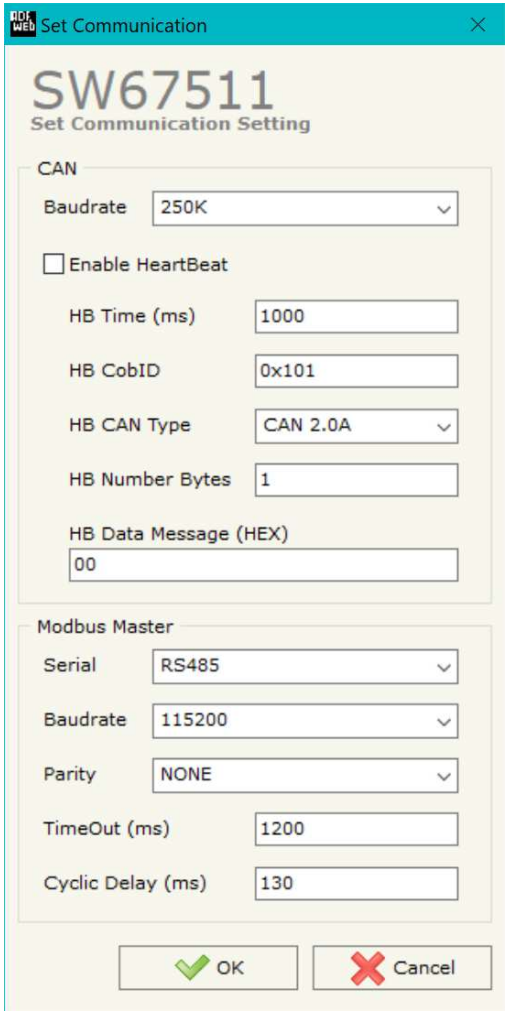


Figure 3: "Set Communication" window

COB REQUEST:

By pressing the "**COB Request**" button from the main window for SW67511 (Fig. 2) the window "Request" appears (Fig. 4).

The COB inserted in this table are the data read from the Modbus.
These are the meanings of the various fields that composes the table:

- In the field "**COB-ID**" insert the COB-ID of the CAN frame;
- In the field "**CAN Type**" select the type of frame defined (CAN2.0A or CAN 2.0B);
- In the field "**Address Device**" insert the address of Modbus device that contains the Modbus data;
- In the field "**Register Address**" insert the Modbus word that contains the Modbus data;
- In the field "**Type**" insert the data type of Modbus Register you like to read (Coil status or Input status or Holding register or Input register);
- In the field "**N° Register**" insert the number of consecutive registers you configured;
- If the field "**Float to Int**" is checked, converts the register read from float to integer (this function is enable only with Holding and Input Register and for 2 or 4 registers);
- In the field "**Mol Fact**" the multiplicative factor for the float value is selected;
- In the field "**Cyclic Time**" the time between two Modbus request is defined. If the value is 0, that means that the Modbus register is performed "on request"; i.e. it is necessary to send the COB without data and then the device asks the Modbus registers and gives back the values. Otherwise, if you insert a value greater than 0, if the gateway finds the Modbus Slave device, automatically sends the CAN frame to the network.
- In the field "**Max Error**", is the number of errors continues that the gateway waits before suspending the poll until the next reboot. If is set to zero this function is disabled;
- In the field "**Mnemonic**" you can insert a brief description.

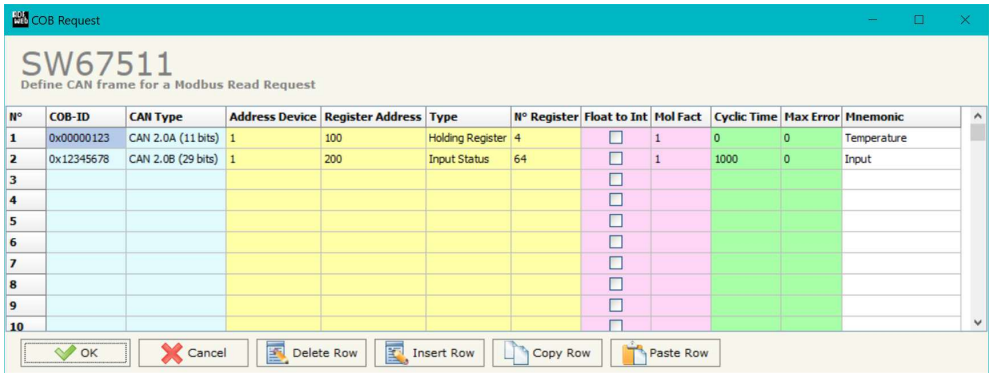


Figure 4: "COB Request" window

Examples:

1)
In the first case of the table:
If we want to read the 4 Holding Register at address 100 (Fig. 4) we must send a CAN bus frame with COB ID= $0123 and without data (Fig. 5-1).
As an answer we would have a CAN bus frame with COB ID=$0123 and 8 bytes of data (Fig. 5-2). They are the value of the Modbus registers.

If you are using a CAN Analyzer , you can see the windows on the right: (for example you can see our CAN Analyzer at the following address: http://www.adfweb.com/home/products/CAN_BUS_analyzers.asp)

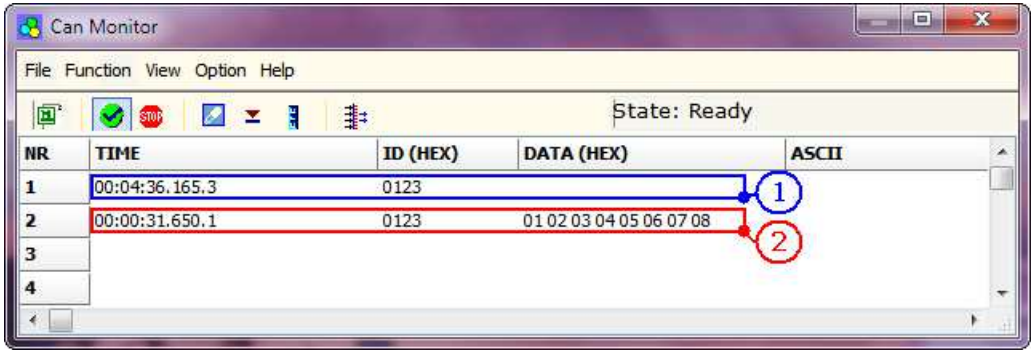


Figure 5: "Can Monitor" window for visualize the CAN frame for read request 1

2)
In the second case of the table:
The item has a "Cyclic Time"; so if the Gateway is able to require the data to the Slave Modbus, automatically sends the frames on CAN (Fig. 6). If the Modbus Slave isn't reachable, no frames are sended on the CAN bus network.

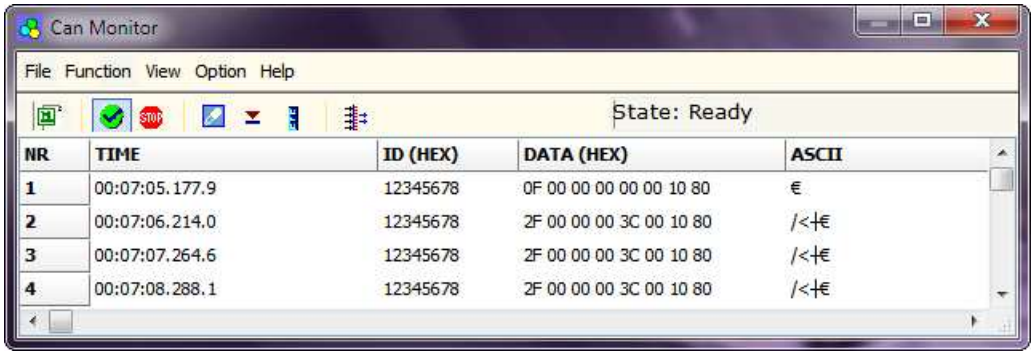


Figure 6: "Can Monitor" window for visualize the CAN frame for read request 2

COB SETTING:

By pressing the "**COB Setting**" button from the main window for SW67511 (Fig. 2) the window "Request" appears (Fig. 7).

The COB inserted in this table are the data write from the Modbus.
These are the meanings of the various fields that composes the table:

- In the field "**COB-ID**" insert the COB-ID of the CAN frame;
- In the field "**CAN Type**" select the type of frame defined (CAN2.0A or CAN 2.0B);
- In the field "**Address Device**" insert the address of Modbus device that contains the Modbus data;
- In the field "**Register Address**" insert the Modbus word that contains the Modbus data;
- In the field "**Type**" insert the data type of Modbus Register you like to read (Coil status or Holding register)
- In the field "**N° Register**" insert the number of consecutive registers you configured;
- In the field "**Mnemonic**" you can insert a brief description.

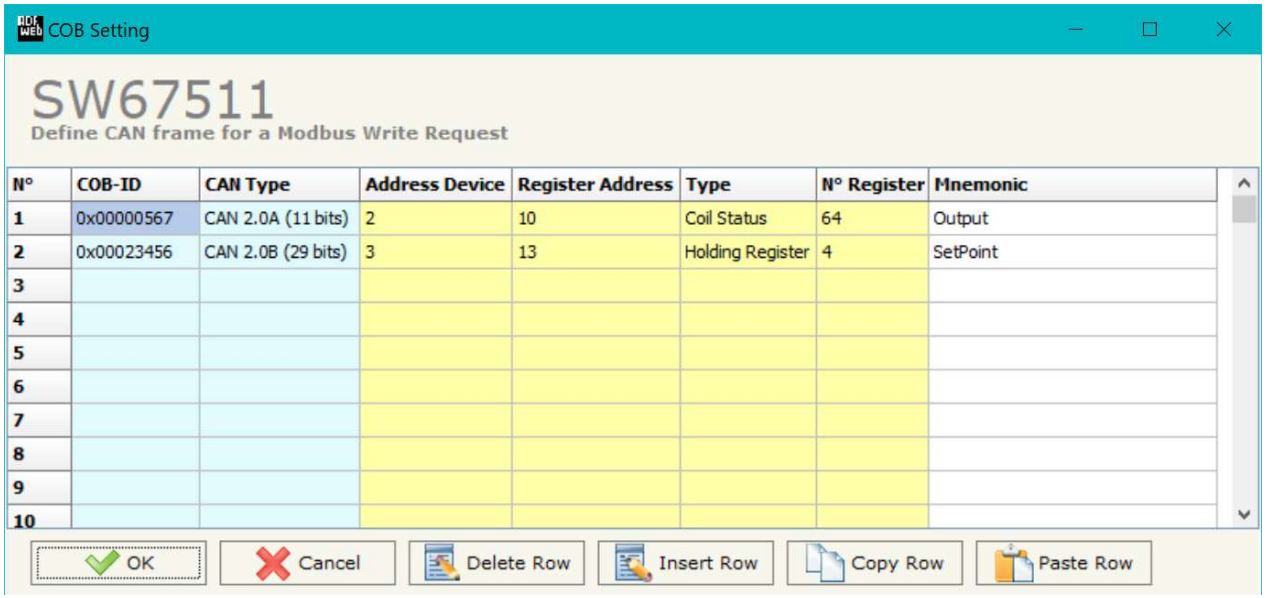


Figure 7: "COB Setting" window

Example:

If we want to write the 4 Holding Register at address 13 (Fig. 7) we must send a CAN frame with COB ID=$023456 and 8 byte of data (Fig. 8-1); they are the values of the registers Modbus that they want to set.

If you are using a CAN Analyzer, you can see the windows below (Fig. 8) (for example you can see our CAN Analyzer at the following address:
http://www.adfweb.com/home/products/CAN_BUS_analyzers.asp)

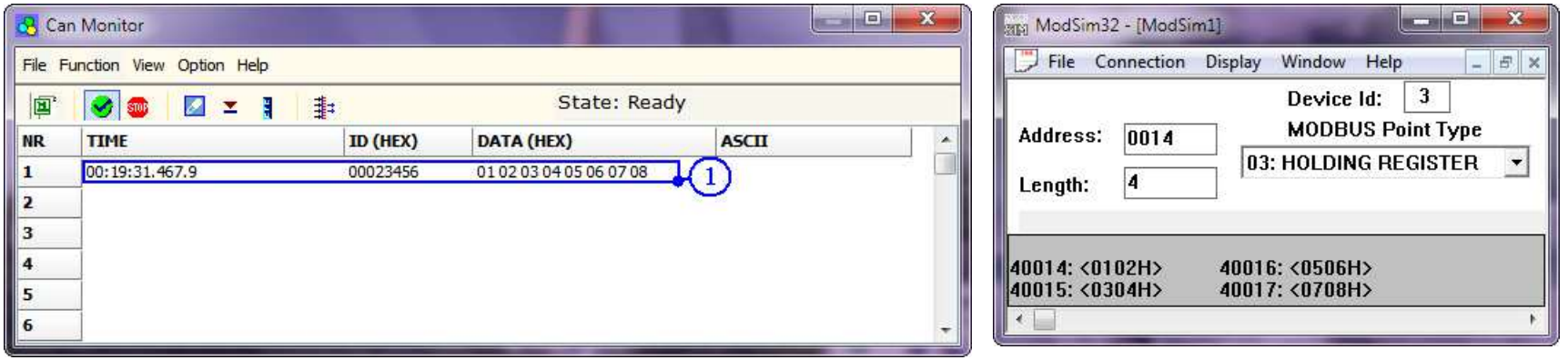


Figure 10: "Can Monitor" window for visualize the CAN frame for write request

UPDATE DEVICE:

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

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

- Turn OFF the Device;
- Connect the Null Modem cable form your PC to the converter;
- Put Dip1 of Dip-Switch A at "ON" position;
- Turn on the device;
- Select the "**COM port**";
- Press the "**Next**" button;
- 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 at "OFF" position;
- Disconnect the Null Modem Cable;
- Turn ON the device.

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

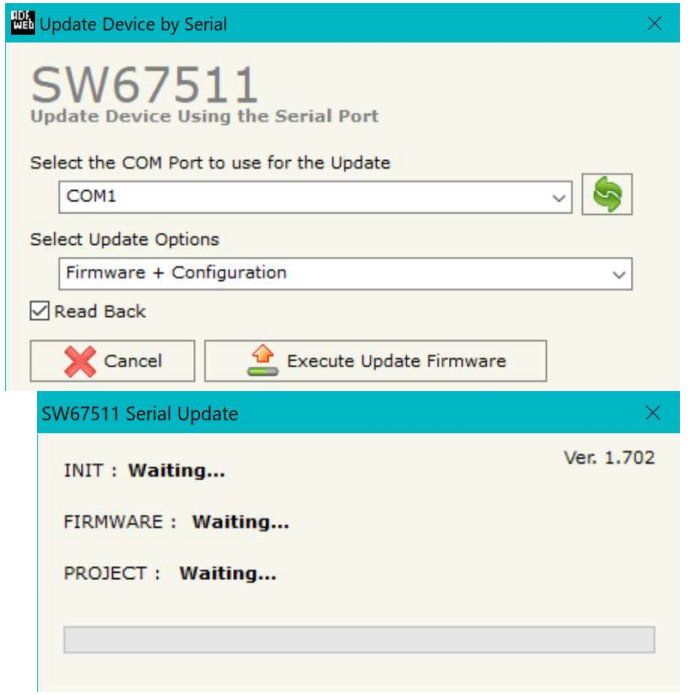


Figure 9: "Update Device" windows

Note:
When you install a new version of the software the first thing to do is the update of the Firmware in the HD67511 device.

Note:
When you receive the device, for the first time, you have to update also the Firmware in the HD67511 device.

Warning:

If the Fig. 10 appears when you try to do the Update before require assistance try these points:

- Try to repeat the operations for the updating;
- Try with another PC;
- Try to restart the PC;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows Seven or Vista or 8, 10 or 11, make sure that you have the administrator privileges;
- Take attention at Firewall lock.

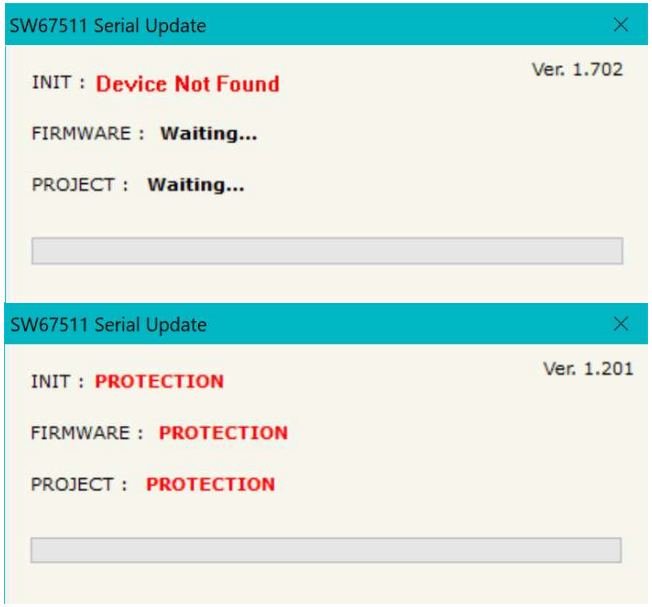


Figure 10: "Error" window

You have to use the software "SW67511": www.adfweb.com\download\filefold\SW67511.zip.

MECHANICAL DIMENSIONS:

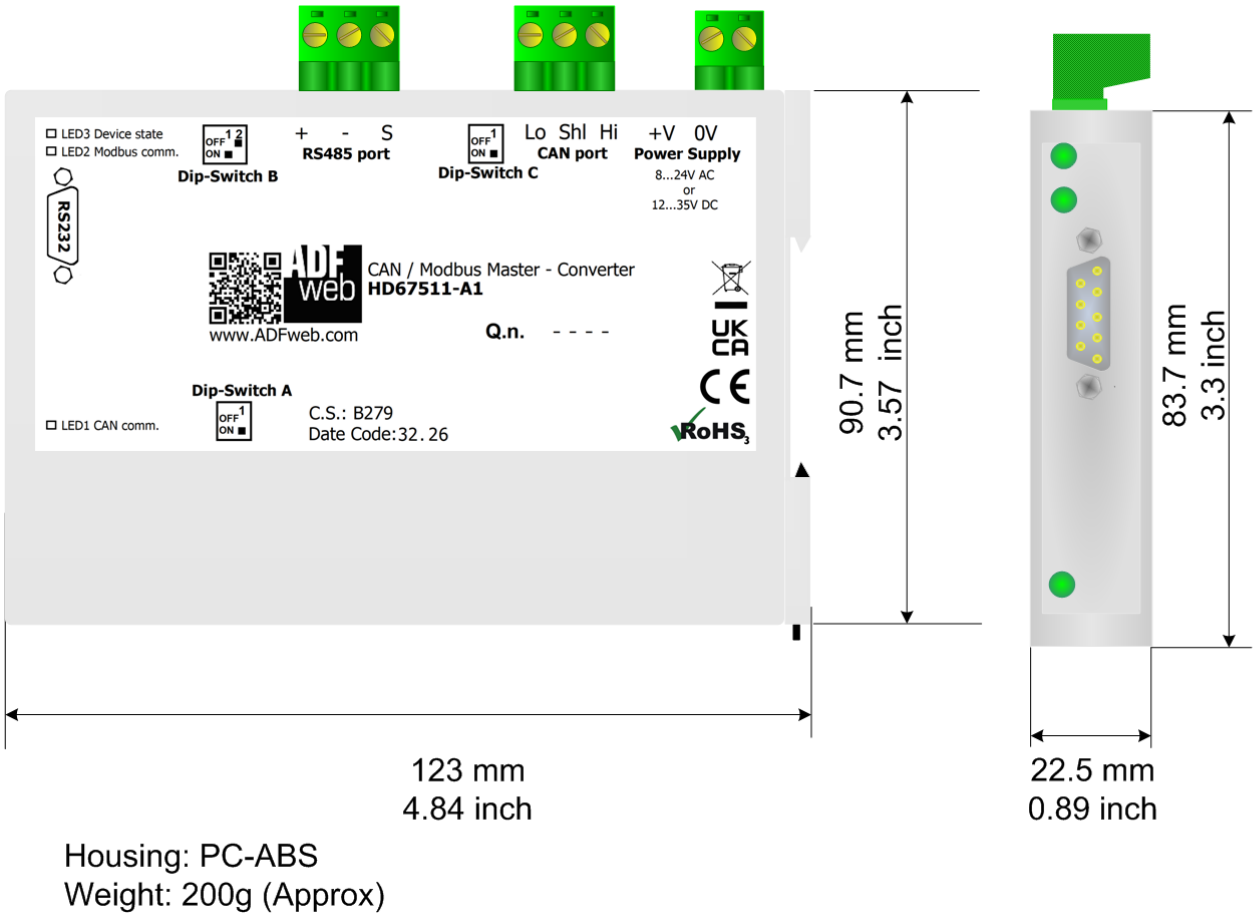


Figure 11: Mechanical dimensions scheme for HD67511-A1

ORDERING INFORMATIONS:

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

HD67511 – A 1

Connectors Type
1: Removable 5mm Screw Terminal

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

Device Family
HD67511: CAN / Modbus Master - Converter

Order Code: **HD67511-A1** **-** CAN / Modbus Master - 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
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

DISCLAIMER

All technical content within this document can be modified without notice. The content of the document content is a recurring audit.
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 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 2011/65/EU + 2015/863 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.

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