User Manual

Revision 1.002
English

Modbus TCP Slave / SNMP Manager - Converter

(Order Code: HD67176-A1)

For Website information:
www.adfweb.com?Product=HD67176

For Price information:
www.adfweb.com?Price=HD67176-A1

Benefits and Main Features:

- Electrical isolation
- Temperature range: -40°C / +85°C (-40°F / +185°F)



For others SNMP products, see also the following links:

Converter SNMP Manager to

www.adfweb.com?Product=HD67041	**(DMX)**
www.adfweb.com?Product=HD67170	**(BACnet Slave)**
www.adfweb.com?Product=HD67171	**(CAN)**
www.adfweb.com?Product=HD67172	**(CANopen)**
www.adfweb.com?Product=HD67173	**(DeviceNet Slave)**
www.adfweb.com?Product=HD67174	**(EtherNet/IP Slave)**
www.adfweb.com?Product=HD67175	**(Modbus Slave)**
www.adfweb.com?Product=HD67177	**(PROFIBUS Slave)**
www.adfweb.com?Product=HD67178	**(PROFINET Slave)**
www.adfweb.com?Product=HD67753	**(IEC 61850 Server)**
www.adfweb.com?Product=HD67849	**(DALI)**
www.adfweb.com?Product=HD67953	**(MQTT)**
www.adfweb.com?Product=HD67986	**(IO-Link Slave)**
www.adfweb.com?Product=HD67B47	**(OPC UA Server)**
www.adfweb.com?Product=HD67D40	**(LoRaWAN)**
www.adfweb.com?Product=HD67E24	**(EtherCAT Slave)**
www.adfweb.com?Product=HD67F40	**(LoRaWAN Gateway)**

Do you have an your customer protocol?
www.adfweb.com?Product=HD67003

Do you need to choose a device? do you want help?
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
1.000	09/10/2015	Ff	All	First Release
1.001	07/02/2025	Ln	All	New design
1.002	11/12/2025	Ln	All	Revision

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:

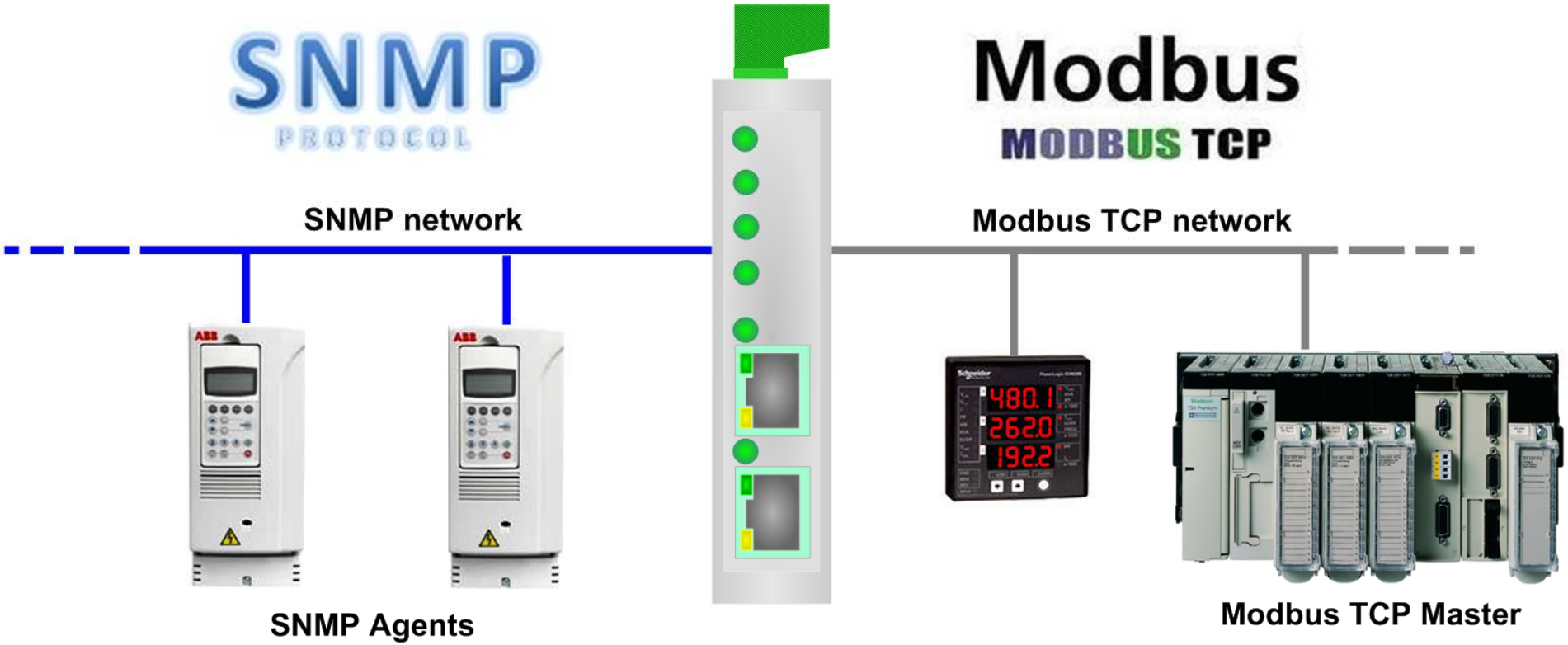


This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

CE CONFORMITY

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

EXAMPLE OF CONNECTION:



CONNECTION SCHEME:

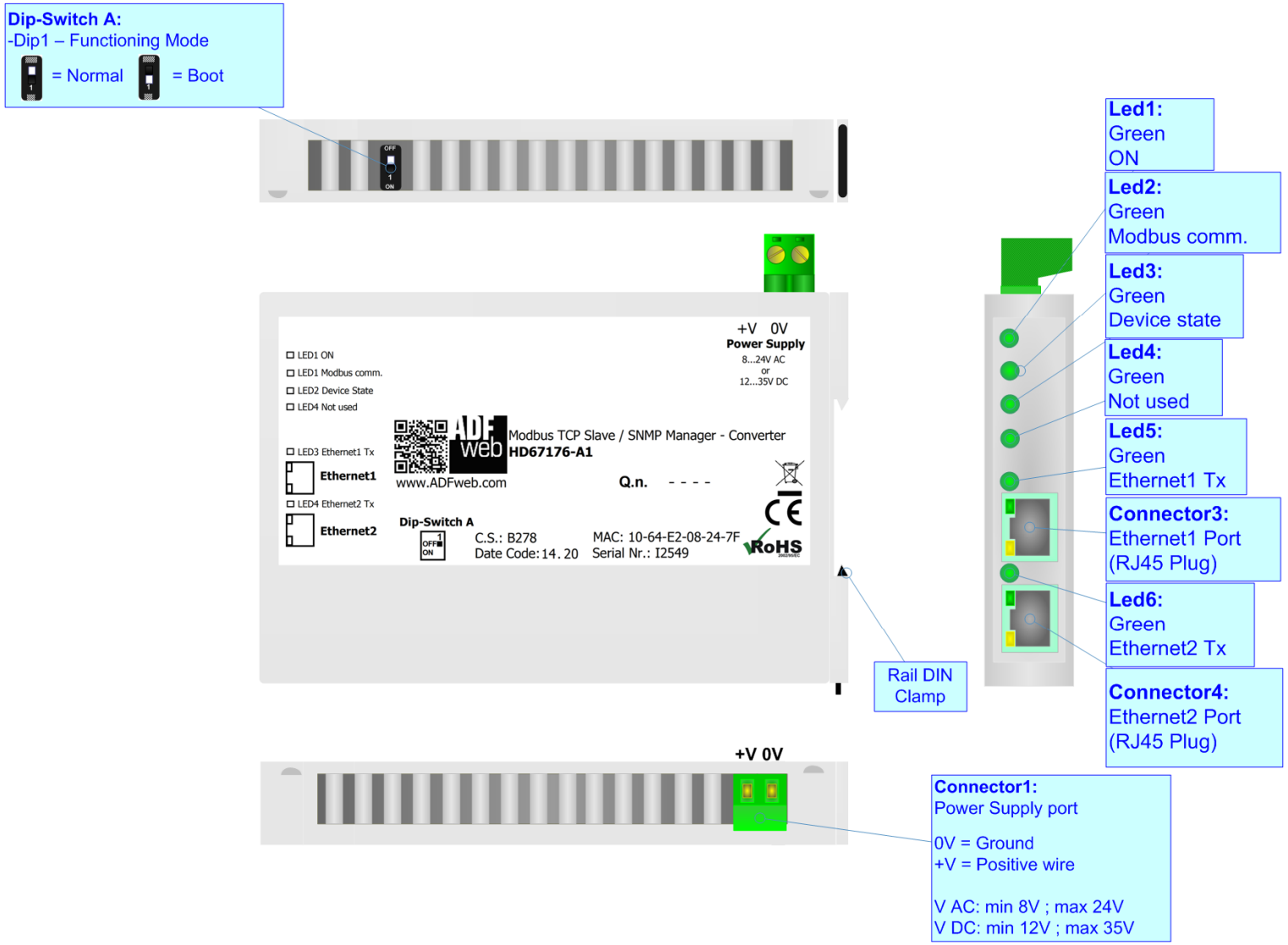


Figure 1: Connection scheme for HD67176-A1

CHARACTERISTICS:

The HD67176-A1 is a Modbus TCP Slave / SNMP Manager - Converter.

It has the following characteristics:

- Up to 2000 bytes in reading and 2000 bytes in writing;
- Isolation between Power Supply - Ethernet.
- Two-directional information between Modbus TCP bus and SNMP 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 SW67176 software on your PC in order to perform the following:

- Define the parameter of SNMP line;
- Define the parameter of Modbus TCP line;
- Define the SNMP requests to send to the SNMP Agents;
- 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]
HD67176-A1	3.5

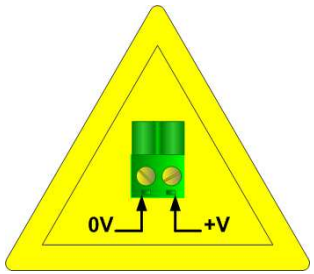
Caution: Not reverse the polarity power

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

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





HD67176-A1

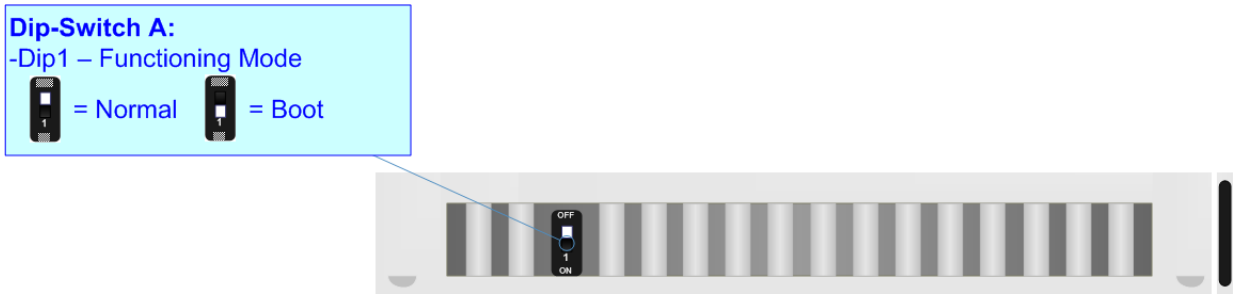
FUNCTION MODES:

The device has got two function modes depending on the position of the 'Dip1 of Dip-Switch A':

- The first, with 'Dip1 of Dip-Switch A' at "OFF" position, is used for the normal working of the device.
- The second, with 'Dip1 of Dip-Switch A' at "ON" position, is used for uploading the Project and/or Firmware.

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

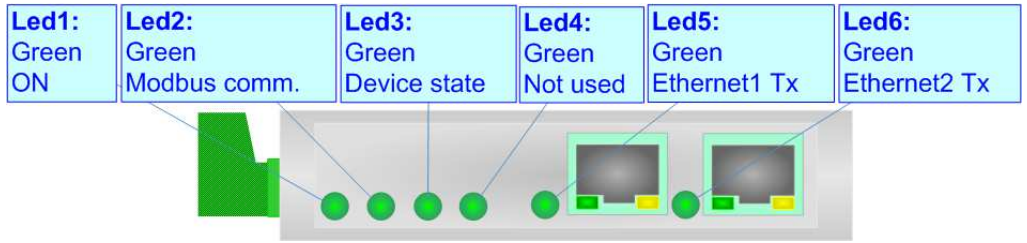
According to the functioning mode, the LEDs will have specific functions, see 'LEDS' section.



LEDS:

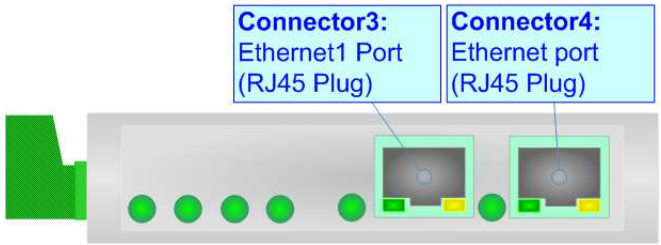
The devices have got six LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: ON [supply voltage] (green)	**ON:** Device powered **OFF:** Device not powered	**ON:** Device powered **OFF:** Device not powered
2: Modbus TCP comm. (green)	Blinks when Modbus TCP data are received	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: Device state (green)	Blinks slowly (~1Hz)	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: Not used (green)	OFF	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
5: Ethernet1 Tx (green)	Blinks when is transmitting Ethernet frames	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
6: Ethernet2 Tx (green)	Blinks when is transmitting Ethernet frames	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress



ETHERNET:

The SNMP and Modbus TCP connection must be made using Connector3 or Connector4 of HD67176-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/other is recommended the use of a cross cable.



USE OF COMPOSITOR SW67176:

To configure the Converter, use the available software that runs with Windows called SW67176. 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 SW67176, the window below appears (Fig. 2).

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

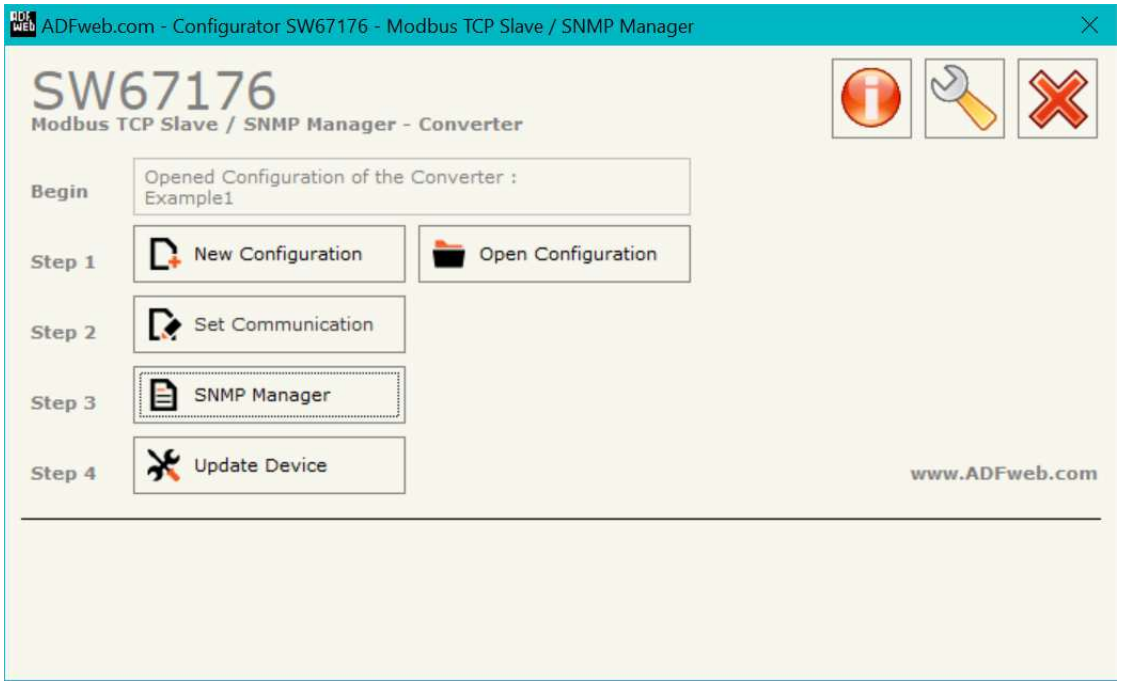
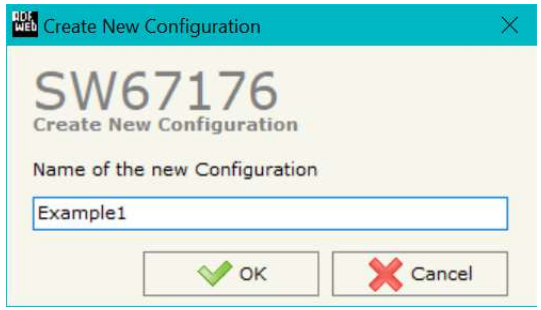


Figure 2: Main window for SW67176

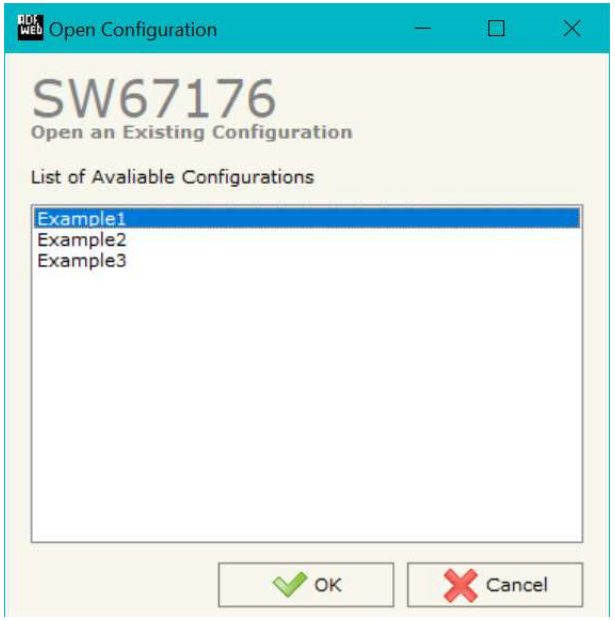
NEW CONFIGURATION / OPEN CONFIGURATION:

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 "Modbus TCP Slave / SNMP Manager - 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**".

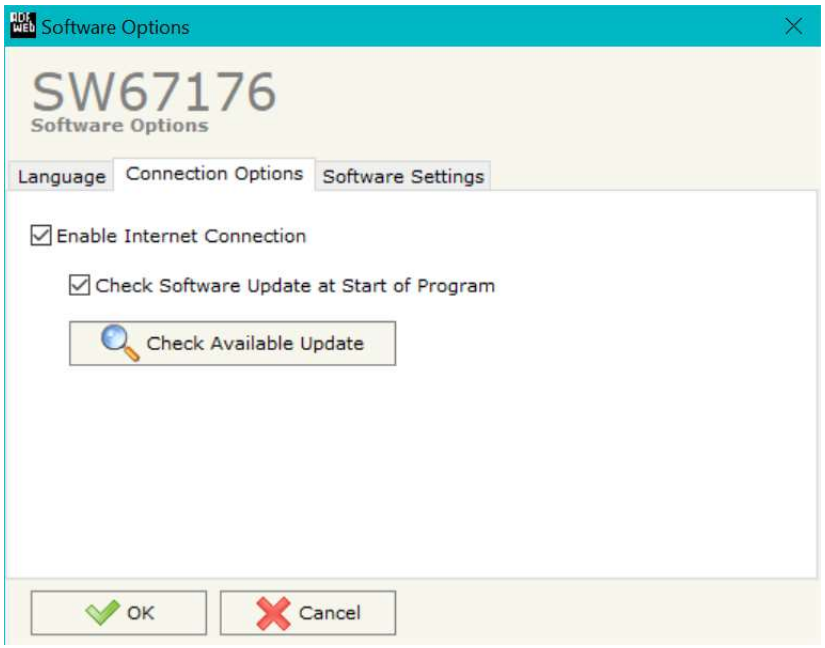


SOFTWARE OPTIONS:

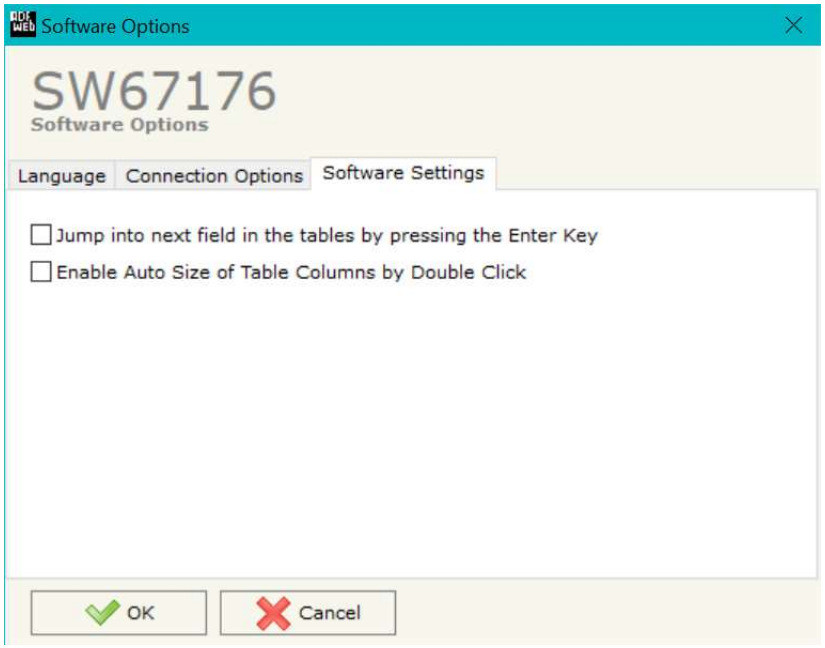
By pressing the "**Settings**" ( ) button there is the possibility to change the language of the software and check the updatings for the compositor.

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 SW67176 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, SNMP and Modbus TCP.

By Pressing the "**Set Communication**" button from the main window for SW67176 (Fig. 2) the window "Set Communication" appears (Fig. 3).
The window is divided in two sections, one for the SNMP Manager and the other for the Modbus TCP Slave.

The means of the fields for "SNMP Manager" are:

- In the field "**IP ADDRESS**" insert the IP address that you want to give to the Converter;
- In the field "**SUBNET Mask**" insert the SubNet Mask;
- In the field "**GATEWAY**" insert the default gateway that you want to use. 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 "**SNMP Name of Station**" is possible to assign a name to the SNMP node.

The means of the fields for the "Modbus TCP Slave" section are:

- In the field "**IP ADDRESS**" insert the IP address that you want to give to the Converter;
- In the field "**SUBNET Mask**" insert the SubNet Mask;
- In the field "**GATEWAY**" insert the default gateway that you want to use. 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 "**Port**" insert the port used for the Modbus TCP communication.

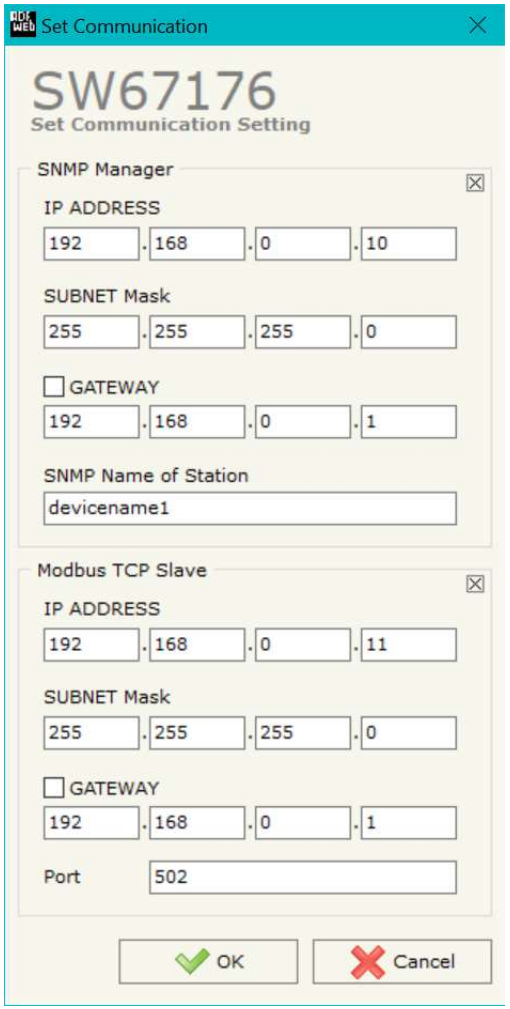
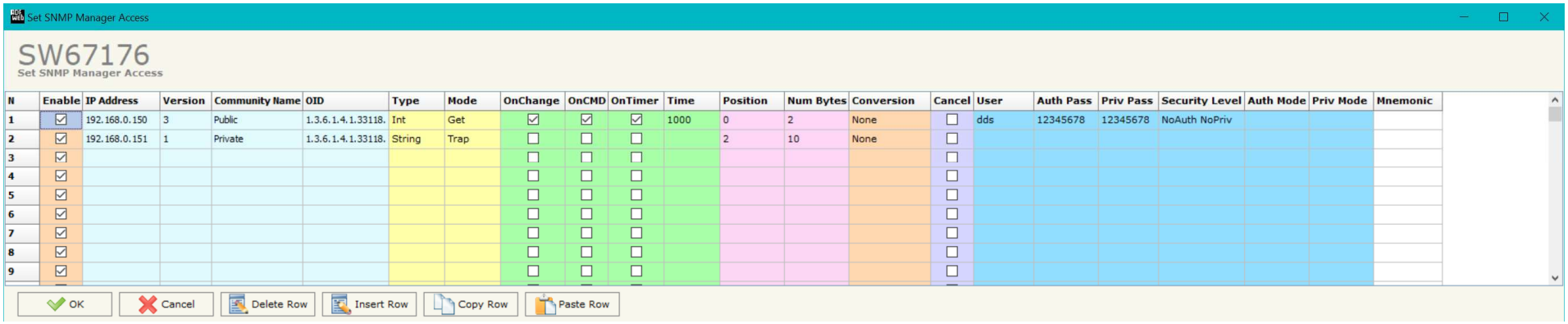


Figure 3: "Set Communication" window

SET SNMP ACCESS:



N	Enable	IP Address	Version	Community Name	OID	Type	Mode	OnChange	OnCMD	OnTimer	Time	Position	Num Bytes	Conversion	Cancel	User	Auth Pass	Priv Pass	Security Level	Auth Mode	Priv Mode	Mnemonic
1	☑	192.168.0.150	3	Public	1.3.6.1.4.1.33118.	Int	Get	☑	☑	☑	1000	0	2	None	☐	dds	12345678	12345678	NoAuth NoPriv			
2	☑	192.168.0.151	1	Private	1.3.6.1.4.1.33118.	String	Trap	☐	☐	☐		2	10	None	☐							
3	☑							☐	☐	☐					☐							
4	☑							☐	☐	☐					☐							
5	☑							☐	☐	☐					☐							
6	☑							☐	☐	☐					☐							
7	☑							☐	☐	☐					☐							
8	☑							☐	☐	☐					☐							
9	☑							☐	☐	☐					☐							

Figure 4: "Set SNMP Manager Access" window

By Pressing the "**SNMP Manager**" button from the main window for SW67176 (Fig. 2) the window "Set SNMP Manager Access" appears (Fig. 4).

The meaning of the fields in the window are the follows:

- If the field "**Enable**" is checked, the SNMP request is enabled;
- In the field "**IP Address**" the address of the SNMP Agent device that you have to read/write is defined;
- In the field "**Version**" the SNMP version used to send the SNMP request (1, 2 or 3) is defined;
- In the field "**Community Name**" the Community Name used for the SNMP request ('Public' or 'Private') is defined;
- In the field "**OID**" the OID to read/write from/to the SNMP Agent device is defined;
- In the field "**Type**" the type of data to read/write ('String' or 'Int') is defined;
- In the field "**Mode**" the type of SNMP request used ('Get', 'Set' or 'Trap') is defined;
- By checking the field "**On Change**" the SNMP request (only for the 'Set' Mode) is made only if Modbus data written by the Master are changed;
- By checking the field "**On CMD**" the SNMP request is sent when the Modbus registers associated to this specific SNMP request are required/written;
- If the field "**On Timer**" is checked, the SNMP request is sent cyclically;

- In the field "**Time**" the delay in ms between two SNMP requests is defined (if "On Timer" is checked);
- In the field "**Position**" is possible to select the position where take/save the data from/to the internal SNMP array;
- In the field "**Num Bytes**" is possible to select define the dimension of the SNMP Data;
- In the field "**Conversion**" it is possible to select the conversion to apply to the data read/written from/to the SNMP Agent;
- If the field "**Cancel**" is checked, if the answer to the SNMP request is missing, the data on MQTT side are set to '0';
- If SNMP version is set to '3', the following fields must be set:
  - In the field "**User**" the user for the SNMP authentication is defined;
  - In the field "**Auth Pass**" the password for the SNMP aithentication is defined;
  - In the field "**Priv Pass**" the password for Privacy authentication is defined;
  - In the field "**Security Level**" the type of security used is defined;
  - In the field "**Auth Mode**" the mode used for the authentication is defined;
  - In the field "**Priv Mode**" the mode used for Privacy is defined;
- In the field "**Mnemonic**" a description of the data inserted in the row is defined.

Note:
If the field "On change" and "On Timer" is checked and the "Poll Time" is different from 0, the converter sends the SNMP writing request cyclically and also when the data is changed.

Note:
If the "Trap" mode is used, the fields "On CMD", "On Change" and "On Timer" must be disabled.

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.

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' at OFF position;
- Turn on the device.

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

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 update.

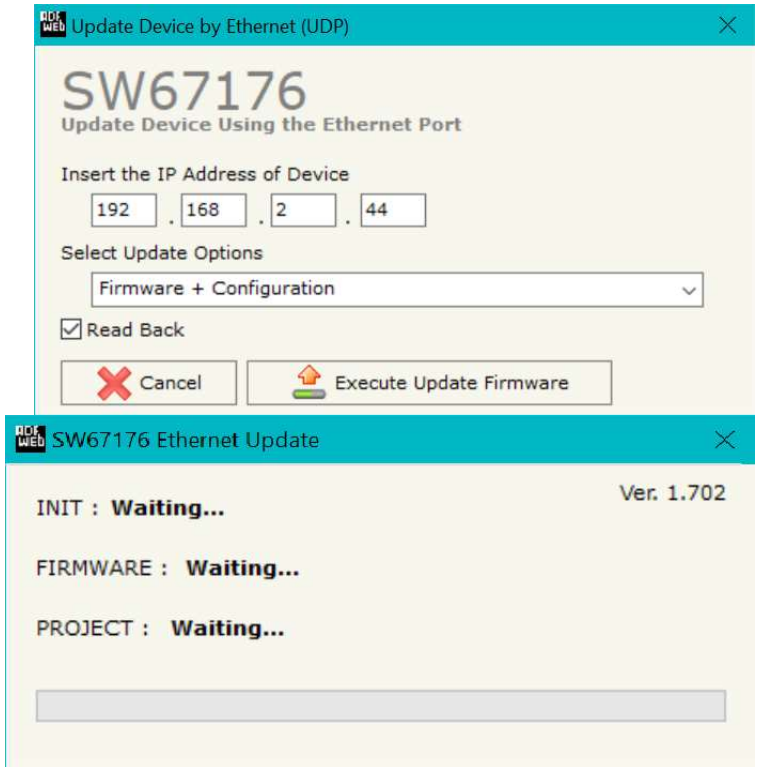


Figure 5: "Update device" windows

Note:
When you install a new version of the software, if it is the first time it is better you do the update of the Firmware in the HD67176 device.

Note:
When you receive the device, for the first time, you also have to update the Firmware in the HD67176 device.

Warning:
If Fig. 7 appears when you try to do the Update try these points before seeking assistance:

- 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, 10 or 11 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 or 11 you have to launch the "Command Prompt" with Administrator Rights;
- Pay attention at Firewall lock.

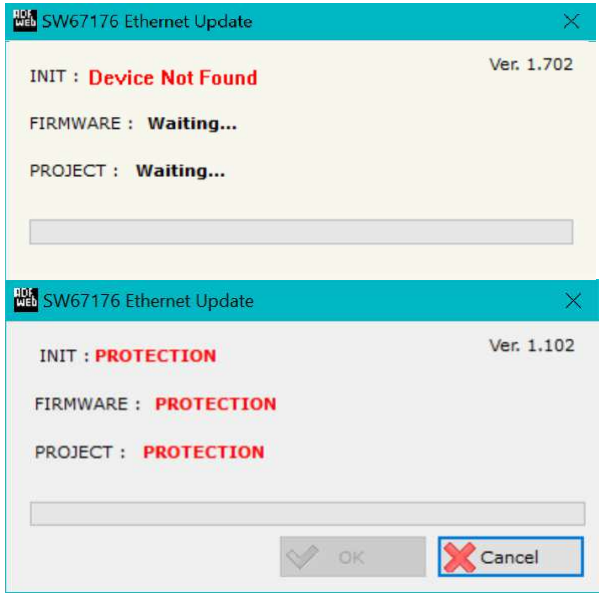


Figure 7: "Protection" window

In the case of HD67176 you have to use the software "SW67176": www.adfweb.com\download\filefold\SW67176.zip.

MODBUS MAP:

On Modbus side, the map is created automatically.

Data in reading (GET/TRAP):

Type	Address	Function	Description
Input Register	0	04	Input Bytes 0-1 of SNMP side
Input Register	1	04	Input Bytes 2-3 of SNMP side
Input Register	2	04	Input Bytes 4-5 of SNMP side
.			
.			
Input Register	719	04	Input Bytes 1438-1439 of SNMP side

Data in writing (SET):

Type	Address	Function	Description
Holding Register	0	R: 03 W: 06/16	Output Bytes 0-1 of SNMP side
Holding Register	1	R: 03 W: 06/16	Output Bytes 2-3 of SNMP side
Holding Register	2	R: 03 W: 06/16	Output Bytes 4-5 of SNMP side
.			
.			
Holding Register	719	R: 03 W: 06/16	Output Bytes 1438-1439 of SNMP side

Note:

The data can be read/written as single bits too using Input/Coil Status (Function 02 and Functions 01/05/15).

MECHANICAL DIMENSIONS:

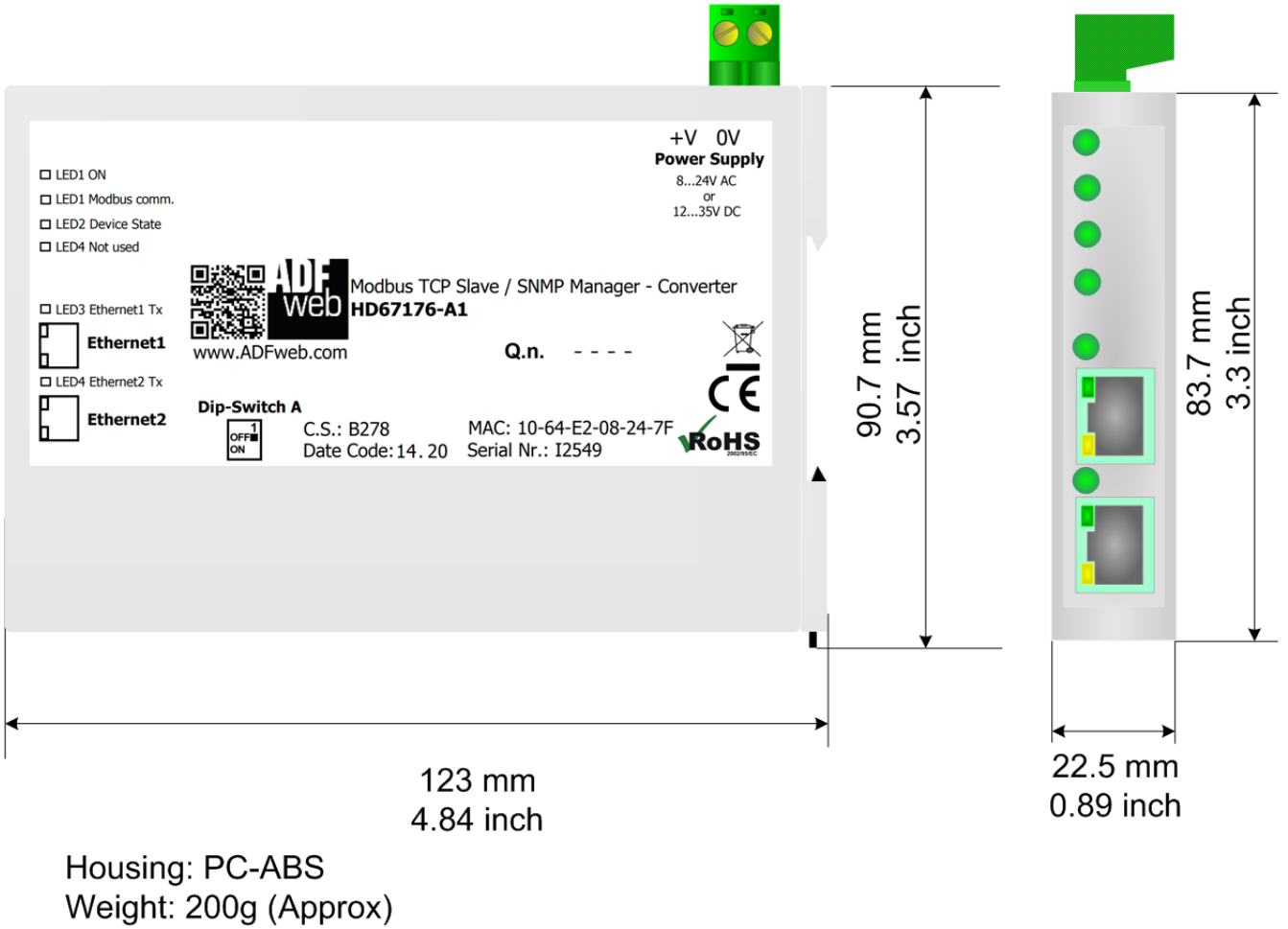


Figure 7: Mechanical dimensions scheme for HD67176-A1

ORDERING INFORMATIONS:

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

HD67176 - x x

Connectors Type
1: Removable 5mm Screw Terminal

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

Device Family
HD67176: Modbus TCP Slave / SNMP Manager - Converter

Order Code: **HD67176-A1** **-** Modbus TCP Slave / SNMP Manager - 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.

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