Industrial Electronic Devices

User Manual

Revision 1.000
English

PROFINET Master / KNX - Converter

(Order Code: HD67B79-KNX-B2)

for Website information:
http://www.adfweb.com/?Product=HD67B79

for Price information:
http://www.adfweb.com/?Price=HD67B79-KNX-B2

Benefits and Main Features:

⊕ Triple electrical isolation

⊕ Power Supply 18…35V DC and 8…24 V AC

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

User Manual

For others PROFINET Master devices, see also the following links:

PROFINET Master from/to …

www.adfweb.com?Product=HD67B45	(**OPC UA Server**)
www.adfweb.com?Product=HD67B70	(**Serial**)
www.adfweb.com?Product=HD67B71	(**Modbus Slave**)
www.adfweb.com?Product=HD67B72	(**PROFIBUS Slave**)
www.adfweb.com?Product=HD67B73	(**CAN**)
www.adfweb.com?Product=HD67B74	(**CANopen**)
www.adfweb.com?Product=HD67B75	(**DeviceNet Slave**)
www.adfweb.com?Product=HD67B76	(**Modbus TCP Slave**)
www.adfweb.com?Product=HD67B77	(**SNMP Agent**)
www.adfweb.com?Product=HD67B78	(**EtherNet/IP Slave**)
www.adfweb.com?Product=HD67B80	(**MQTT**)
www.adfweb.com?Product=HD67B81	(**BACnet Slave**)
www.adfweb.com?Product=HD67B82	(**IEC 61850 Server**)
www.adfweb.com?Product=HD67B84	(**Ethernet**)
www.adfweb.com?Product=HD67D32	(**LoRaWAN**)
www.adfweb.com?Product=HD67E22	(**EtherCAT 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

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	Ff	All	First release version

WARNING:

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SECURITY ALERT:

GENERAL INFORMATION
To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device, 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:
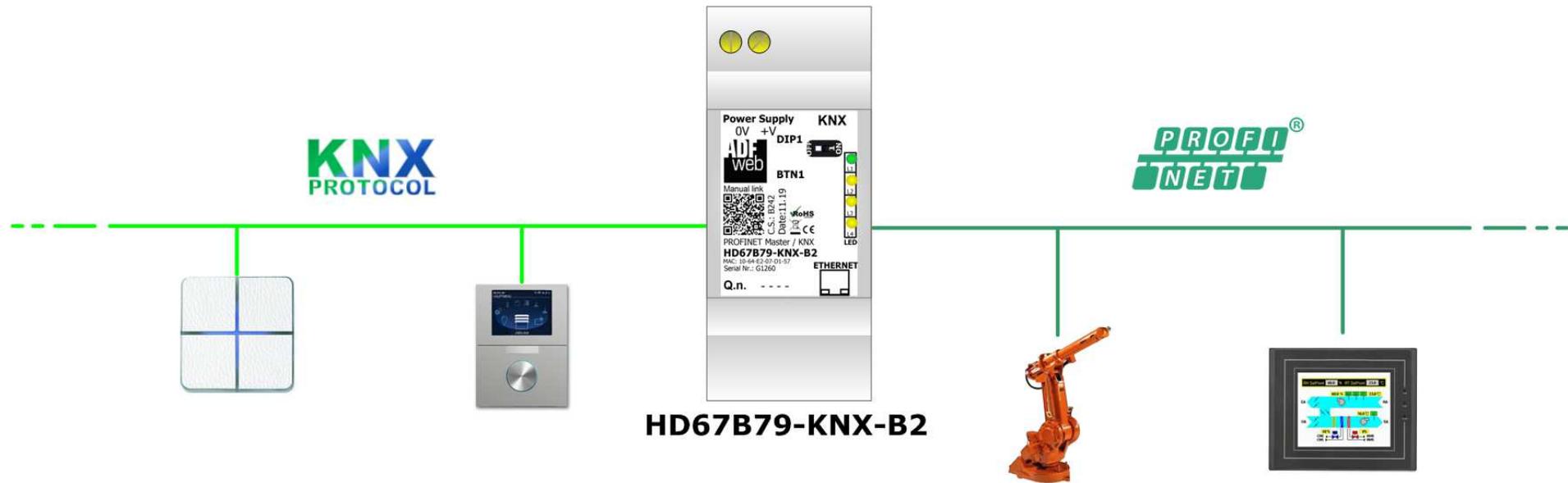
⚠️ This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

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.
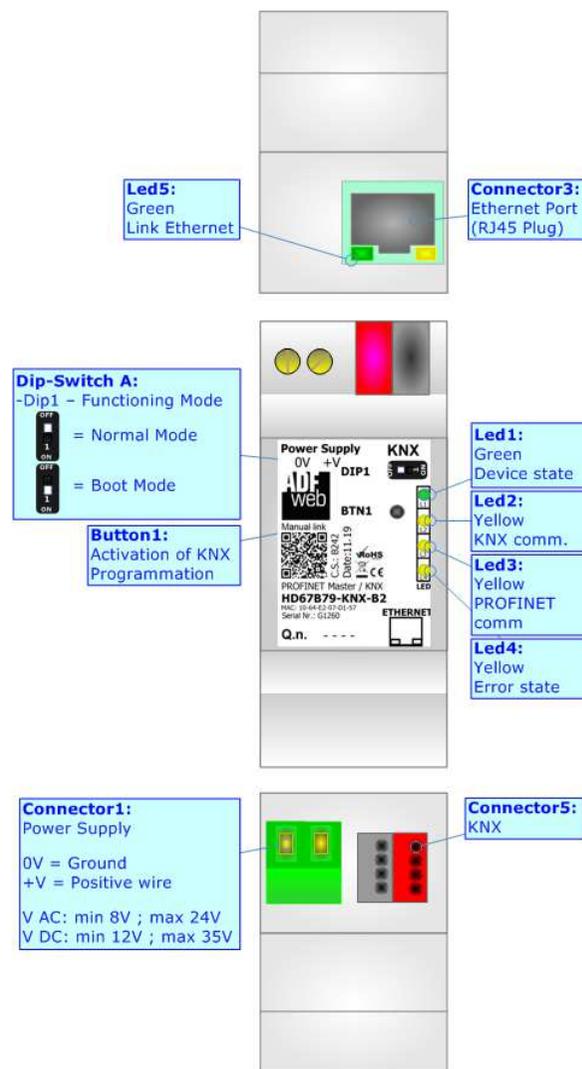
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EXAMPLE OF CONNECTION:

HD67B79-KNX-B2

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CONNECTION SCHEME:

Led5:
Green
Link Ethernet

Connector3:
Ethernet Port
(RJ45 Plug)

Dip-Switch A:
-Dip1 – Functioning Mode

= Normal Mode

= Boot Mode

Button1:
Activation of KNX
Programming

Power Supply
0V +V DIP1
BTN1

Led1:
Green
Device state

Led2:
Yellow
KNX comm.

Led3:
Yellow
PROFINET
comm

Led4:
Yellow
Error state

PROFINET Master / KNX
HD67B79-KNX-B2
MAC: 10-44-E2-07-D1-57
Serial Nr.: G1260
Q.n. - - - -

Connector1:
Power Supply

0V = Ground
+V = Positive wire

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

Connector5:
KNX

Figure 1: Connection scheme for HD67B79-KNX-B2

CHARACTERISTICS:

The HD67B79-KNX-B2 is a PROFINET Master / KNX converter.

It allows the following characteristics:

- Up to 1500 bytes in reading and 1500 bytes in writing;
- Two-directional information between KNX and PROFINET;
- 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 SW67B79 software on your PC in order to perform the following:

- Define the parameter of PROFINET;
- Define the parameter of KNX line;
- Define the list of PROFINET Slaves connected to the converter;
- Define the list of KNX objects accessible on KNX side;
- Update the device.

POWER SUPPLY:

The devices can be powered between a wide range of tensions. For more details see the two tables below.
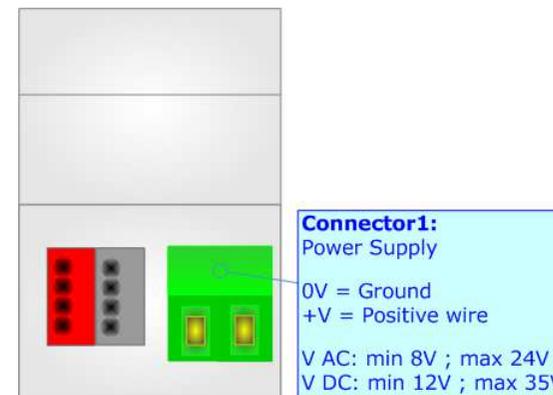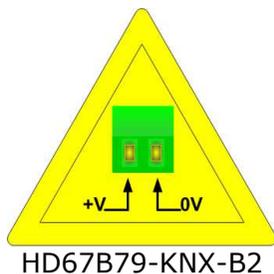
	VAC ∿		VDC	
	Vmin	**Vmax**	**Vmin**	**Vmax**
HD67B79-KNX-B2	**8V**	**24V**	**12V**	**35V**

Consumption at 24V DC:

Device	W/VA
HD67B79-KNX-B2	4

⚠ **Caution: Not reverse the polarity power**

+V   0V

HD67B79-KNX-B2

Connector1:
Power Supply

0V = Ground
+V = Positive wire

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

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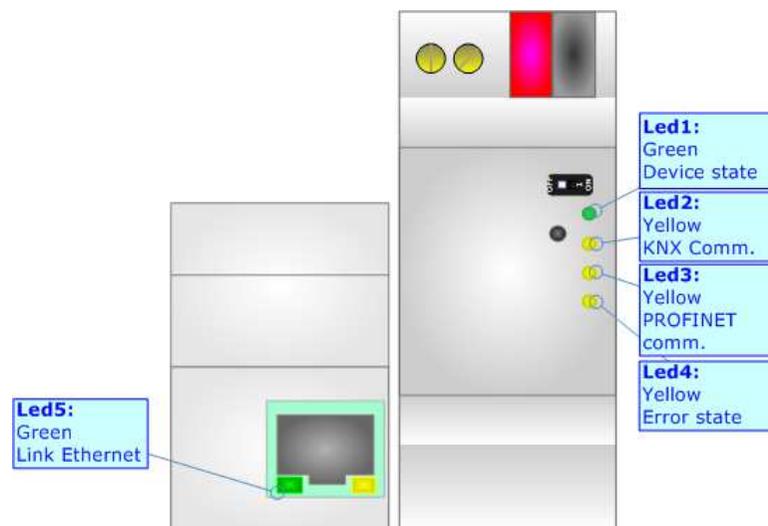
According to the functioning mode, the LEDs will have specifics functions (see 'LEDS' section).
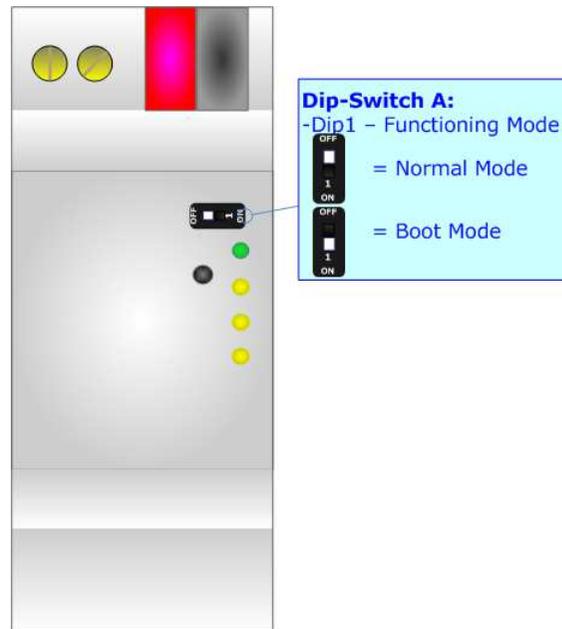
LEDS:

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: KNX comm. (yellow)	**Flashing:** KNX communication **OFF:** No KNX communication	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: PROFINET comm. (yellow)	**Flashing:** PROFINET communication **OFF:** No PROFINET communication	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: Error state (yellow)	**ON:** At least one PROFINET Slave is not working **OFF:** all PROFINET Slaves are working	**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

Led1:
Green
Device state

Led2:
Yellow
KNX Comm.

Led3:
Yellow
PROFINET
comm.

Led4:
Yellow
Error state

Led5:
Green
Link Ethernet

KNX:

KNX is the standard that allows the automated and decentralized management of the technologic plans of a big typology of structures: commercial buildings, factories, houses, public locals, schools and so on.

KNX can be used in all the applications and functions for the building automations: from lighting to control dampers, to the security, to the heating monitoring, to the conditioning, to the hydric control and alarms, to energy management and so on.
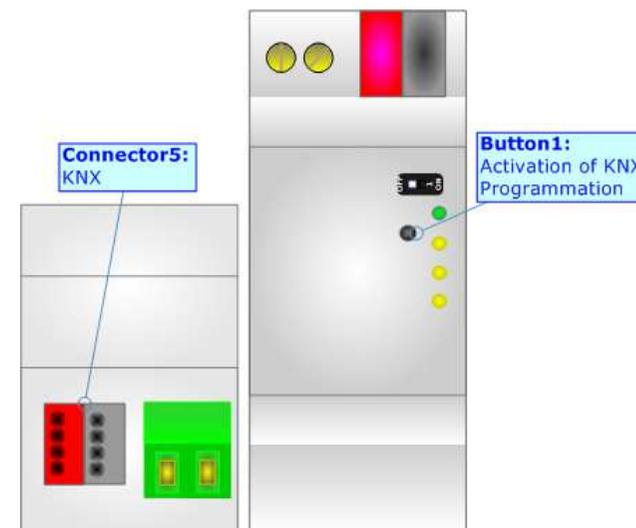
Characteristics	Description TP1-256
Medium	Shielded Twisted Pair
Topology	Linear, Star, Tree or mixed
Baudrate	9600 bps
Device supplying	Normal: bus powered devices Optional: remote powered devices
Device power consumption	3 mA- 12 mA
Power Supply Unit (PSU)	DC 30 V
Number of PSU's per physical Segment	Max. 2
Number of connectable devices per physical Segment	Max. 256
Number of addressable devices per physical Segment	Max. 255
Total cable length per physical Segment	Max. 1000 m
Distance between two devices	Max. 700 m

(*) Taken from KNX specifications

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ETHERNET:

The Ethernet connection must be made using Connector3 of HD67B79-KNX-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.

Connector3:
Ethernet Port
(RJ45 Plug)
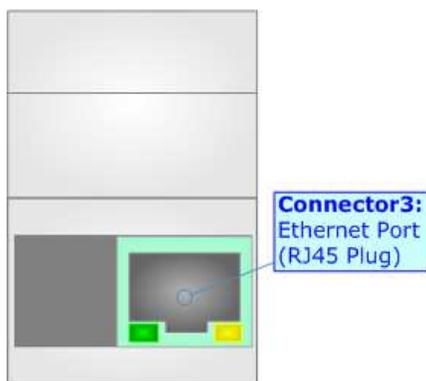
USE OF COMPOSITOR SW67B79:

To configure the Converter, use the available software that runs with Windows called SW67B79. 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).

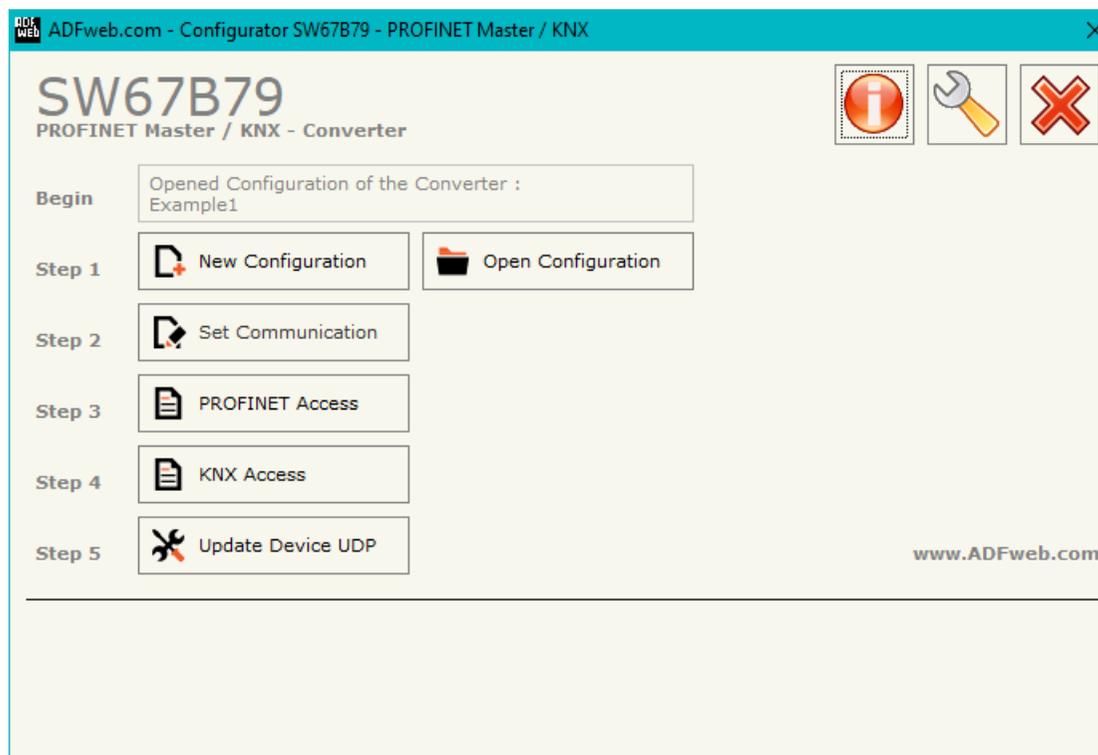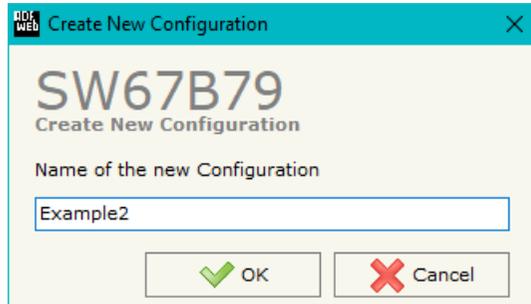When launching the SW67B79, the window below appears (Fig. 2).

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


Figure 2: Main window for SW67B79

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 "PROFINET Master / KNX - 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**".

![ADFweb logo]
Industrial Electronic Devices
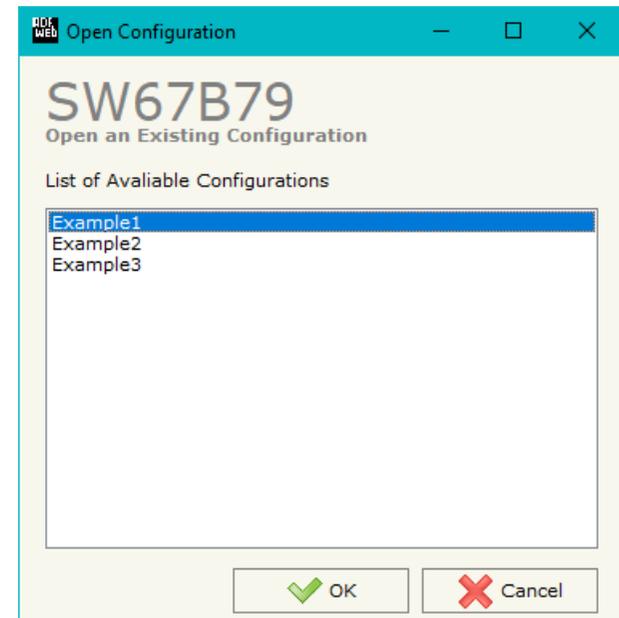
SOFTWARE OPTIONS:

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.
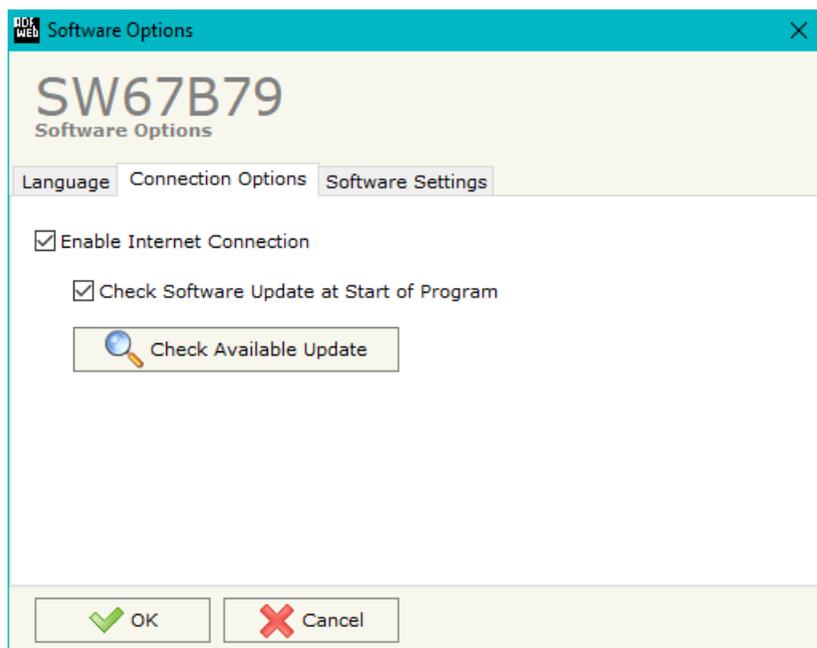
In the section "Connection Options", it is possible to check if there are some updatings of the software compositor in ADFweb.com website.
Checking the option "**Check Software Update at Start of Program**", the SW67B79 check automatically if there are updatings when it is launched.
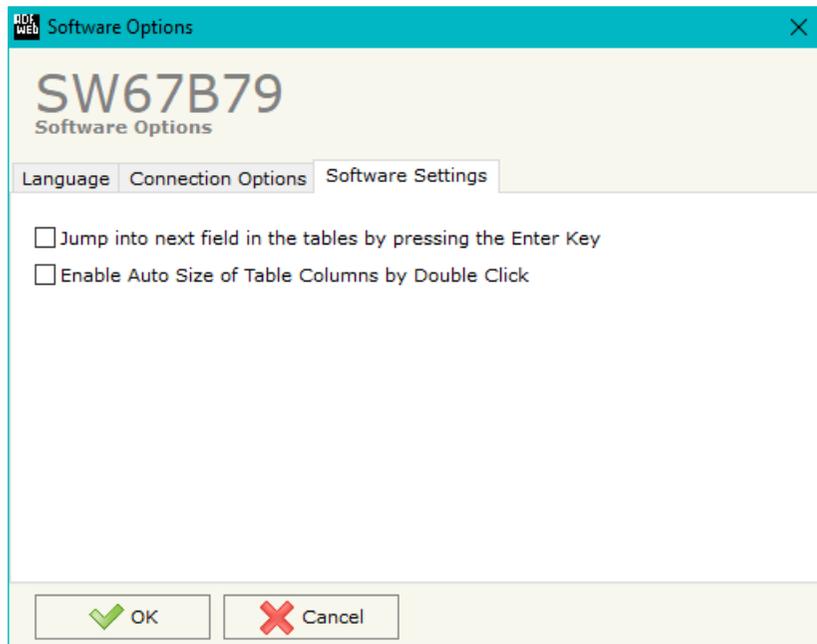
In the section "Software Settings", it is possible to enable/disable some keyboard's commands for an easier navigation inside the tables contained in the different sections of the software.

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SET COMMUNICATION:

This section define the fundamental communication parameters of two buses, PROFINET and KNX.

By Pressing the "**Set Communication**" button from the main window for SW67B79 (Fig. 2) the window "Set Communication" appears (Fig. 3).

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

➔ In the field "**IP Address**" the IP address for PROFINET side of the converter is defined;

➔ In the field "**SubNet Mask**" the SubNet Mask for PROFINET 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 "**Name of Station**" the name of PROFINET side of the converter is defined.

The means of the fields for "KNX" are:

➔ In the field "**Type**" the type of KNX is defined (fixed to 'KNX TP');

➔ In the field "**ID Device**" the ID of the KNX side of the converter is defined.
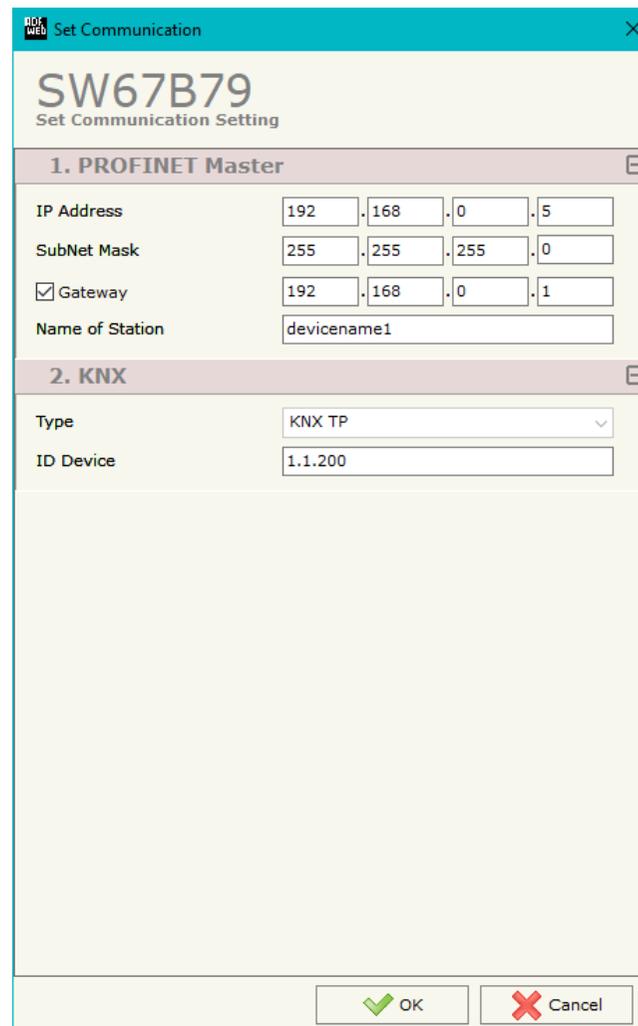
Figure 3: "Set Communication" window

PROFINET ACCESS:

By Pressing the "**PROFINET Access**" button from the main window for SW67B79 (Fig. 2) the window "Definition of PROFINET Devices Present in Network" appears (Fig. 4).

This section is used to define the list of the PROFINET slaves to read/write with the PROFINET Master. It is possible to add the PROFINET slaves from the hardware catalog. If a new device will be connected, it is possible to instal the GSDML file.
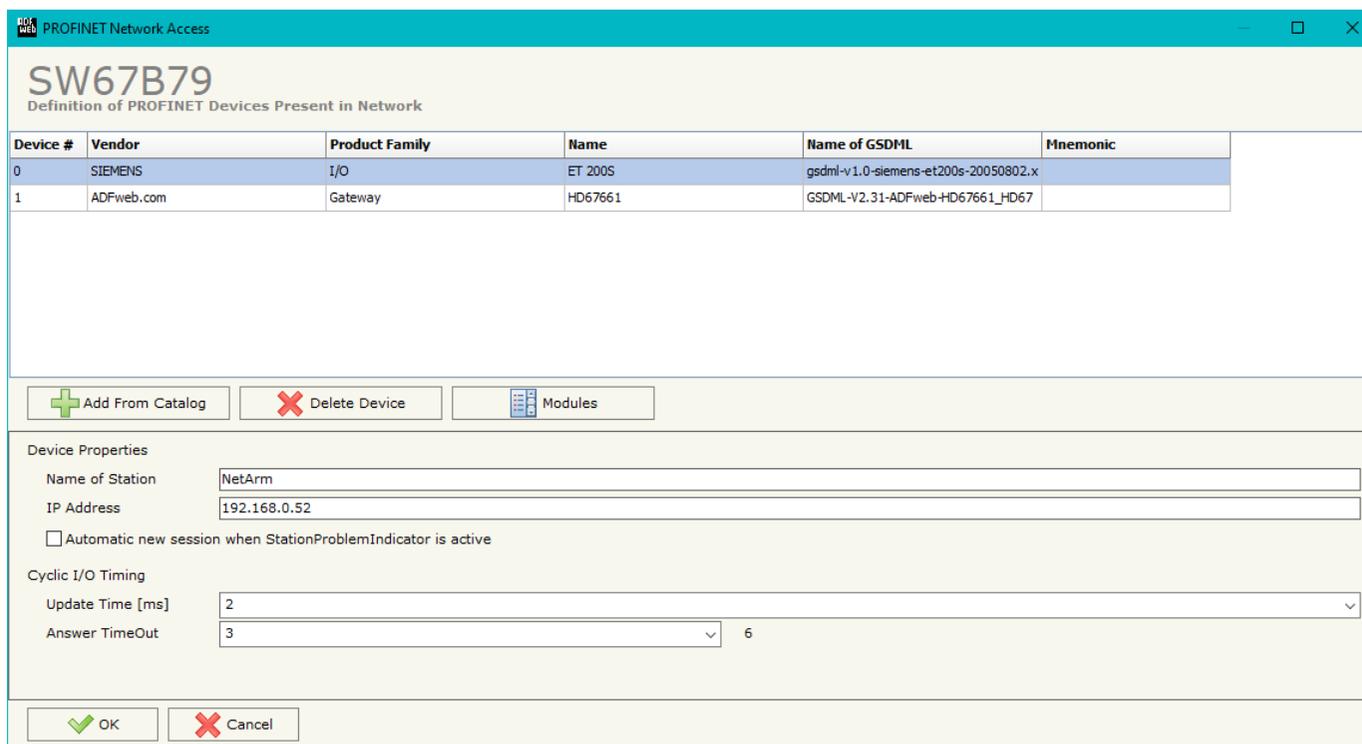

Figure 4: "Definition of PROFINET Devices Present in Network" window

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The means of the fields below are:

- In the field "**Name of Station**" is checked, the name of the PROFINET slave is defined;
- In the field "**IP Address**" the IP Address of the PROFINET slave is defined;
- If the field "**Automatic new session when StationProblemIndicator is Active**" is checked, the converter opens a new communication session when an error is present in the slave station;
- In the field "**Update Time [ms]**" the delay used for IO communication is defined;
- In the field "**Answer TimeOut**" the allowed number of cycles without response from the slave is defined.

⚠ Warning:
The data from/to the slaves are mapped consecutively into the IN/OUT PROFINET arrays, following the order with which they are defined.

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By clicking on "**Modules**" button, it is possible to import the modules for the selected PROFINET slave device. The window "Definition Module and/or Submodules of PROFINET Device" appears (Fig. 5). In the main table it is possible to import the Modules of the PROFINET device in use. In the properties below, it is possible to set the parameters of the slave. These options depends on the slave in use, refer to the manual of the PROFINET device.
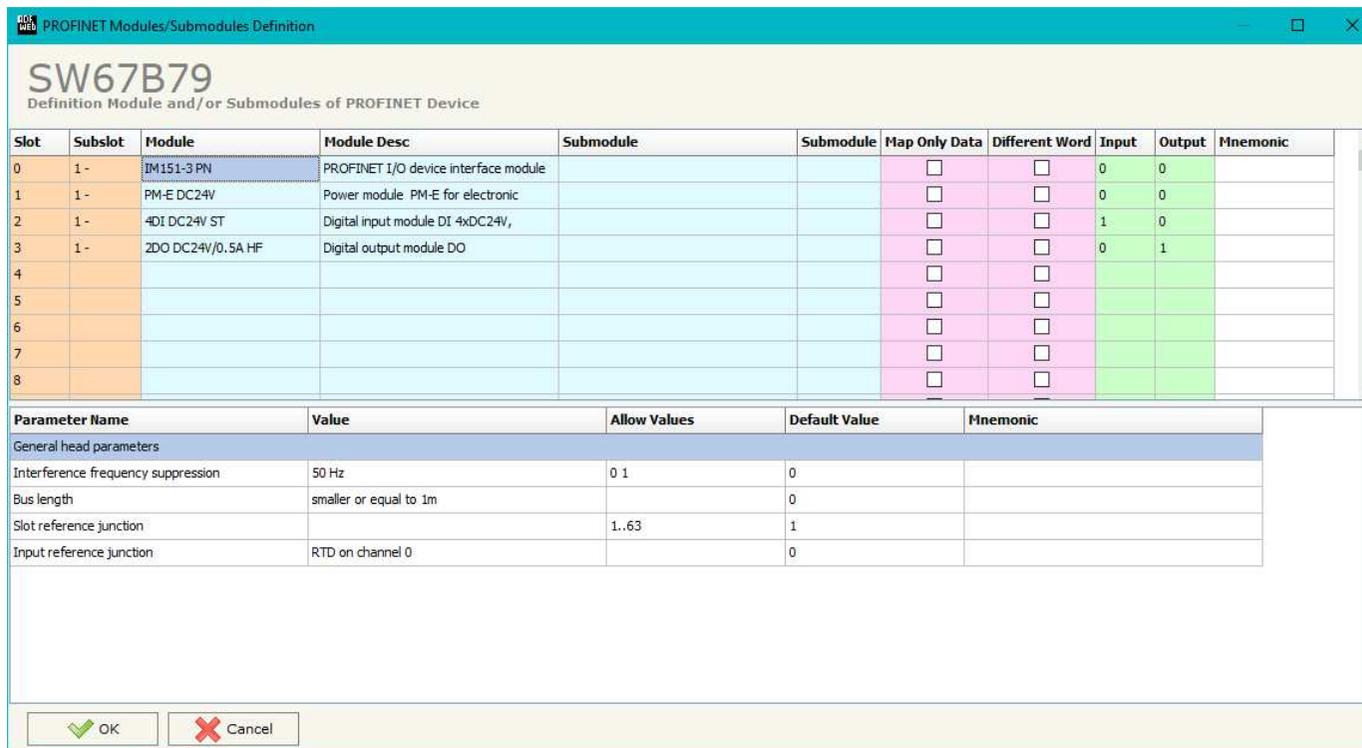

Figure 5: "Definition Module and/or Submodules of PROFINET Device" window

The means of the checkboxes inside the table are:

* If the field "**Map Only Data**" is checked, only the data of the modules are mapped into the KNX map. Otherwise, for each module there will be the status of IN and OUT areas too (1 byte);
* If the field "**Different Word**" is checked, the data of the different modules are mapped in different and consecutive words.

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KNX ACCESS:

By pressing the "**KNX Access**" button from the main window for SW67B79 (Fig. 2) the "KNX Access" window appears (Fig. 6).

The means of the fields are:

Figure 6: "KNX Set Access" window

- If the field "**Enable**" is checked, the KNX message is enabled;

- In the field "**Source Address**" the Source Address to assign to the KNX message is defined;

- In the field "**Dest/Group**" the Group address (2 level structure, 3 level structure or free address structure) or the device address is defined. In case of Group address, the levels must be separated by '/', in case of Device address, the parts of the address must be separated by '.';

- In the field "**APCI**" the APCI of the KNX message is defined. You can choose between the following:
  - o Read: it is used to send a reading request to a KNX device;
  - o Write: it is used to send a writing request to a KNX device;
  - o Specific value (edited manually).

- In the field "**Priority**" the Priority of the KNX message is defined. You can choose between the following:
  - o System (Highest);
  - o Urgent;
  - o Normal;
  - o Low (Lowest).

- In the field "**Format**" the data format of the KNX message is defined;

- If the field "**Extended**" is checked, the extended format of the KNX message is used;

- If the field "**ReTest**" is checked, the KNX message is re-sent in case of not correct response;

- If the field "**OnCMD**" is checked, the KNX request is sent when a PROFINET response is received;

- If the field "**On Change**" is checked, the gateway sends the KNX command when the data on PROFINET change the value;

- If the field "**On Timer**" is checked, the gateway sends the KNX command cyclically;

- In the field "**Poll Time**" the delay in ms between two KNX commands is defined (if "On Timer" is checked);

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- In the field "**Position**" insert the address of the PROFINET array where placing the information;
- In the field "**Bit Mode**" insert the start bit of the first byte of the field "Position" where starting to insert the data read;
- In the field "**Lenght**" the dimension of the KNX message is defined;
- In the field "**Mnemonic**" the description for the request is defined.

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

Note:
If the field "OnCMD", "OnChange" and "OnTimer" are not checked, the converter only sniffs the bus in order to monitor the status of the KNX message.

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.

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.

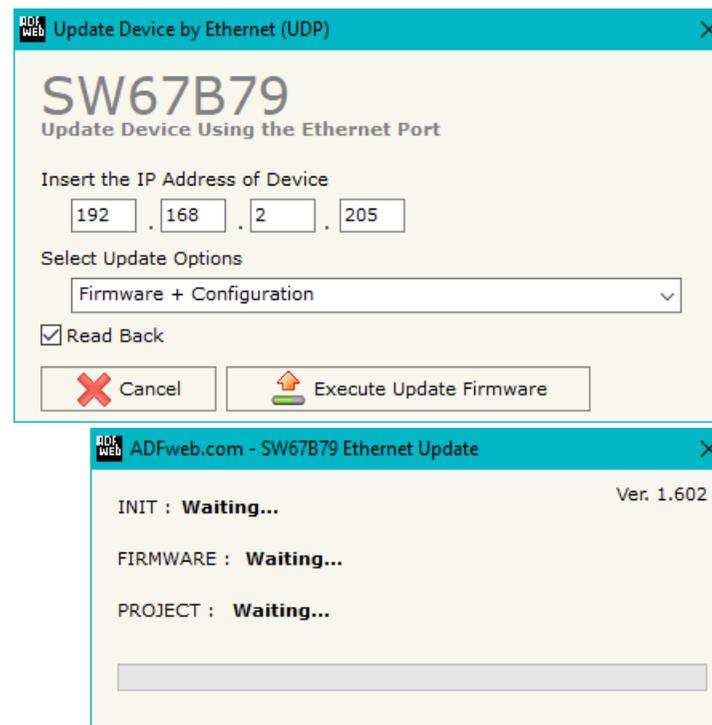At this point the configuration/firmware on the device is correctly updated.

Figure 7: "Update device" windows

Note:
When you receive the device, for the first time, you also have to update the Firmware in the HD67B79 device.

Warning:
If Fig. 8 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 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;
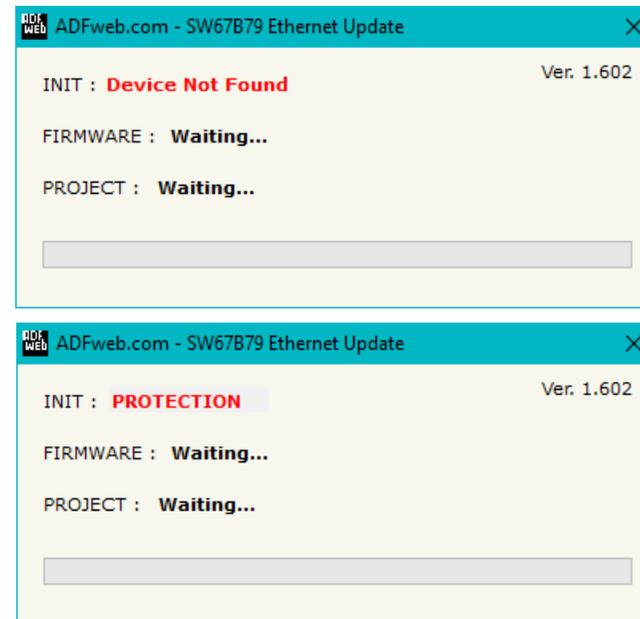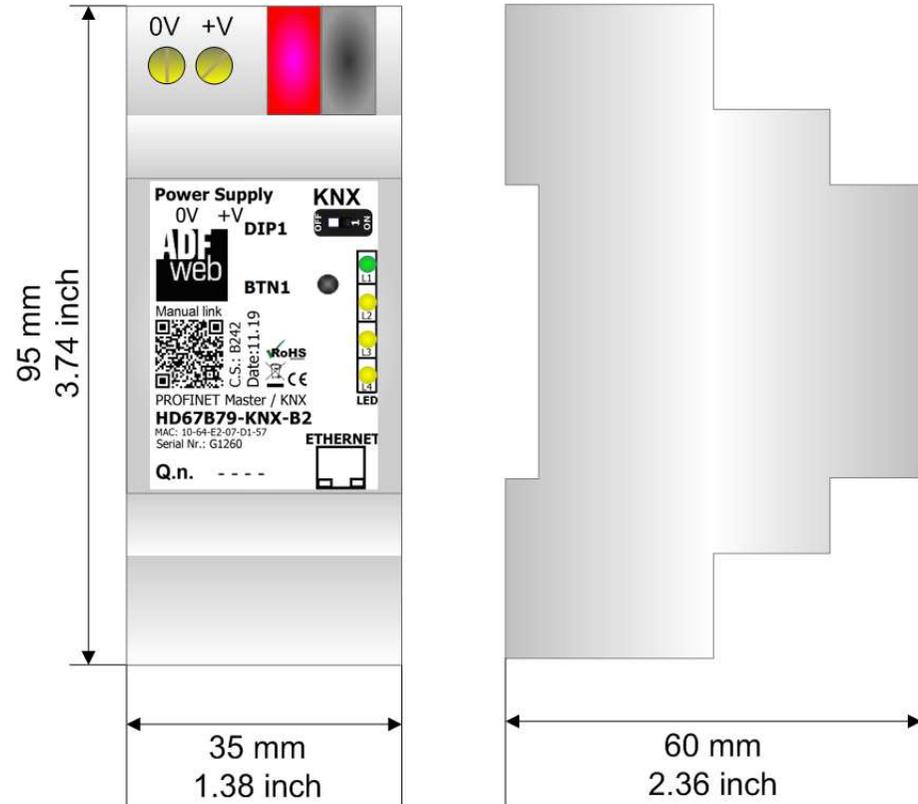
Pay attention at Firewall lock.

Figure 8: "Error" window

Warning:
In the case of HD67B79 you have to use the software "SW67B79": www.adfweb.com\download\filefold\SW67B79.zip.
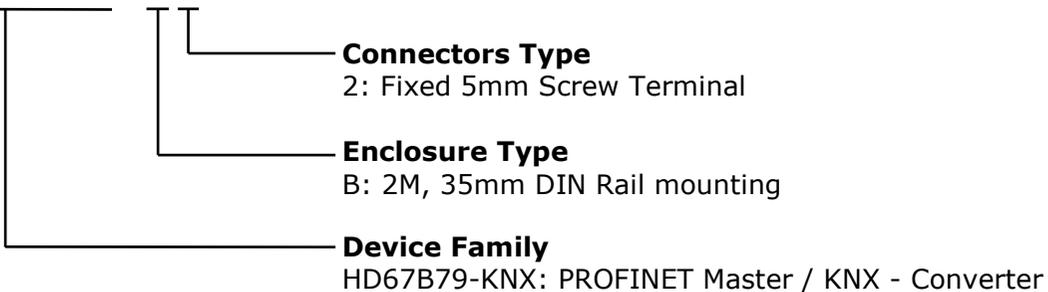
MECHANICAL DIMENSIONS:

Figure 9: Mechanical dimensions scheme for HD67B79-KNX-B2

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ORDERING INFORMATIONS:

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

HD67B79 – KNX – B 2

Connectors Type
2: Fixed 5mm Screw Terminal

Enclosure Type
B: 2M, 35mm DIN Rail mounting

Device Family
HD67B79-KNX: PROFINET Master / KNX - Converter

Order Code: **HD67B79-KNX-B2 -**   PROFINET Master / KNX - 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

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OTHER REGULATIONS AND STANDARDS:

WEEE INFORMATION

Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and 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.