# User Manual
Revision 1.001
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)

User Manual

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

**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 | 09/10/2015 | Ff | All | First Release |
| 1.001 | 07/02/2025 | 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, 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:

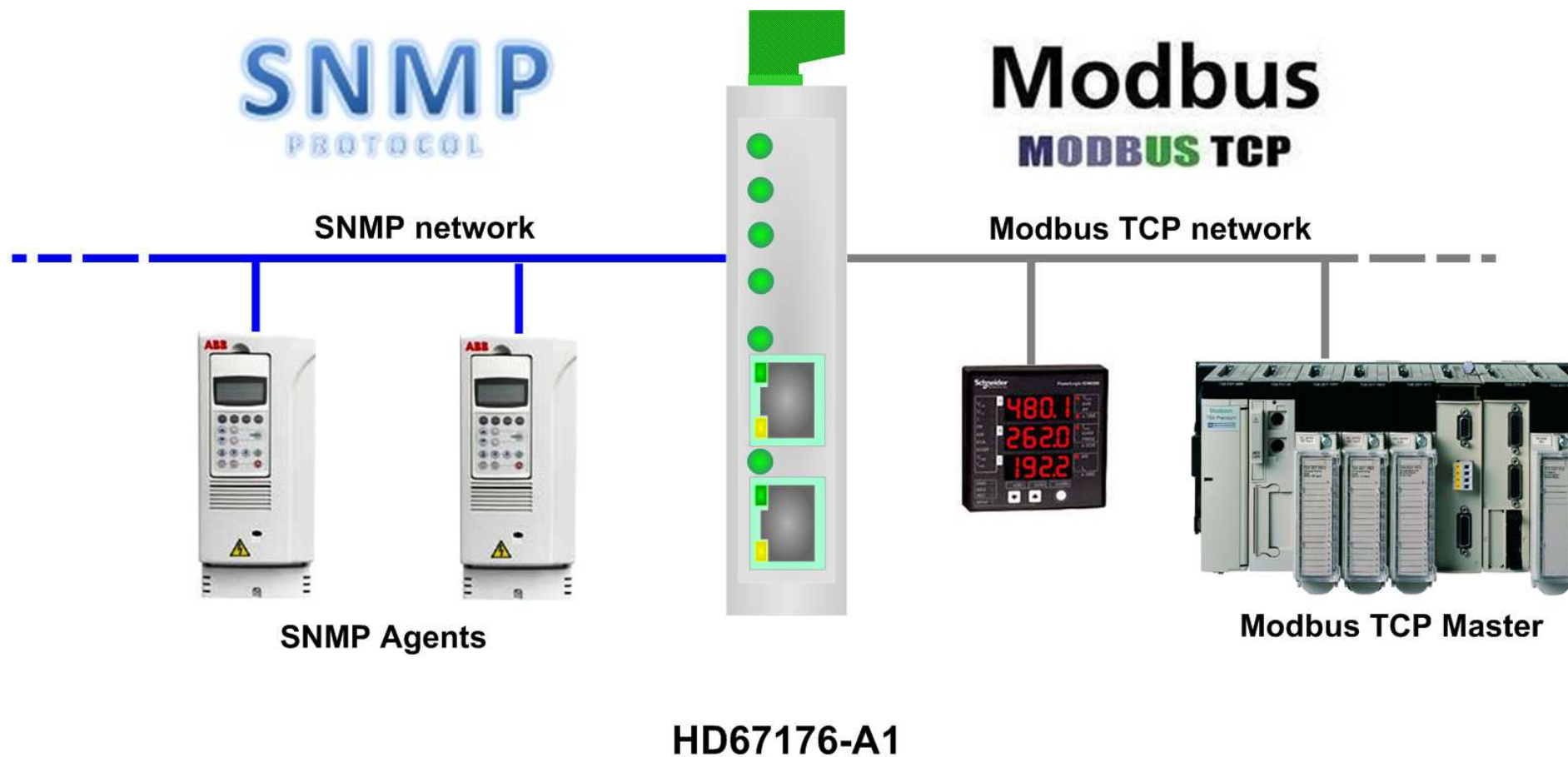⚠️   This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

**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:**



SNMP network

Modbus TCP network

SNMP Agents

Modbus TCP Master

HD67176-A1

Industrial Electronic Devices

## CONNECTION SCHEME:



**Dip-Switch A:**
-Dip1 – Functioning Mode

= Normal    = Boot

**Led1:**
Green
ON

**Led2:**
Green
Modbus comm.

**Led3:**
Green
Device state

**Led4:**
Green
Not used

**Led5:**
Green
Ethernet1 Tx

**Connector3:**
Ethernet1 Port
(RJ45 Plug)

**Led6:**
Green
Ethernet2 Tx

**Connector4:**
Ethernet2 Port
(RJ45 Plug)

+V  0V
**Power Supply**
8...24V AC
or
12...35V DC

☐ LED1 ON
☐ LED1 Modbus comm.
☐ LED2 Device State
☐ LED4 Not used

☐ LED3 Ethernet1 Tx
**Ethernet1**
☐ LED4 Ethernet2 Tx
**Ethernet2**

Modbus TCP Slave / SNMP Manager - Converter
**HD67176-A1**
www.ADFweb.com

**Q.n.**    - - - -

**Dip-Switch A**

C.S.: B278    MAC: 10-64-E2-08-24-7F
Date Code:14. 20    Serial Nr.: I2549

**Rail DIN Clamp**

+V 0V

**Connector1:**
Power Supply port

0V = Ground
+V = Positive wire

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

*Figure 1: Connection scheme for HD67176-A1*

Industrial Electronic Devices
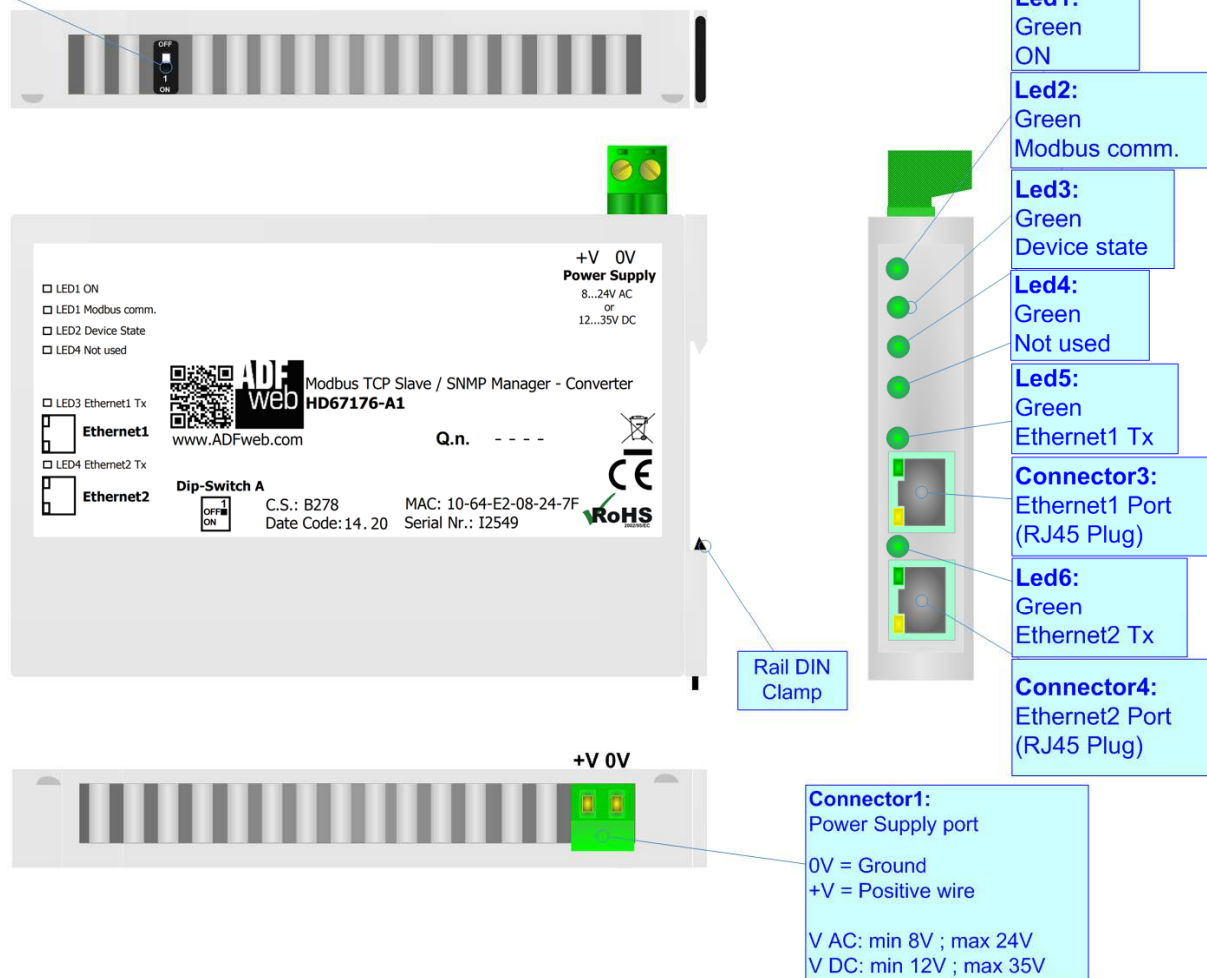
**CHARACTERISTICS:**

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.

Industrial Electronic Devices

## 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 |
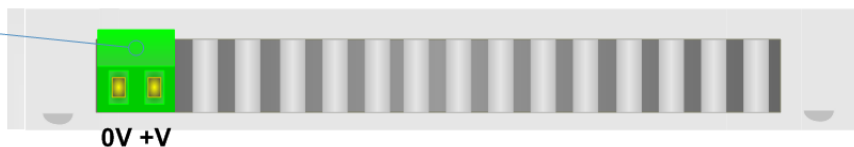
**Caution: Not reverse the polarity power**

**Connector1:**
Power Supply port

0V = Ground
+V = Positive wire

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

0V +V

0V     +V

HD67176-A1

Industrial Electronic Devices
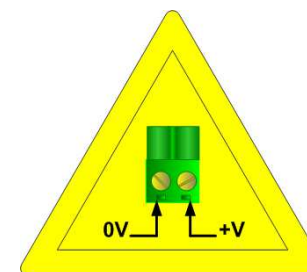
**FUNCTION MODES:**

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.
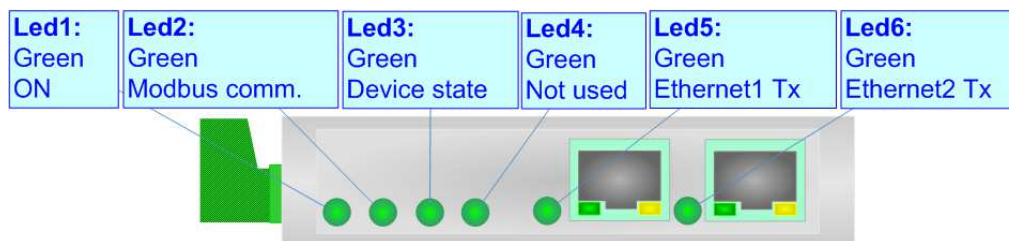
**Dip-Switch A:**
-Dip1 – Functioning Mode

= Normal    = Boot
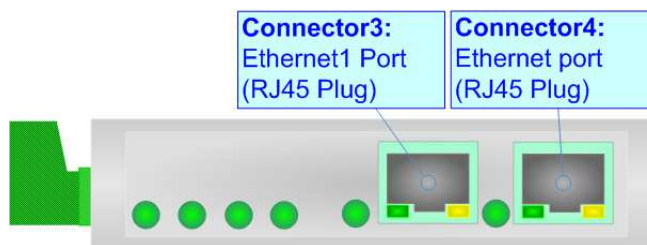
Industrial Electronic Devices
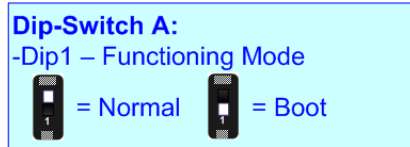
**LEDS:**

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

Led1:
Green
ON

Led2:
Green
Modbus comm.

Led3:
Green
Device state

Led4:
Green
Not used

Led5:
Green
Ethernet1 Tx

Led6:
Green
Ethernet2 Tx

*Industrial Electronic Devices*

**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.

Connector3:
Ethernet1 Port
(RJ45 Plug)

Connector4:
Ethernet port
(RJ45 Plug)

**Industrial Electronic Devices**

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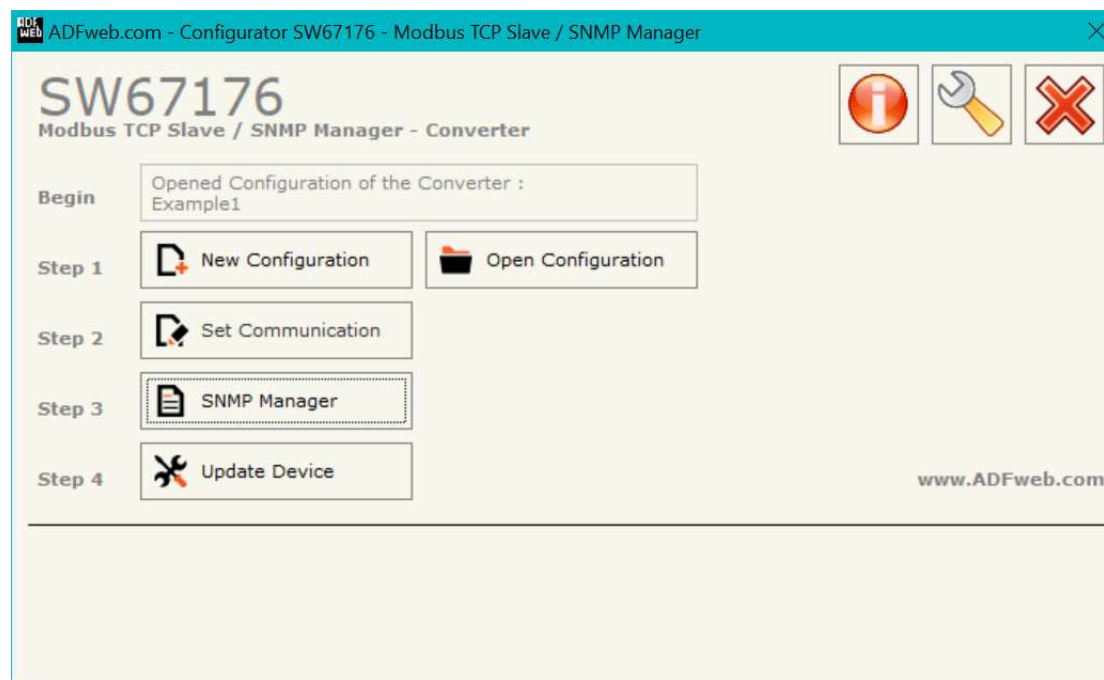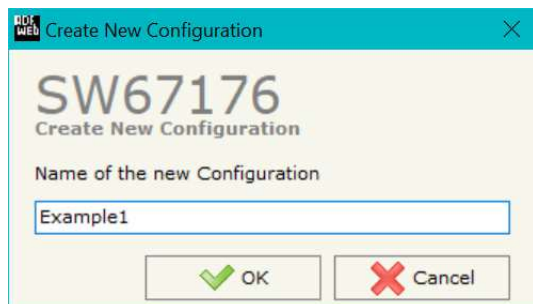
Note:
It is necessary to have installed .Net Framework 4.



*Figure 2: Main window for SW67176*

Industrial Electronic Devices

### 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**".

Industrial Electronic Devices
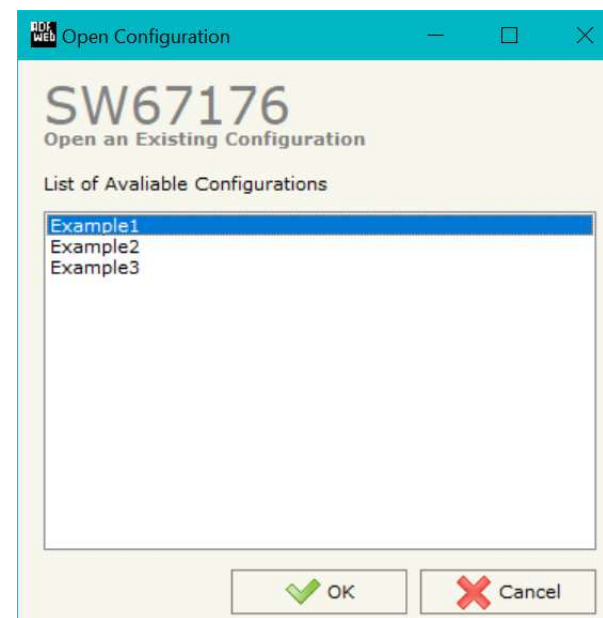
**SOFTWARE OPTIONS:**

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.
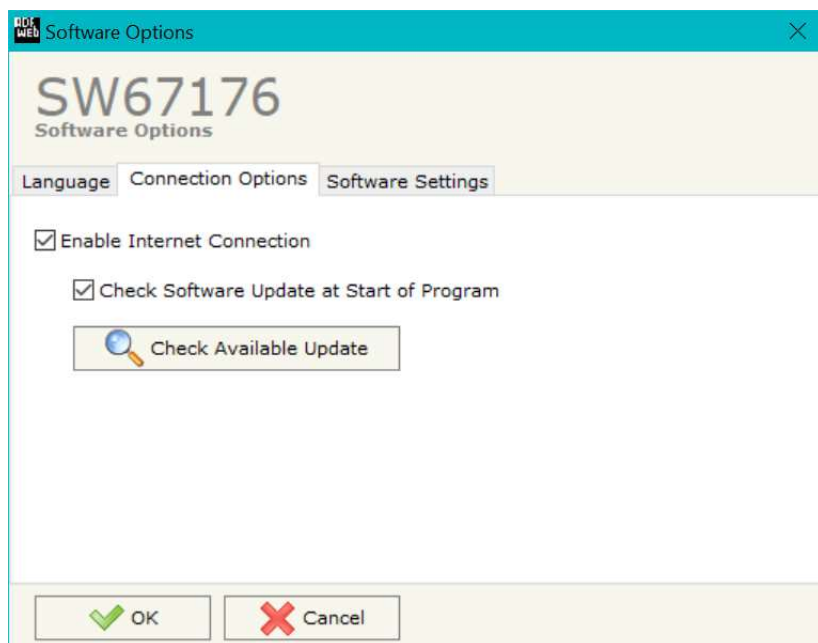
In the section "Connection Options", it is possible to check if there are some updatings of the software compositor in ADFweb.com website.
Checking the option "**Check Software Update at Start of Program**", the SW67176 check automatically if there are updatings when it is launched.

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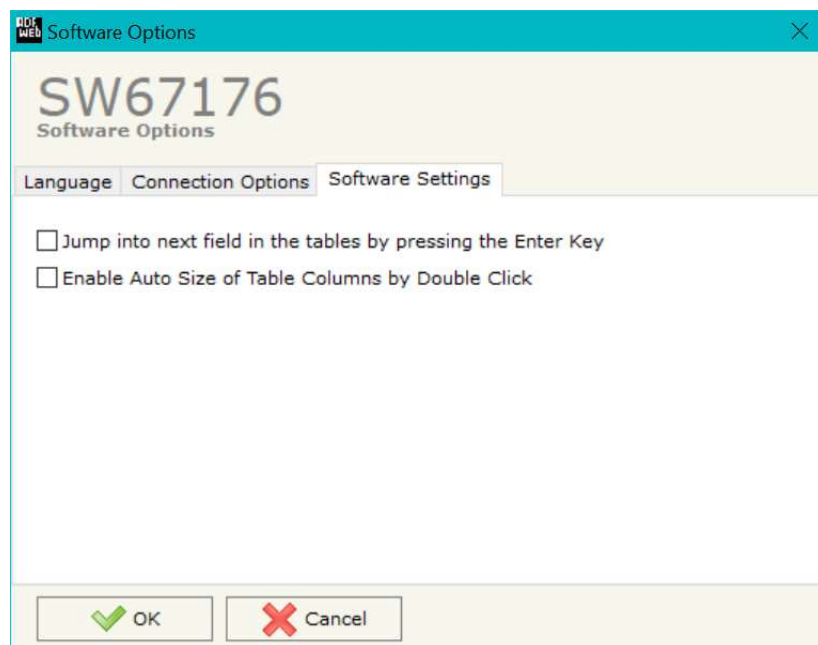
In the section "Software Settings", it is possible to enable/disable some keyboard's commands for an easier navigation inside the tables contained in the different sections of the software.

**Software Options**

## SW67176
Software Options

| Language | Connection Options | Software Settings |

☐ Jump into next field in the tables by pressing the Enter Key

☐ Enable Auto Size of Table Columns by Double Click

✓ OK     ✗ Cancel

**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;
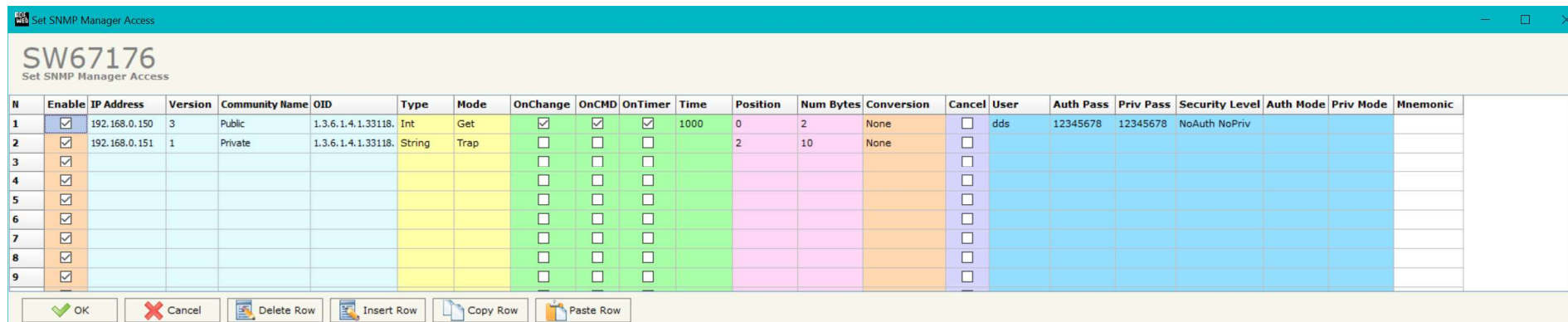- In the field "**SNMP Name of Station**" is possible to assign a name to the SNMP node.

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*

ADFweb

Industrial Electronic Devices

**SET SNMP ACCESS:**



*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;

Industrial Electronic Devices

- 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:
    - o In the field "**User**" the user for the SNMP authentication is defined;
    - o In the field "**Auth Pass**" the password for the SNMP aithentication is defined;
    - o In the field "**Priv Pass**" the password for Privacy authentication is defined;
    - o In the field "**Security Level**" the type of security used is defined;
    - o In the field "**Auth Mode**" the mode used for the authentication is defined;
    - o 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.

**Industrial Electronic Devices**

**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.

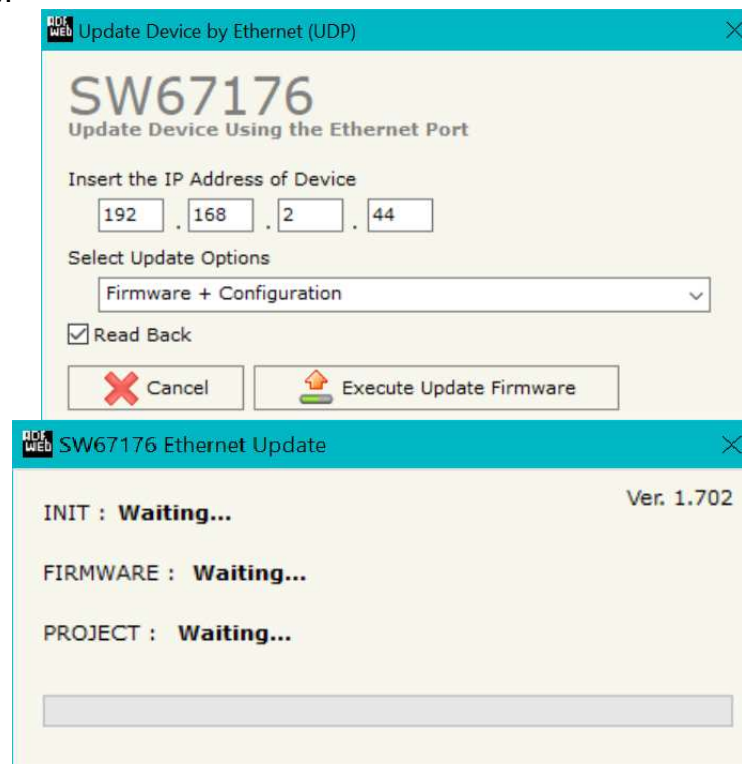At this point the configuration/firmware on the device is correctly update.



*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.
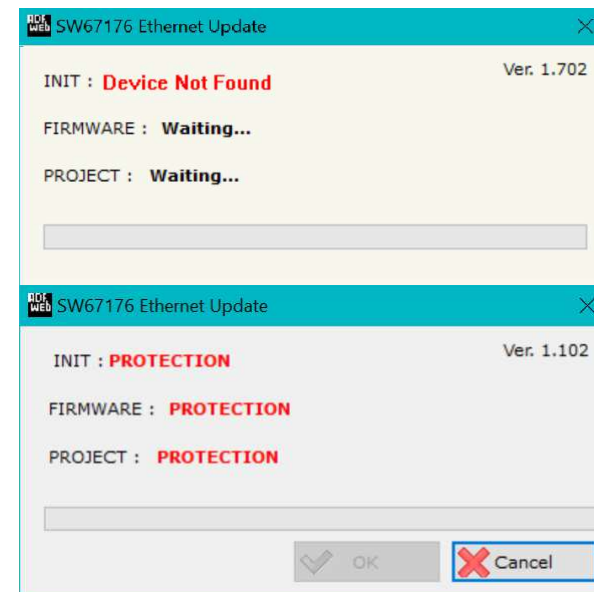
*Figure 7: "Protection" window*

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

*Industrial Electronic Devices*

**MECHANICAL DIMENSIONS:**



+V   0V
**Power Supply**
8...24V AC
or
12...35V DC

☐ LED1 ON
☐ LED1 Modbus comm.
☐ LED2 Device State
☐ LED4 Not used

☐ LED3 Ethernet1 Tx
**Ethernet1**

☐ LED4 Ethernet2 Tx
**Ethernet2**

Modbus TCP Slave / SNMP Manager - Converter
**HD67176-A1**
www.ADFweb.com      **Q.n.**   - - - -

**Dip-Switch A**

C.S.: B278        MAC: 10-64-E2-08-24-7F
Date Code:14. 20   Serial Nr.: I2549

90.7 mm
3.57 inch

83.7 mm
3.3 inch

123 mm
4.84 inch

22.5 mm
0.89 inch

Housing: PC-ABS
Weight: 200g (Approx)
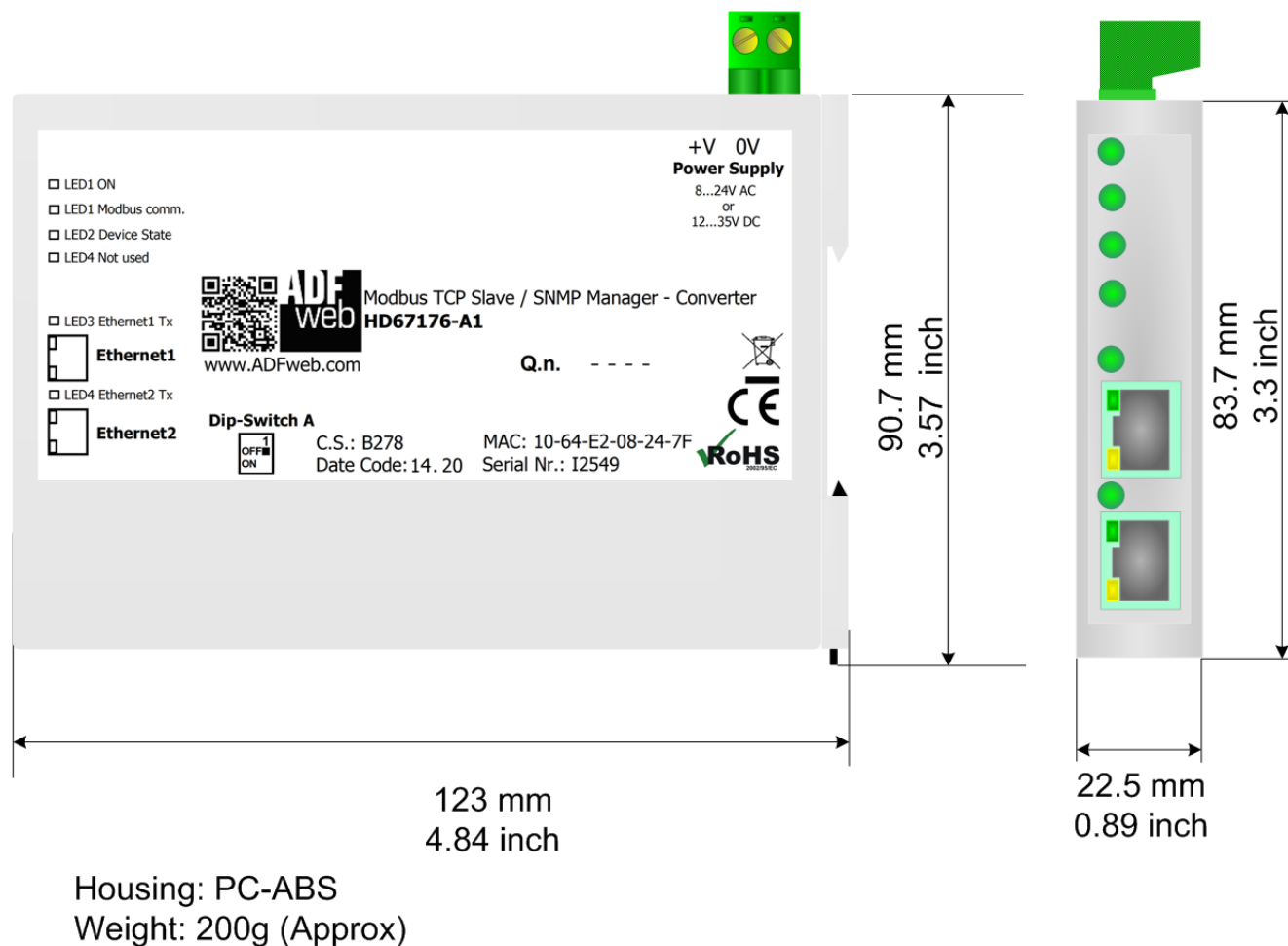
*Figure 7: Mechanical dimensions scheme for HD67176-A1*

*Industrial Electronic Devices*

## 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.

**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