ADFweb

Industrial Electronic Devices

User Manual
Revision 1.000
English

IO-Link / MQTT - Converter
(Order Code: HD67873-A1-2A, HD67873-A1-4A,
HD67873-A1-2B, HD67873-A1-2A-2B)

Benefits and Main Features:

　Triple electrical isolation

　Two Ethernet ports

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

INFO: www.adfweb.com   *Phone +39.0438.30.91.31*

INDEX:

UPDATED DOCUMENTATION:

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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	13/03/2020	Ff	All	First release version

WARNING:

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ADFweb.com is not responsible for any error this manual may contain.

TRADEMARKS:

All trademarks mentioned in this document belong to their respective owners.

SECURITY ALERT:

GENERAL INFORMATION
To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device, legal and safety regulation are required for each individual application. The same applies also when using accessories.

INTENDED USE
Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

QUALIFIED PERSONNEL
The device can be used only by qualified personnel, strictly in accordance with the specifications.
Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

RESIDUAL RISKS
The device is state-of-the-art and is safe. The instruments can represent a potential hazard if they are inappropriately installed and operated by untrained personnel. These instructions refer to residual risks with the following symbol:
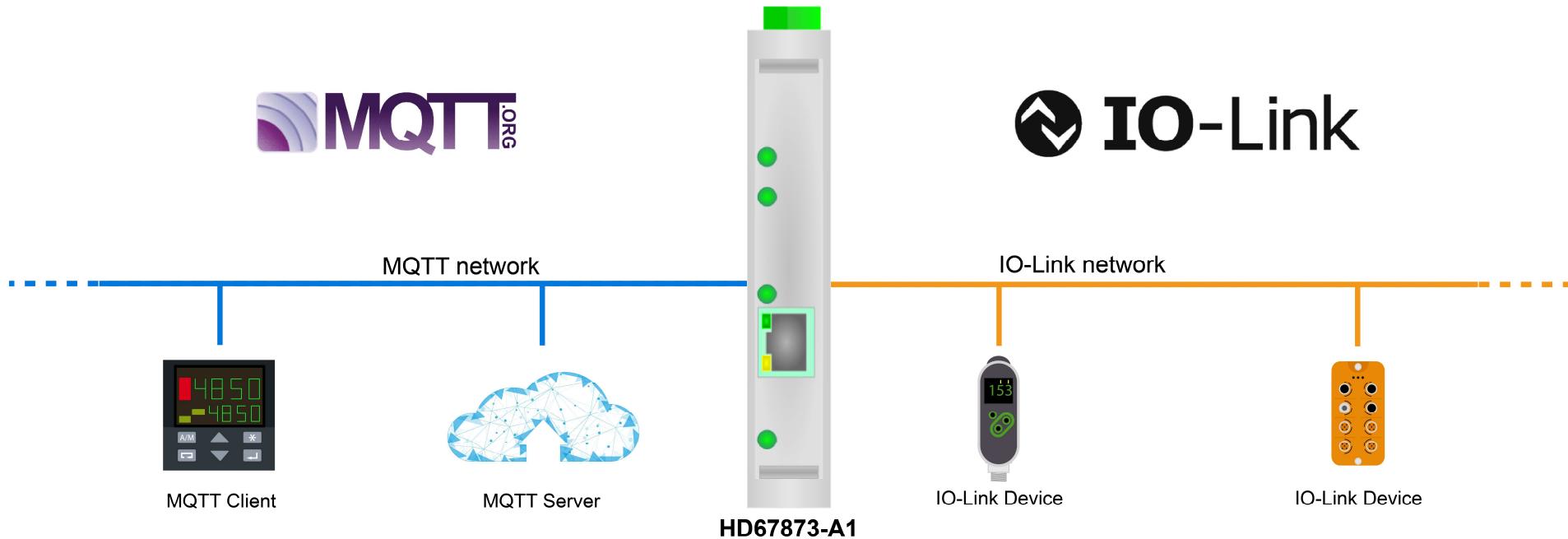
⚠️ This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

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

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EXAMPLE OF CONNECTION:

IO-Link / MQTT - Converter
HD6873-A1

MQTT network

IO-Link network

MQTT Client

MQTT Server

HD67873-A1

IO-Link Device

IO-Link Device

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CONNECTION SCHEME:
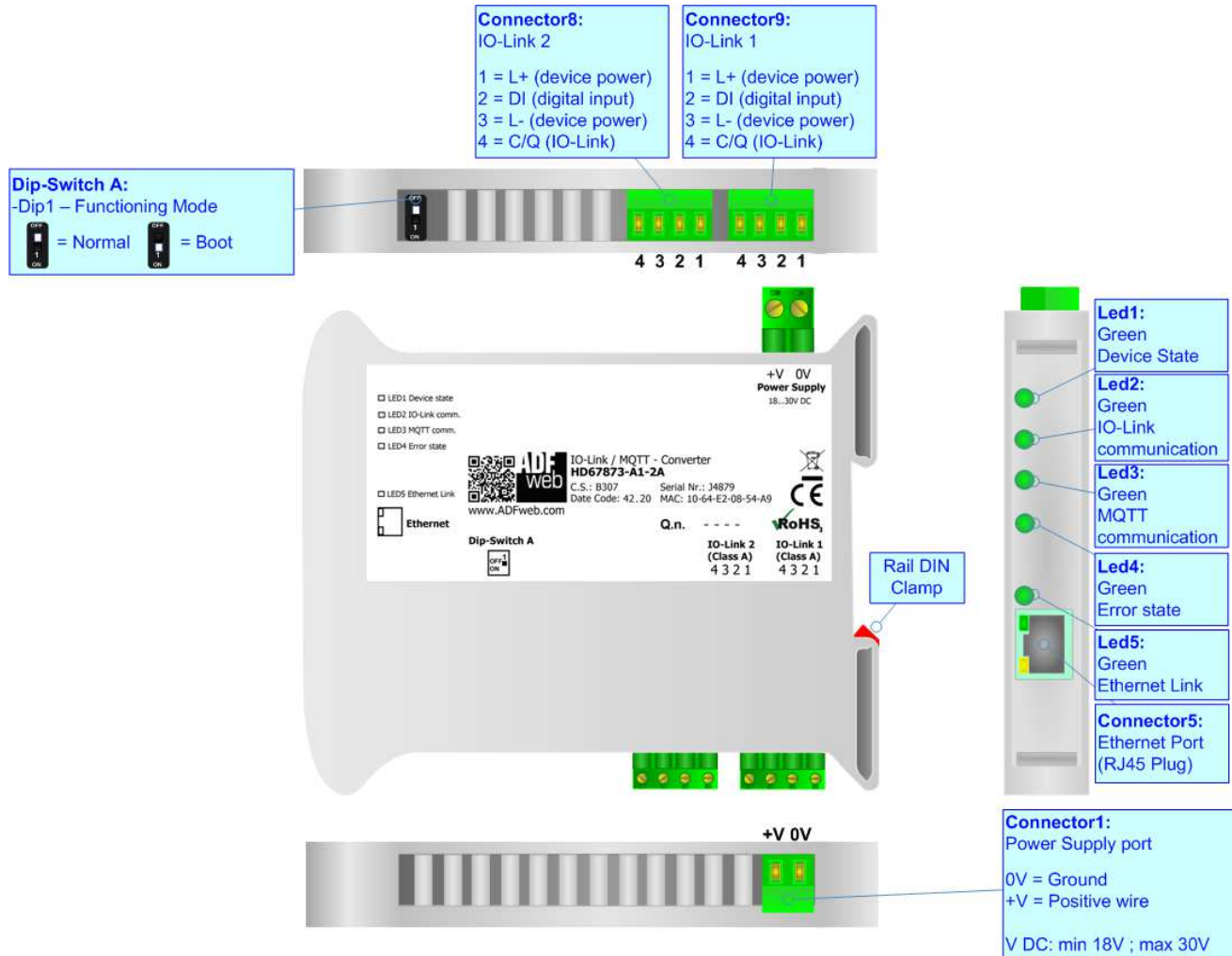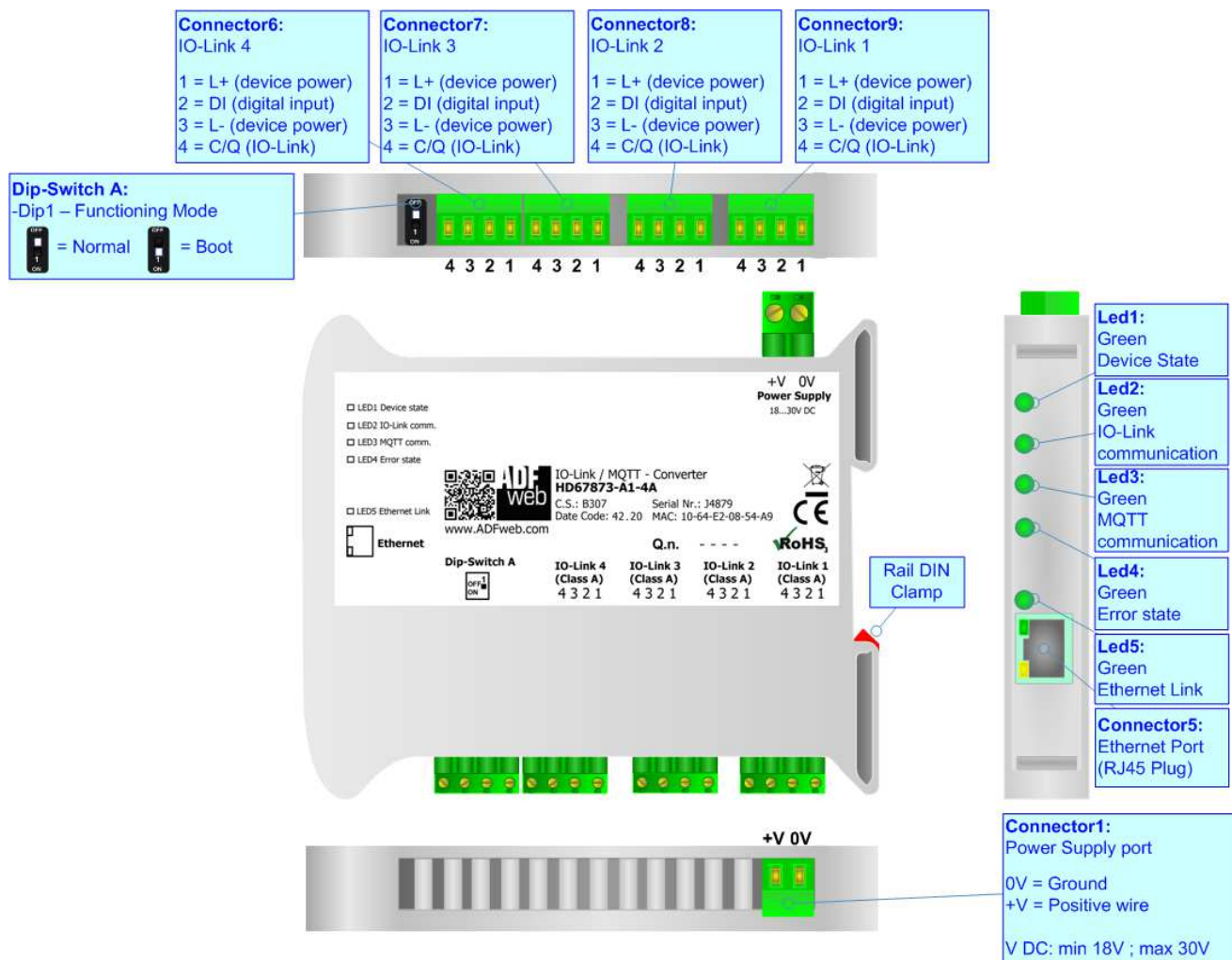

Figure 1a: Connection scheme for HD67873-A1-2A

Connector6:
IO-Link 4

1 = L+ (device power)
2 = DI (digital input)
3 = L- (device power)
4 = C/Q (IO-Link)

Connector7:
IO-Link 3

1 = L+ (device power)
2 = DI (digital input)
3 = L- (device power)
4 = C/Q (IO-Link)

Connector8:
IO-Link 2

1 = L+ (device power)
2 = DI (digital input)
3 = L- (device power)
4 = C/Q (IO-Link)

Connector9:
IO-Link 1

1 = L+ (device power)
2 = DI (digital input)
3 = L- (device power)
4 = C/Q (IO-Link)

Dip-Switch A:
-Dip1 – Functioning Mode

▇ = Normal   ▇ = Boot

Led1:
Green
Device State

Led2:
Green
IO-Link
communication

Led3:
Green
MQTT
communication

Led4:
Green
Error state

Led5:
Green
Ethernet Link

Connector5:
Ethernet Port
(RJ45 Plug)

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V DC: min 18V ; max 30V

Rail DIN Clamp

Figure 1b: Connection scheme for HD67873-A1-4A

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Connector8:
IO-Link 2

1 = L+ (device power)
2 = P24 (output power)
3 = L- (device power)
4 = C/Q (IO-Link)
5 = N24 (output power)

Connector9:
IO-Link 1

1 = L+ (device power)
2 = P24 (output power)
3 = L- (device power)
4 = C/Q (IO-Link)
5 = N24 (output power)

Dip-Switch A:
-Dip1 – Functioning Mode

= Normal   = Boot

5 4 3 2 1   5 4 3 2 1

+V 0V   +V 0V
Aux Power Supply **Power Supply**
24V DC   18...30V DC

☐ LED1 Device state
☐ LED2 IO-Link comm.
☐ LED3 MQTT comm.
☐ LED4 Error state

☐ LED5 Ethernet Link

Ethernet

IO-Link / MQTT - Converter
HD67873-A1-2B
C.S.: B307   Serial Nr.: J4879
Date Code: 42.20   MAC: 10-64-E2-08-54-A9
www.ADFweb.com

Q.n.   - - - -   ✓RoHS₂

Dip-Switch A   IO-Link 2   IO-Link 1
                    (Class B)   (Class B)
                    5 4 3 2 1   5 4 3 2 1

Rail DIN Clamp

Led1:
Green
Device State

Led2:
Green
IO-Link communication

Led3:
Green
MQTT communication

Led4:
Green
Error state

Led5:
Green
Ethernet Link

Connector5:
Ethernet Port
(RJ45 Plug)

+V 0V   +V 0V

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V DC: min 18V ; max 30V

Connector2:
Aux Power Supply port
(for IO-Link ports Type B)

0V = Ground
+24V DC = Positive wire

Figure 1c: Connection scheme for HD67873-A1-2B

Figure 1d: Connection scheme for HD67873-A1-2A-2B

Industrial Electronic Devices

CHARACTERISTICS:

The HD67873-A1 is a IO-Link / MQTT converter.

It allows the following characteristics:

- Up to 1440 bytes in reading and 1440 bytes in writing;
- Two-directional information between MQTT and IO-Link;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 18…30V DC;
- Wide temperature range: -40°C / 85°C [-40°F / +185°F].

CONFIGURATION:

You need Compositor SW67873 software on your PC in order to perform the following:

- Define the parameters of IO-Link;
- Define the parameters of MQTT;
- Define IO-Link variables to be read by MQTT;
- Define IO-Link variables to be written by MQTT;
- Update the device.

POWER SUPPLY:

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

	VDC ⎓	
	Vmin	**Vmax**
HD67873-A1-xx	**18V**	**30V**

Consumption at 24V DC:

Device	W/VA
HD67873-A1-xx	4

⚠ Warning:
    It is necessary to add to this consumption the one required by the IO-Link devices connected to the IO-Link channels.

⚠ **Caution: Not reverse the polarity power**
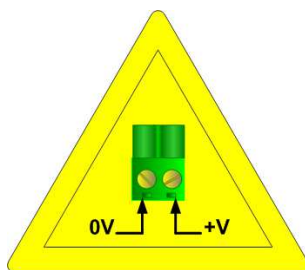
HD67873-A1-xx

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V DC: min 18V ; max 30V

0V +V

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V DC: min 18V ; max 30V

0V +V

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: IO-Link comm. (green)	**Flashing:** IO-Link communication **OFF:** No IO-Link communication	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: MQTT comm. (green)	**Flashing:** MQTT communication **OFF:** No MQTT communication	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: Error state (green)	**ON:** at least one IO-Link device is not communicating **OFF:** No errors are present	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
5: Ethernet Link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable not connected	**ON:** Ethernet cable connected **OFF:** Ethernet cable not connected
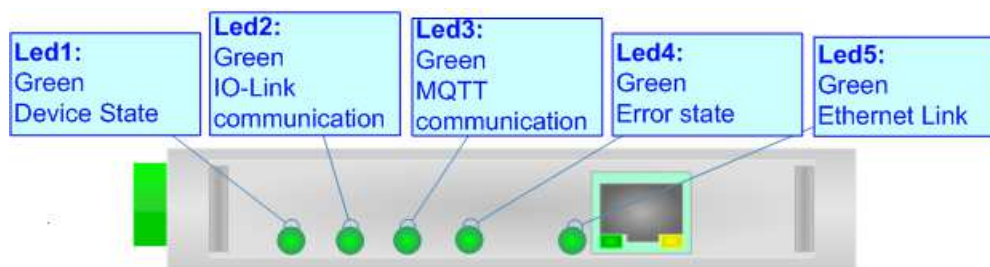
IO-LINK

IO-Link is the first globally standardized IO technology (IEC 61131-9) that communicates from the controller down to the lowest automation level. This universally applicable interface is a fieldbus-neutral point-to-point connection which uses standard unshielded cables. IO-Link sends all the sensor and actuator signals to the controller and in turn carries controller data to the sensor/actuator level with revolutionary consequences.
It is possible to have IO-Link device of two different type: IO-Link Class A and IO-Link Class B. ADFweb.com's converters can manage both of them in relation to the product code selected.

IO-LINK CLASS A:

IO-Link Class A devices uses 4 pins on connectors and the input power required can be up to 200mA. These devices are normally sensors and actuators that don't require high input power.

Connector6: IO-Link 4	Connector7: IO-Link 3	Connector8: IO-Link 2	Connector9: IO-Link 1
1 = L+ (device power) 2 = DI (digital input) 3 = L- (device power) 4 = C/Q (IO-Link)	1 = L+ (device power) 2 = DI (digital input) 3 = L- (device power) 4 = C/Q (IO-Link)	1 = L+ (device power) 2 = DI (digital input) 3 = L- (device power) 4 = C/Q (IO-Link)	1 = L+ (device power) 2 = DI (digital input) 3 = L- (device power) 4 = C/Q (IO-Link)
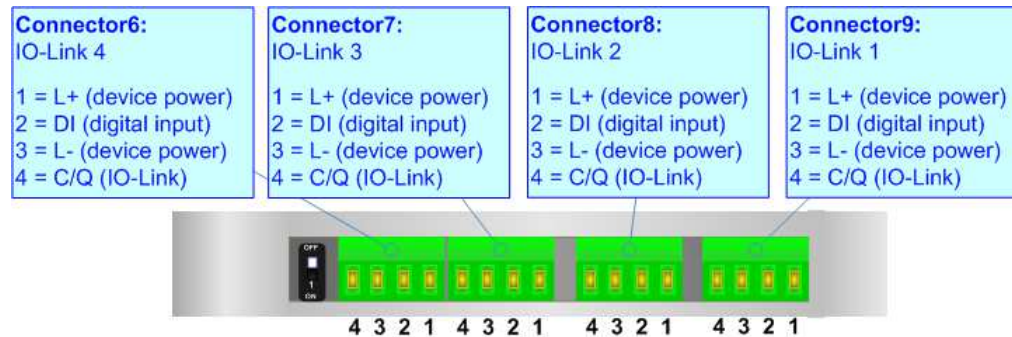
IO-LINK CLASS B:

IO-Link Class B devices uses 5 pins on connectors and they require an additional aux power supply used for the actuation. These devices are normally actuators.
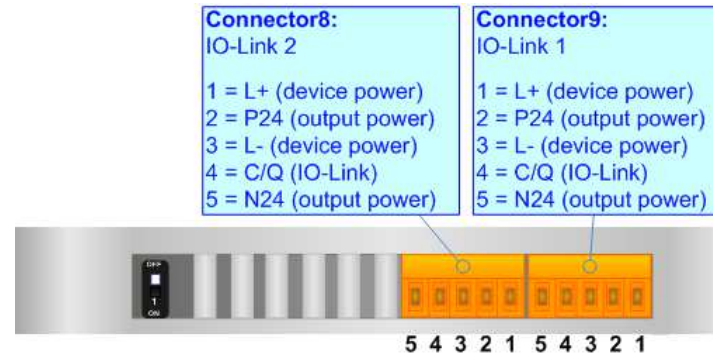

AUX POWER SUPPLY (for IO-Link Class B):

The Aux Power Supply port is used to provide the additional power supply for the IO-Link Class B. The input voltage is fixed to 24 V DC and the current depends on the input power required by the IO-Link devices connected to the IO-Link channels Class B.
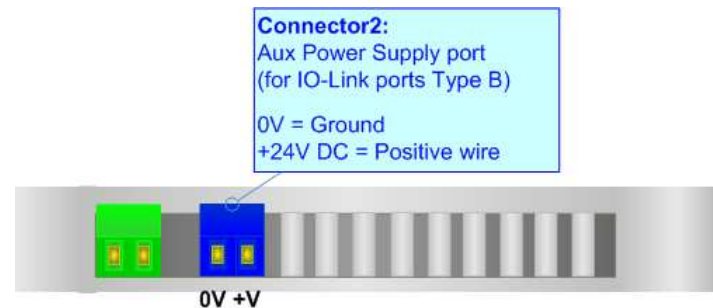
ETHERNET:

The Ethernet connection must be made using Connector5 of HD67873-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/PLC/other is recommended the use of a cross cable.

Connector5:
Ethernet Port
(RJ45 Plug)
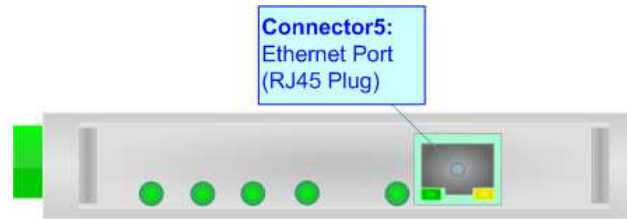
USE OF COMPOSITOR SW67873:

To configure the Converter, use the available software that runs with Windows called SW67873. 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 SW67873, the window below appears (Fig. 2).

Note:
It is necessary to have installed .Net Framework 4.
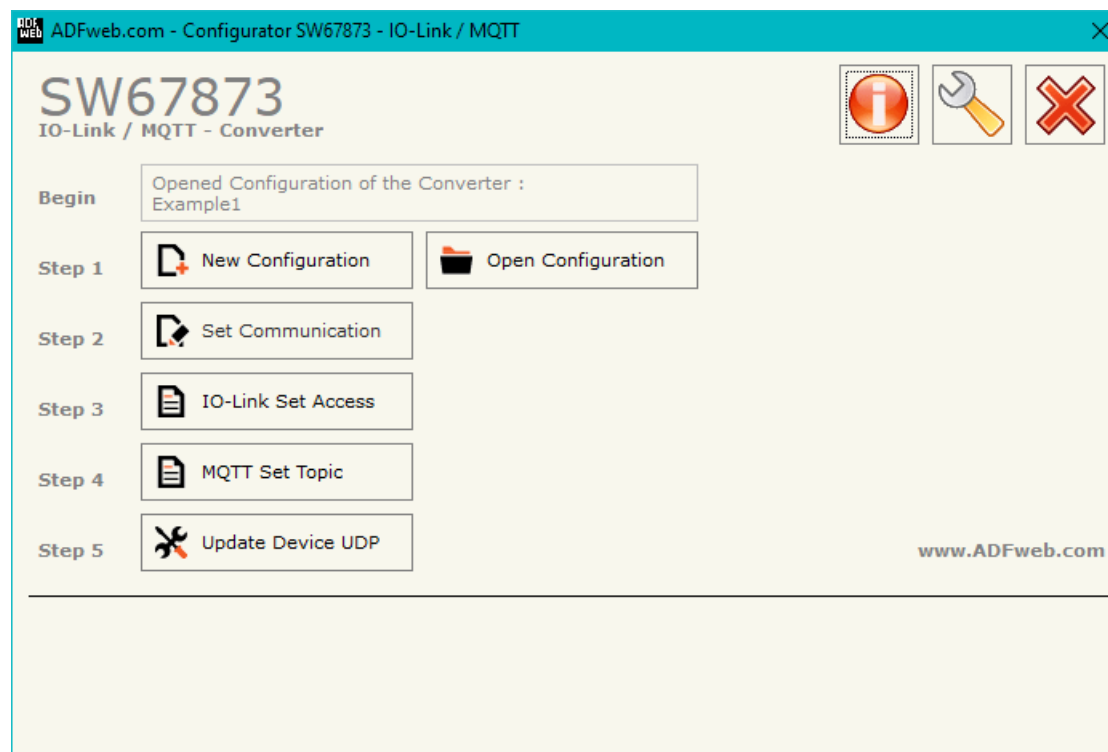
Figure 2: Main window for SW67873

NEW CONFIGURATION / OPEN CONFIGURATION:

The "**New Configuration**" button creates the folder which contains the entire device's configuration.
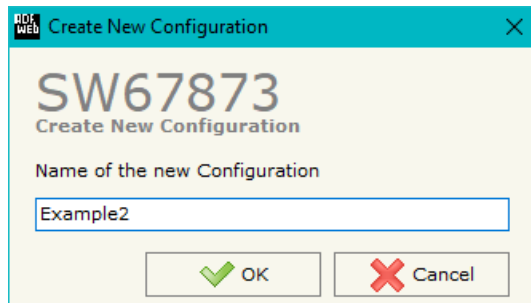
A device's configuration can also be imported or exported:

➔ To clone the configurations of a programmable "IO-Link / MQTT - 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**".
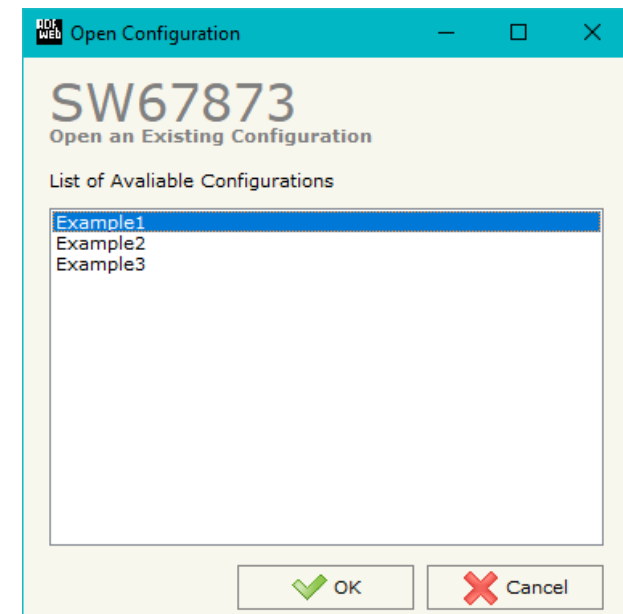
SOFTWARE OPTIONS:

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.
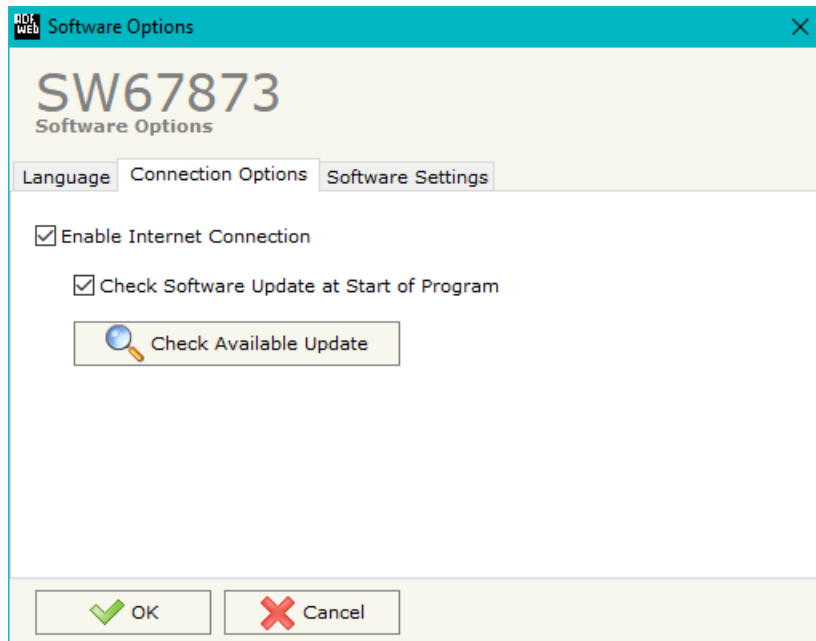
In the section "Connection Options", it is possible to check if there are some updatings of the software compositor in ADFweb.com website.
Checking the option "**Check Software Update at Start of Program**", the SW67873 check automatically if there are updatings when it is launched.
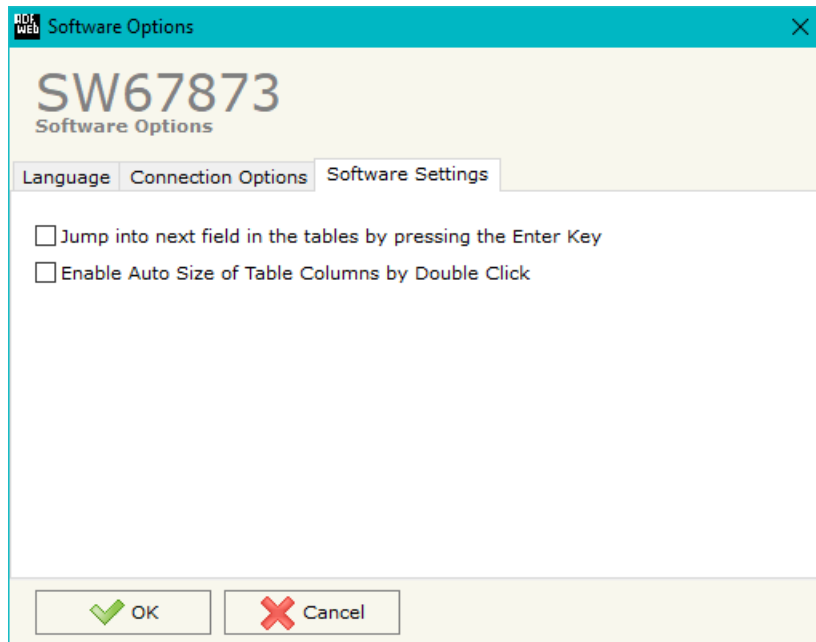
In the section "Software Settings", it is possible to enable/disable some keyboard's commands for an easier navigation inside the tables contained in the different sections of the software.

Software Options

SW67873
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

Industrial Electronic Devices

SET COMMUNICATION:

By Pressing the "**Set Communication**" button from the main window for SW67873 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The window is divided in different sections in order to define the different parameters of the converter:

- IO-Link
- MQTT
- Ethernet
- Wi-Fi
- TLS (Transport Layer Security)
- NTP (Network Time Protocol)

SW67873
Set Communication Setting

1. IO-Link
2. MQTT
3. Ethernet
4. Wi-Fi
5. TLS (Transport Layer Security)
6. NTP (Network Time Protocol)

OK   Cancel
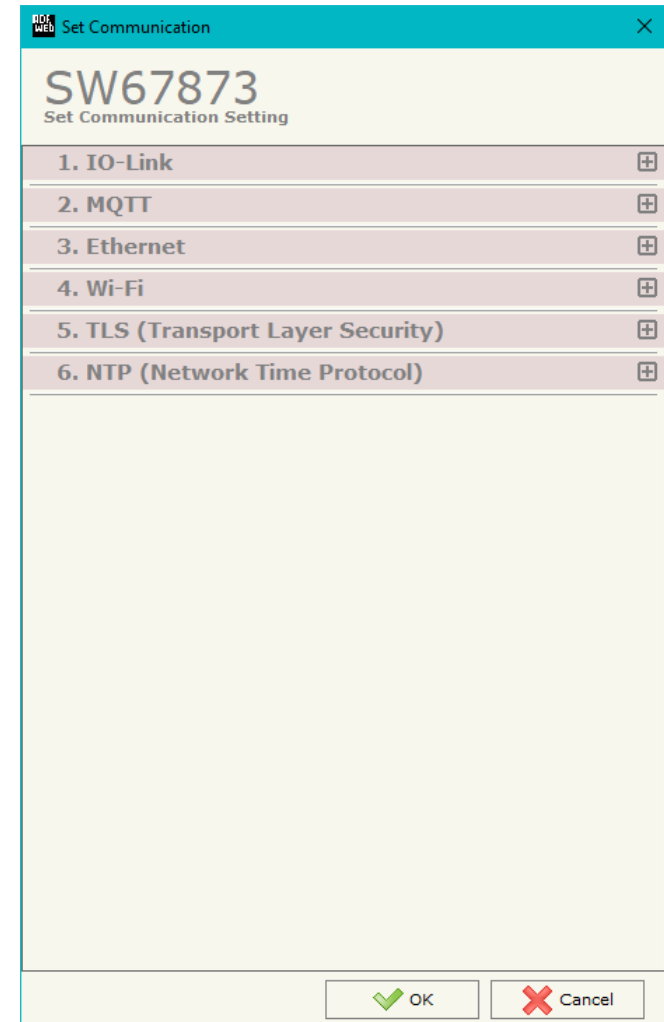
Figure 3a: "Set Communication" window

IO-LINK:

This section is used to define the main parameters of IO-Link line. The means of the fields are:

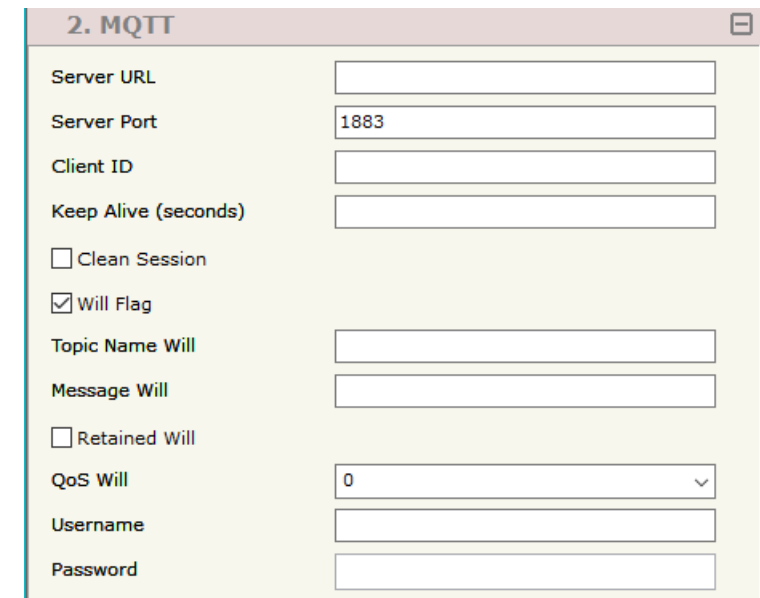- In the fields "**Select Device**" the type of IO-LINK channels is defined.

Figure 3b: "Set Communication → IO-Link" window

MQTT:

This section is used to define the main parameters of MQTT line. The means of the fields are:

- In the field "**Server URL**" the URL or the IP Address of the MQTT Server is defined;
- In the field "**Server Port**" the port used for MQTT communication is defined;
- In the field "**Client ID**" the Client ID of the converter is defined (if ned);
- In the field "**Keep Alive (seconds)**" the delay with which the Keep Alive message is sent on MQTT is defined;
- If the field "**Clean Session**" is checked, the last MQTT messages are deleted by the Server and the Client in case of missing ACK. If unchecked, the Server and the Client hold the last MQTT messages and, in case of incorrect disconnection or missing ACK, they try to send again them since all the ACK messages are exchanged correctly (valid only for QoS 1 and QoS 2);
- If the field "**Will Flag**" is checked, the converter will publish the Will topic at the connection to the Server. With this feature, in case of incorrect disconnection, the Server will publish this topic to all the MQTT Clients that subscribed it;

Figure 3c: "Set Communication → MQTT" window

- In the field "**Topic Name Will**" the topic used for Will message is defined;
- In the field "**Message Will**" the payload of the Will message is defined;
- In the field "**Retained Will**" the converter will send the Will message with Retain flag enabled. In this way, the Server will hold the last Will message;
- In the field "**QoS Will**" the QoS type for Will message is defined;
- Im the field "**Username**" the username for the connection to the MQTT server is defined;
- In the field "**Password**" the password for the connection to the MQTT server is defined.

ETHERNET:

This section is used to define the general parameters of Ethernet. The means of the fields are:

➜ In the field "**Ip Address**" the IP address of the converter is defined;
➜ In the field "**SubNet Mask**" the Subnet Mask 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.
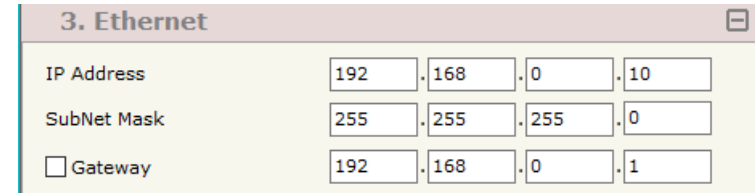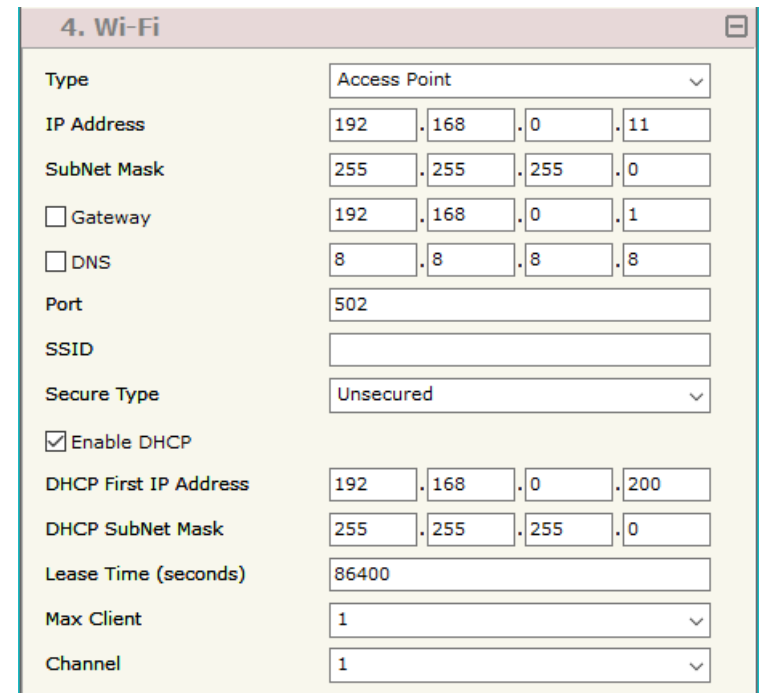
Figure 3d: "Set Communication → Ethernet" window

WI-FI:

This section is used to define the general parameters of Wi-Fi. It is possible to defined the type of Wi-Fi communication:

➜ Access Point;
➜ Client.

The means of the fields for Access Point configuration are:

➜ In the field "**IP Address**" the IP address of the converter is defined;
➜ In the field "**Subnet Mask**" the SubNet Mask of the converter is defined;
➜ In the field "**GATEWAY**" the default gateway of the net is defined. This feature can be enabled or disabled pressing the Check Box field. This feature is used for going out of the net;
➜ In the field "**DNS**" the DNS address is defined. This field is required if the server address is define by URL and not IP Address.
➜ In the field "**Port**" the port used for MQTT communication is defined;
➜ In the field "**SSID**" the name of the Wi-Fi network to create is defined;
➜ In the field "**Password**" the password used for Wi-Fi connection is defined;
➜ In the field "**Type**" the type of security protocol used by the Wi-Fi network is defined;

Figure 3e: "Set Communication → Wi-Fi" window

Industrial Electronic Devices

- If the field "**Enable DHCP**" is checked, the converter acts as DHCP Server for the Clients connected. If the option is enabled, in the fields "**DHCP First IP Address**" and "**DHCP SUBNET Mask**" the IP Addresses range used for DHCP is defined. In the field "**Lease Time (seconds)**" the required time for the renewing of the IP Address assigned to the Client is defined;
- In the field "**Max Client**" the maximum number of Wi-Fi Clients accepted is defined;
- In the field "**Channel**" the channel for Wi-Fi communication is defined.

The means of the fields for Client configuration are:

- If the field "**Obtain an IP Address automatically**" is checked, the converter gets the IP Address using DHCP. Otherwise, the IP Address is defined as static;
- In the field "**IP Address**" the IP address of the converter is defined;
- In the field "**Subnet Mask**" the SubNet Mask of the converter is defined;
- In the field "**GATEWAY**" the default gateway of the net is defined. This feature can be enabled or disabled pressing the Check Box field. This feature is used for going out of the net;
- In the field "**DNS**" the DNS address is defined. This field is required if the server address is define by URL and not IP Address.
- In the field "**Port**" the port used for MQTT communication is defined;
- In the field "**SSID**" the name of the Wi-Fi network to connect is defined;
- In the field "**Password**" the password used to connect to the Wi-Fi network is defined.

Figure 3f "Set Communication → Wi-Fi" window

TLS (TRANSPORT LAYER SECURITY):

This section is used to define the parameters of TLS protocol. The means of the fields are:

➔ If the field "**Enable TLS**" is checked, the TLS protocol for secure connection is enabled;

➔ If the field "**Server Authentication**" is checked, the authentication of the Server using TLS is enabled. If enabled, in the field "**Server Certificate**" the certificate from the Server is defined;

➔ If the field "**Client Authentication**" is checked, the authentication of the Client using TLS is enabled. If enabled:

o in the field "**Client Certificate**" the certificate from the Client is defined;

o in the field "**Client Key**" the private key of the Client is defined;

o in the field "**Client Key Password**" the password for the private key of the Client is defined.
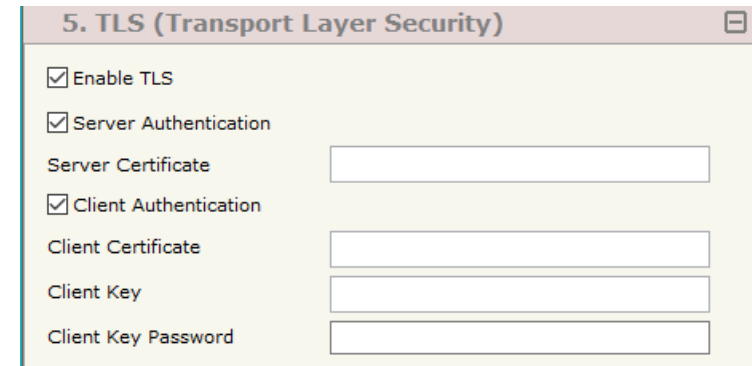

Figure 3g: "Set Communication → TLS" window

NTP (NETWORK TIME PROTOCOL):

This section is used to define the parameters of NTP protocol. The means of the fields are:

➔ In the field "**Server URL**" the URL or the IP Address of the NTP Server is defined;

➔ In the field "**Poll Time (seconds)**" the polling time for the time synchronization is defined.
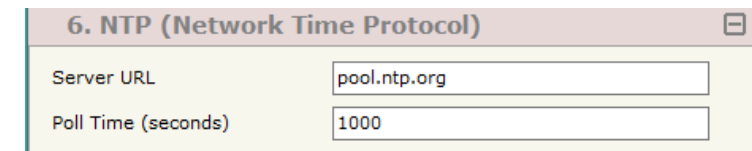

Figure 3h: "Set Communication → NTP" window

IO-LINK SET ACCESS:

By Pressing the "**IO-Link Set Access**" button from the main window for SW67873 (Fig. 2) the window "IO-Link Set Access" appears (Fig. 4).
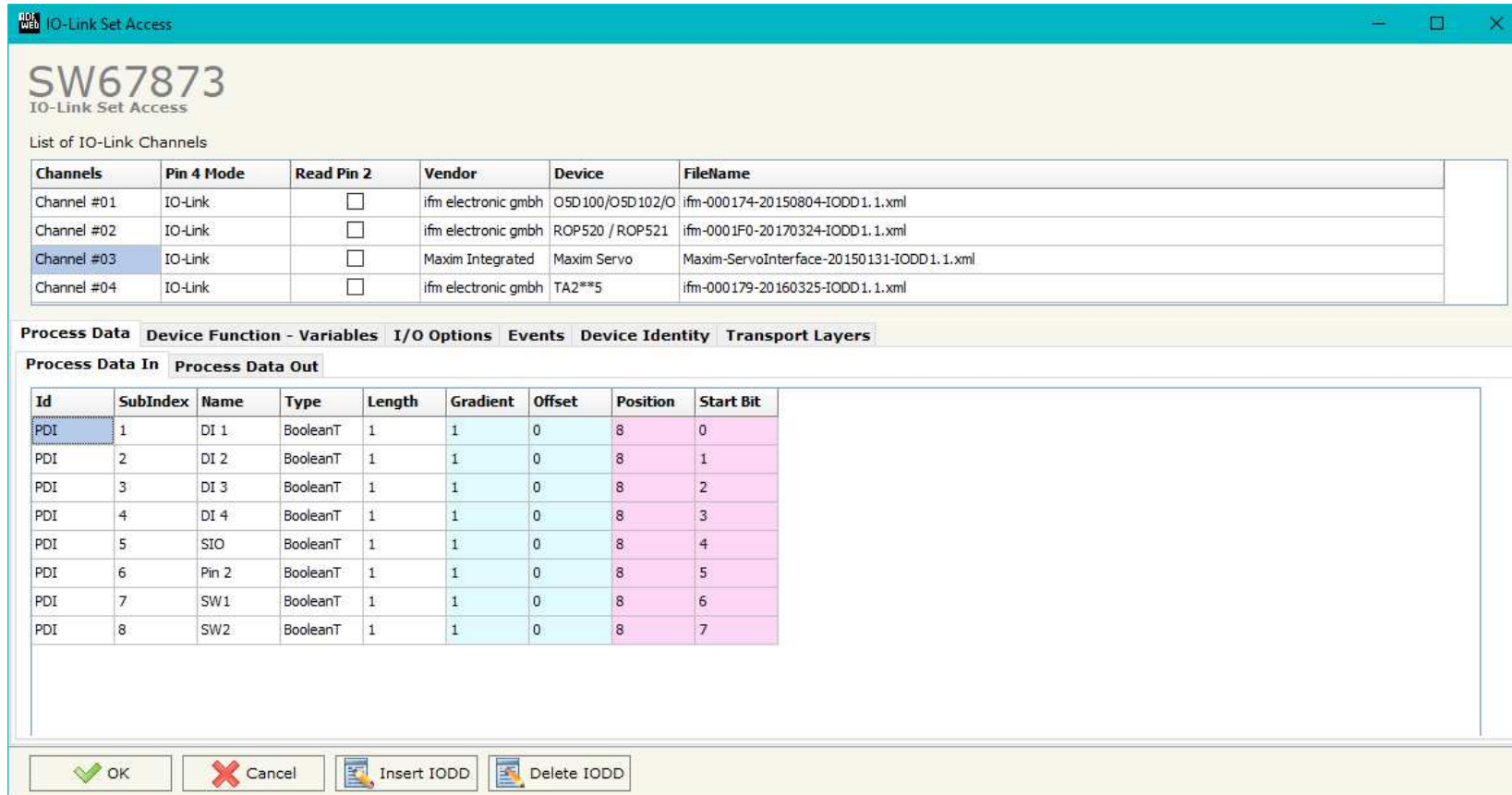This section is used to define the list of IO-Link variables accessible from MQTT side.

Figure 4: "IO-Link Set Access" window

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In the "List of IO-Link Channel" section it is possible to configure all the IO-Link channels of the converter (Fig. 5).

Figure 5: "List of IO-Link Channel" section

The meanings of the fields are:

- In the field "**Channels**" the index of the IO-Link channel is defined;
- In the field "**Pin 4 Mode**" the mode of the pin 4 of the IO-Link device is defined (if "Io-Link" is selected, a file IODD is needed);
- If the field "**Read Pin 2**" is checked, the pin 2 of the IO-Link device is read;
- In the field "**Vendor**" the vendor of the IO-Link device is defined;
- In the field "**Device**" the name of the IO-Link device is defined;
- In the field "**FileName**" the name of the IODD file inserted is defined;

Industrial Electronic Devices

By clicking on "**Insert IODD**", the window "IO-Link IODD Catalog" appears (Fig. 6). This section is used to select an IO-Link device. By clicking on "**Add IODD**" it is possible to add a new IODD file (the extension must be .xml).
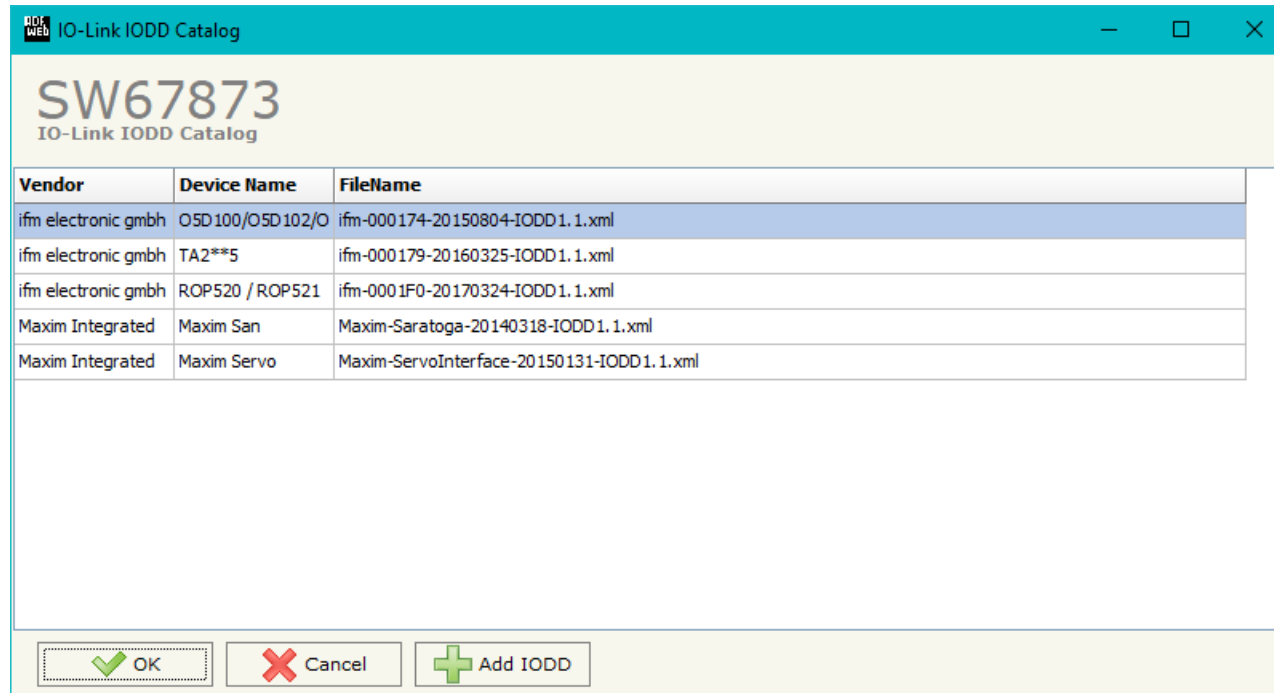

Vendor	Device Name	FileName
ifm electronic gmbh	O5D100/O5D102/O	ifm-000174-20150804-IODD1.1.xml
ifm electronic gmbh	TA2**5	ifm-000179-20160325-IODD1.1.xml
ifm electronic gmbh	ROP520 / ROP521	ifm-0001F0-20170324-IODD1.1.xml
Maxim Integrated	Maxim San	Maxim-Saratoga-20140318-IODD1.1.xml
Maxim Integrated	Maxim Servo	Maxim-ServoInterface-20150131-IODD1.1.xml

Figure 6: "IO-Link IODD Catalog" section

The "Process Data" section is used to define the IO-Link process data to link to MQTT side (Fig. 7).

Id	SubIndex	Name	Type	Length	Gradient	Offset	Position	Start Bit
PDO	1	Servo 1	IntegerT	8	1	0	0	0
PDO	2	Servo 2	IntegerT	8	1	0	1	0
PDO	3	Servo 3	IntegerT	8	1	0	2	0
PDO	4	Servo 4	IntegerT	8	1	0	3	0

Figure 7: "Process Data" section

The meanings of the fields are:

- In the field "**Id**" the Id of the IO-Link process data is defined;
- In the field "**SubIndex**" the subindex of the IO-Link process data is defined;
- In the field "**Name**" the name of the IO-Link process data is defined;
- In the field "**Type**" the data format of the IO-Link process data is defined;
- In the field "**Length**" the bit length of the IO-Link process data is defined;
- In the field "**Gradient**" the multiplication factor of the IO-Link process data is defined;
- In the field "**Offset**" the offset of the IO-Link process data is defined;
- In the field "**Position**" the starting byte of the internal memory arrays where mapping/getting the value is defined;
- In the field "**Start Bit**" the starting bit of the byte of the field "Position" is defined.

The "Device Function – Variables" section is used to define the IO-Link parameters to link to MQTT side (Fig. 8).

The meanings of the fields are:

- In the field "**Index**" the Index of the IO-Link parameter is defined;
- In the field "**SubIndex**" the Subindex of the IO-Link parameter is defined;
- In the field "**Id**" the Id of the IO-Link parameter is defined;
- In the field "**Name**" the name of the IO-Link parameter is defined;
- In the field "**Type**" the data format of the IO-Link parameter is defined;
- In the field "**Access**" the access type of the IO-Link parameter is defined;
- In the field "**Length**" the bit length of the IO-Link parameter is defined;
- In the field "**SindAccSupp**" the value of subindexAccessSupported attribute of the IO-Link parameter is defined;

Figure 8: "Device Function - Variables" section

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- In the field "**TotBitLen**" the bit length of the array to which the IO-Link parameter refers is defined;

- In the field "**BitOff**" the bit offset of the IO-Link parameter is defined;
- In the field "**Default**" the default value of the IO-Link parameter is defined;
- In the field "**Value**" the starting value of the IO-Link parameter is defined;
- In the field "**Description**" a description of the IO-Link parameter is defined.

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The "I/O Options" section is used to define how linking the data from IO-Link pin 2 and pin 4 to MQTT side (Fig. 9).

Figure 9: "I/O Options" section

The meanings of the fields are:

- In the field "**Name**" the name of the IO-Link pin is defined;
- In the field "**Access**" the access of the IO-Link pin is defined;
- In the field "**Position**" the starting byte of the internal memory arrays where mapping/getting the value is defined;
- In the field "**Start Bit**" the starting bit of the byte of the field "Position" is defined.
- If the field "**Invert**" the value to map/get is inverted;
- In the field "**Mnemonic**" a description of the variable is defined.

Note:
        IO-Link pin 2 can only be read and IO-LINK pin 4 can be defined if "Pin 4 Mode" is set to "DIn" or "DOut" in "List of IO-Link Channel" section.

The "Events" section is used to define the IO-LINK events to map on MQTT side (Fig. 10).

Enable	Code	Name	Type	TimeOut	Position	Start Bit	Menmonic
☑	16928	Device temperature under-run	Warning	2000	3	0	
☑	36016	nEA	Warning	2000	3	1	
☑	36017	fAr	Warning	2000	3	2	
☑	36020	+	Error	2000	3	3	
☑	36021	-	Error	2000	3	4	
☑	36004	ErP	Warning	2000	3	5	
☑	36350	Test Event 1	Warning	2000	3	6	
☑	36351	Test Event 2	Warning	2000	3	7	

Process Data | Device Function - Variables | I/O Options | **Events** | Device Identity | Transport Layers

✓ OK   ✗ Cancel   Insert IODD   Delete IODD

Figure 10: "Events" section

The meanings of the fields are:

- In the field "**Code**" the code of the IO-Link event is defined;
- In the field "**Name**" the name of the IO-Link event is defined;
- In the field "**Type**" the type of the IO-Link event is defined;
- In the field "**TimeOut**" the duration of the IO-Link event after its activation is defined;
- In the field "**Position**" the starting byte of the internal memory arrays where mapping/getting the value is defined;
- In the field "**Start Bit**" the starting bit of the byte of the field "Position" is defined;
- In the field "**Mnemonic**" a description of the variable is defined.

Industrial Electronic Devices

In "Device Identity" section (Fig.11) and "Transport Identity" section (Fig. 12), the main features of the selected IO-Link device are reported. These characteristics are read from the IODD file.

| Process Data | Device Function - Variables | I/O Options | Events | **Device Identity** | Transport Layers |

Vendor ID   310
Vendor Name   ifm electronic gmbh
Device ID   377
Vendor Text   www.ifm.com
Vendor URL   http://www.ifm.com/ifmgb/web/io-link-download.htm
Device Name   TA2**5
Device Family   TA2

Device Variant Collection

Product ID	Name	Description
TA2115	TA2115	Temperature transmitter, -50.0…150 ℃, Length
TA2135	TA2135	Temperature transmitter, -50.0…150 ℃, Length

OK   Cancel   Insert IODD   Delete IODD

Figure 11: "Transport Layers" section

| Process Data | Device Function - Variables | I/O Options | Events | Device Identity | **Transport Layers** |

BitRate   COM2
Min Cycle Time   2300
SIO Supported   False
M Sequence Capability   17

OK   Cancel   Insert IODD   Delete IODD

Figure 12: "Device Identity" section

MQTT SET TOPIC:

By Pressing the "**MQTT Set Topic**" button from the main window for SW67873 (Fig. 2) the window "Set MQTT Topics" appears (Fig. 13).
This section is used to define the MQTT topics where the converter will publish the data from IO-Link and the topic that the converter will subscribes for writing the data to IO-Link.

MQTT PUBLISH

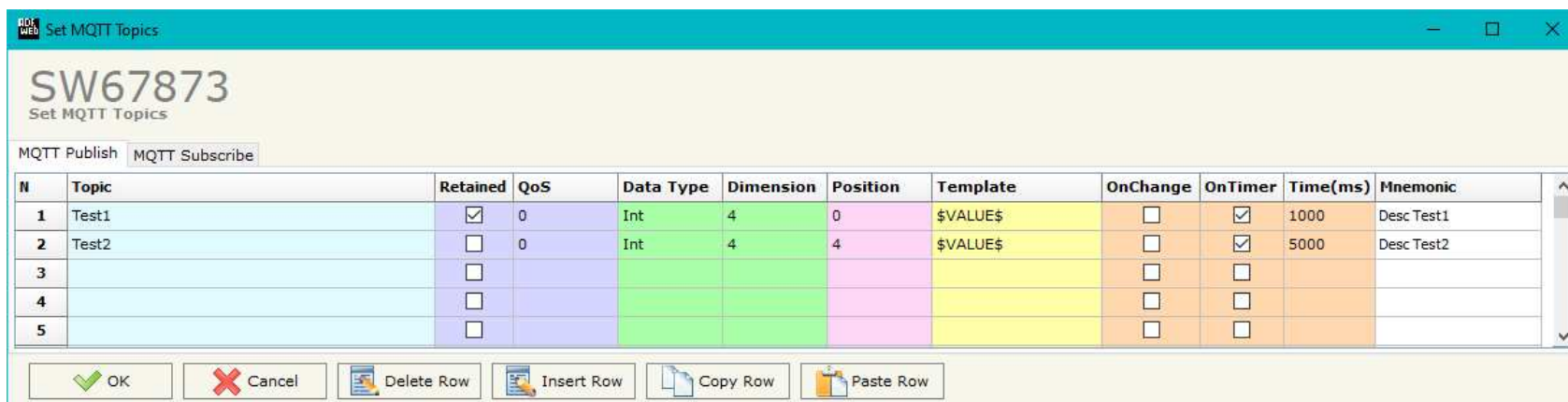| N	Topic	Retained	QoS	Data Type	Dimension	Position	Template	OnChange	OnTimer	Time(ms)	Mnemonic
1	Test1	☑	0	Int	4	0	$VALUE$	☐	☑	1000	Desc Test1
2	Test2	☐	0	Int	4	4	$VALUE$	☐	☑	5000	Desc Test2
3		☐						☐	☐		
4		☐						☐	☐		
5		☐						☐	☐		

Figure 13a: "Set MQTT Topics → MQTT Publish" window

The means of the fields are:

- In the field "**Topic**" the MQTT topic is defined;
- If the field "**Retained**" is defined, the retained flag is enabled. The MQTT server will hold the last topic published;
- In the field "**QoS**" the QoS level is defined;
- In the field "**Data Type**" the type of data to use is defined;
- In the field "**Dimension**" the dimension in byte of the data is defined;
- In the field "**Position**" the starting byte of the internal memory array where taking the data is defined;
- In the field "**Template**" the structure of the MQTT payload is defined. With a double click on it, it is possible to open a window for editing it;
- If the field "**On Change**" is checked, the converter publishes the topic when the data from IO-Link are changed;

- If the field "**On CMD**" is checked, the converter publishes the topic when a new message from IO-Link is received;
- If the field "**On Timer**" is checked, the converter publishes the topic cyclically with the delay defined in the field "**Time (ms)**";
- In the field "**Mnemonic**" a description of the topic is defined.

MQTT Subscribe

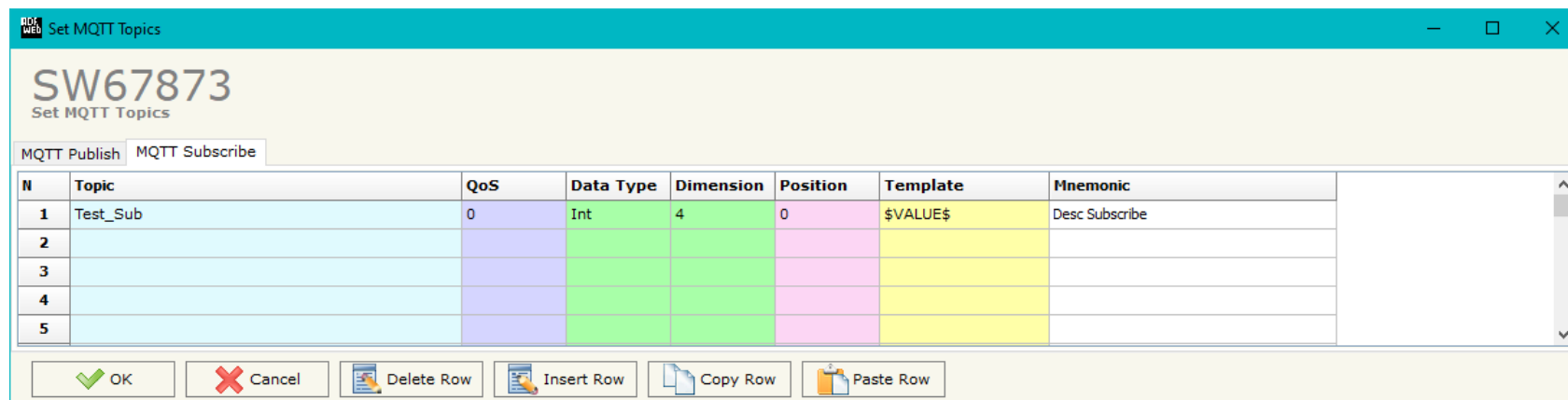| N	Topic	QoS	Data Type	Dimension	Position	Template	Mnemonic
1	Test_Sub	0	Int	4	0	$VALUE$	Desc Subscribe
2							
3							
4							
5							

Figure 13b: "Set MQTT Topics → MQTT Subscribe" window

The means of the fields are:

- In the field "**Topic**" the MQTT topic is defined;
- If the field "**Retained**" is defined, the retained flag is enabled. The MQTT server will hold the last topic published;
- In the field "**QoS**" the QoS level is defined;
- In the field "**Data Type**" the type of data to use is defined;
- In the field "**Dimension**" the dimension in byte of the data is defined;
- In the field "**Position**" the starting byte of the internal memory array where placing the data is defined;
- In the field "**Template**" the structure of the MQTT payload is defined. With a double click on it, it is possible to open a window for editing it;
- In the field "**Mnemonic**" a description of the topic is defined.

UPDATE DEVICE:

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

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.

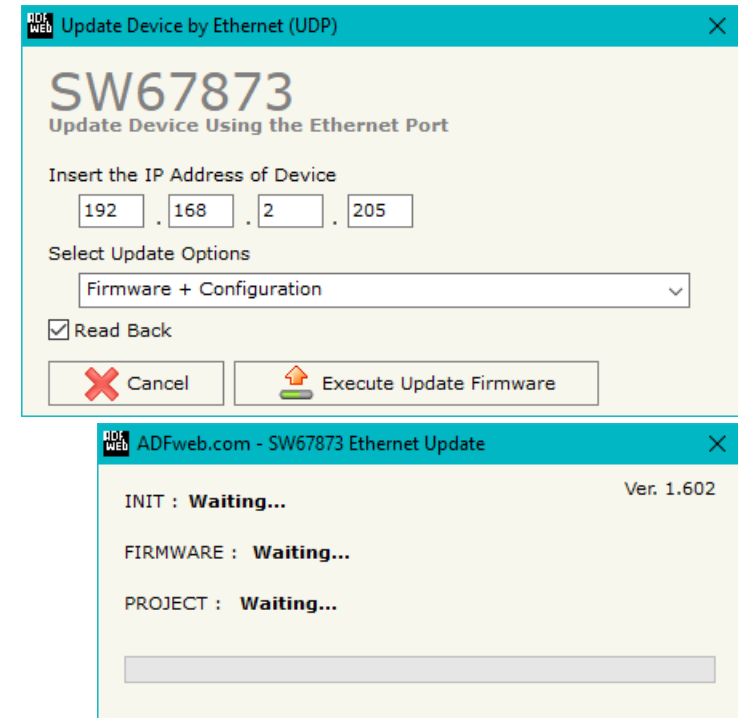At this point the configuration/firmware on the device is correctly updated.

Figure 14: "Update device" windows

Note:
   When you receive the device, for the first time, you also have to update the Firmware in the HD67873 device.

Warning:
   If Fig. 15 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;
- f 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;
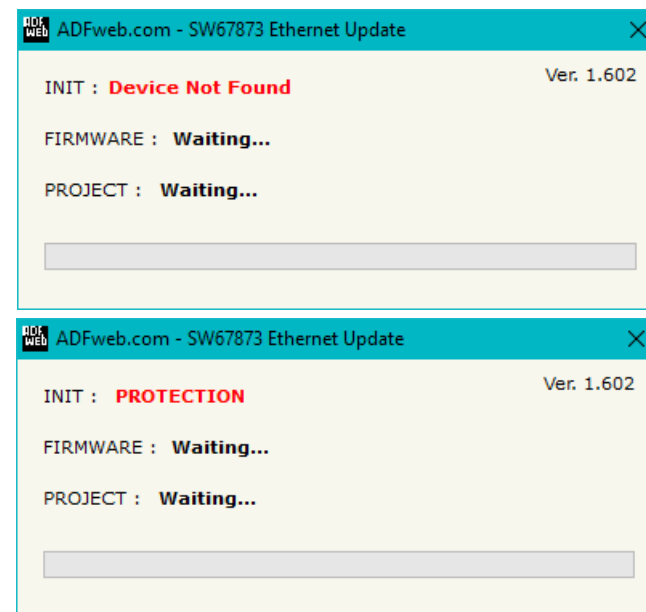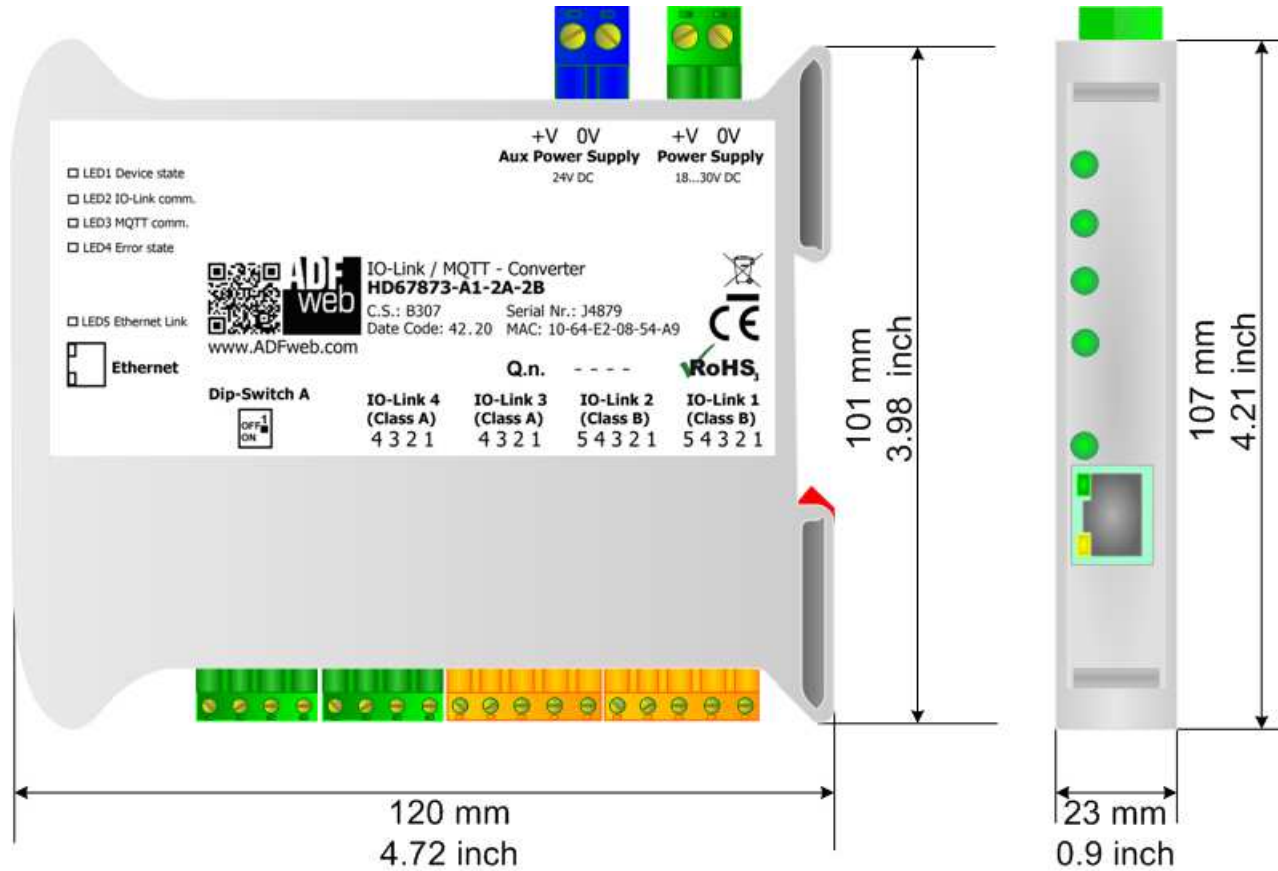- Pay attention at Firewall lock.

Figure 15: "Error" window

Warning:
   In the case of HD67873 you have to use the software "SW67873": www.adfweb.com\download\filefold\SW67873.zip.

MECHANICAL DIMENSIONS:

Figure 16: Mechanical dimensions scheme for HD67873-A1-xx

ORDERING INFORMATIONS:

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

HD67873 – A 1 – x x

IO-Link Class
A: Class A
B: Class

Number of IO-Link channels
2: 2 channels
4: 4 channels

Connectors Type
1: Removable 5mm Screw Terminal

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

Device Family
HD67873: IO-Link / MQTT - Converter
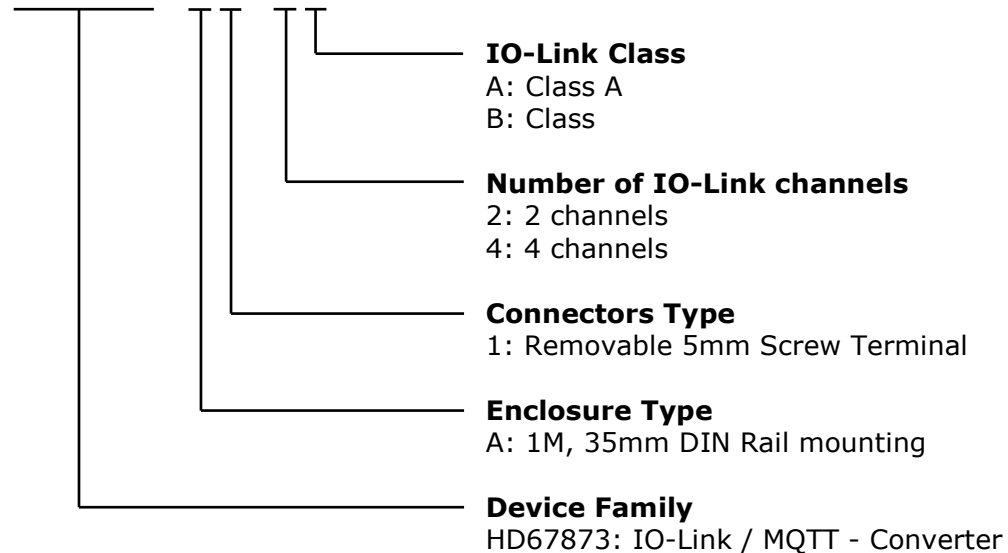
Order Code: **HD67873-A1-2A**   -   IO-Link / MQTT – Converter (IO-Link ports: 2 x Class A)
Order Code: **HD67873-A1-4A**   -   IO-Link / MQTT – Converter (IO-Link ports: 4 x Class A)
Order Code: **HD67873-A1-2B**   -   IO-Link / MQTT – Converter (IO-Link ports: 2 x Class B)
Order Code: **HD67873-A1-2A-2B**   -   IO-Link / MQTT – Converter (IO-Link ports: 2 x Class A and 2 x Class B)

ACCESSORIES:

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

Order Code: **AC34012**   -   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.

Industrial Electronic Devices

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.