![ADFweb logo]

Industrial Electronic Devices

User Manual

Revision 1.000
English

DALI / CANopen - Converter

(Order Code: HD67835-B2-Y, HD67835-B2-N)

for Website information:
www.adfweb.com?Product=HD67835

for Price information:
www.adfweb.com?Price=HD67835-B2

Benefits and Main Features:

⊕ Very easy to configure

⊕ Electrical isolation

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

User Manual

For others DALI products, see also the following links:

Converter DALI to
www.adfweb.com?Product=HD67822	**(KNX)**
www.adfweb.com?Product=HD67831	**(Serial)**
www.adfweb.com?Product=HD67832	**(BACnet/IP Master)**
www.adfweb.com?Product=HD67833	**(BACnet/IP Slave)**
www.adfweb.com?Product=HD67834	**(CAN)**
www.adfweb.com?Product=HD67836	**(DeviceNet Master)**
www.adfweb.com?Product=HD67837	**(DeviceNet Slave)**
www.adfweb.com?Product=HD67838	**(DMX)**
www.adfweb.com?Product=HD67839	**(Ethernet)**
www.adfweb.com?Product=HD67840	**(EtherNet/IP)**
www.adfweb.com?Product=HD67842	**(Modbus Master)**
www.adfweb.com?Product=HD67843	**(Modbus Slave)**
www.adfweb.com?Product=HD67844	**(Modbus TCP Master)**
www.adfweb.com?Product=HD67845	**(Modbus TCP Slave)**
www.adfweb.com?Product=HD67848	**(PROFINET)**
www.adfweb.com?Product=HD67849	**(SNMP Manager)**
www.adfweb.com?Product=HD67850	**(SNMP Agent)**

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	15/06/2017	Ff	All	First Release

WARNING:

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

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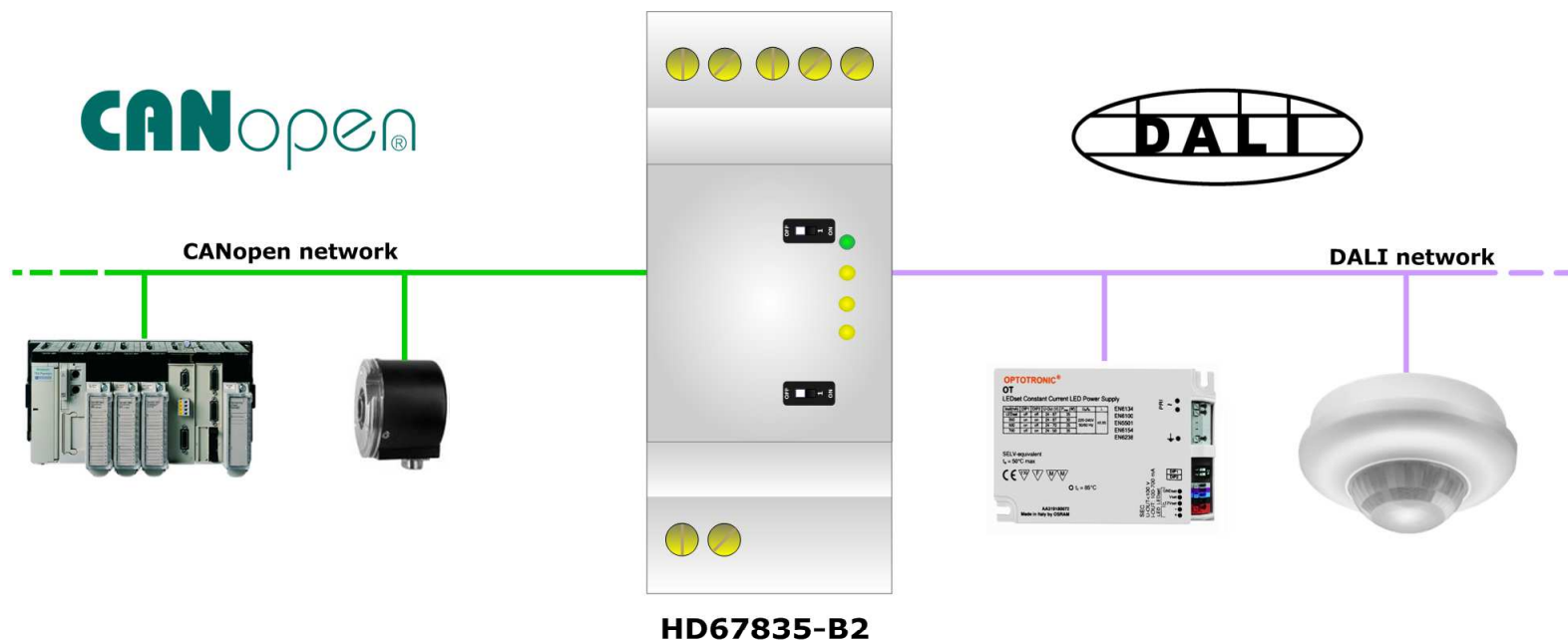
⚠ This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

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:

CANopen network

DALI network

HD67835-B2

ADFweb.com srl
tel. +39 - 0438.30.91.31
www.adfweb.com
info@adfweb.com

CONNECTION SCHEME:

Connector2:
DALI Port
(Unpolarized)

Connector3:
Ethernet Port
(RJ45 Plug)

Led5:
Green
Link Ethernet

Dip-Switch B:
-Dip1 – Termination CAN line

= Open   = 120 ohm

Led1:
Green
Device state

Led2:
Yellow
CAN comm.

Dip-Switch A:
-Dip1 – Functioning Mode

= Normal Mode

= Boot Mode

Led3:
Yellow
DALI comm.

Led4:
Yellow
Comm. error

Connector4:
CAN port

Hi = High wire
Shl = Shield* (to Isolated Ground)
Lo = Low wire

Connector1:
Power Supply

0V = Ground
+V = Positive wire

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

0V +V Hi Shl Lo

Figure 1: Connection scheme for HD67835-B2

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CHARACTERISTICS:

The HD67835 is a DALI / CANopen - Converter.

It has the following characteristics:

- Up to 64 devices on DALI bus;
- Configurator for DALI network/devices;
- Isolation between DALI – CANopen, Power Supply – CANopen. Additional isolation Power Supply – DALI for HD67835-B2-N version;
- 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 "DALI Console" software on your PC in order to perform the following:

- Configure the DALI network;
- Setup the DALI devices (groups, scenes, IDs, …);
- Test DALI communication.

You need Compositor SW67835 software on your PC in order to perform the following:

- Define the parameter of CANopen line;
- Define the parameter of DALI line;
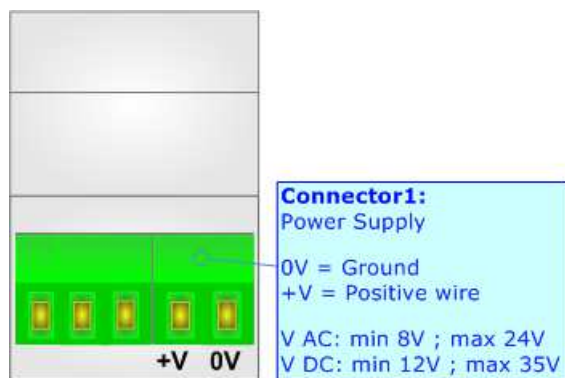- Update the device.

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POWER SUPPLY:

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

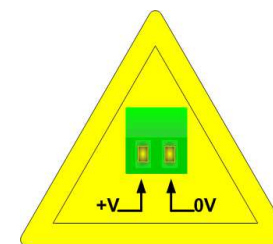| VAC		VDC	
Vmin	**Vmax**	**Vmin**	**Vmax**
8V	**24V**	**12V**	**35V**

Consumption at 24V DC:

Device	Consumption [W/VA]
HD67835-B2	3.5

Connector1:
Power Supply

0V = Ground
+V = Positive wire

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

+V 0V

Caution: Not reverse the polarity power

+V   0V

HD67835-B2

FUNCTION MODES:

The device has got two functions mode depending of 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 upload 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 specifics functions, see 'LEDS' section.

Dip-Switch A:
-Dip1 – Functioning Mode

= Normal Mode

= Boot Mode

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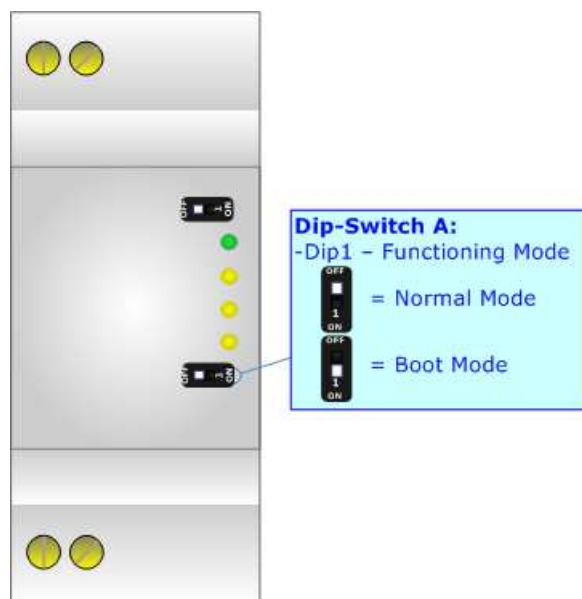
LEDS:

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: CAN communication (yellow)	Blinks when CANopen communication is running	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: DALI communication (yellow)	Blinks when DALI communication is running	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: Comm. error (yellow)	Turns ON when DALI devices defined are not present	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
5: Ethernet Link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected	**ON:** Ethernet cable connected **OFF:** Ethernet cable disconnected
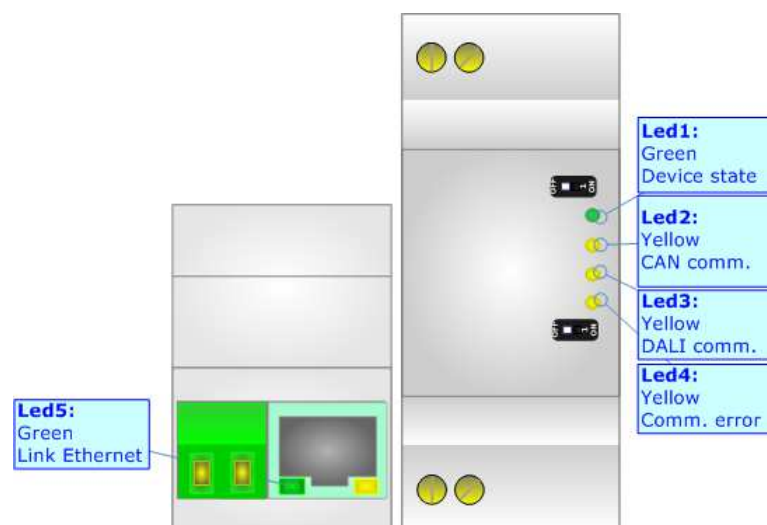
DALI:

DALI stands for "Digital Addressable Lighting Interface" and it is an interface protocol for digital communication between electronic lighting equipment (electronic ballasts, transformers, etc.).

With the right choice of individual DALI components an extremely wide range of requirements can be met, from operating the lighting system from a simple light switch to lighting management systems for entire office complexes with thousands of light sources. Using ADFweb.com's DALI converters, any light source, including incandescent lamps, fluorescent lamps, high-intensity discharge lamps and even LEDs, can be controlled irrespective of whether they are installed in an office, a restaurant or a street light.
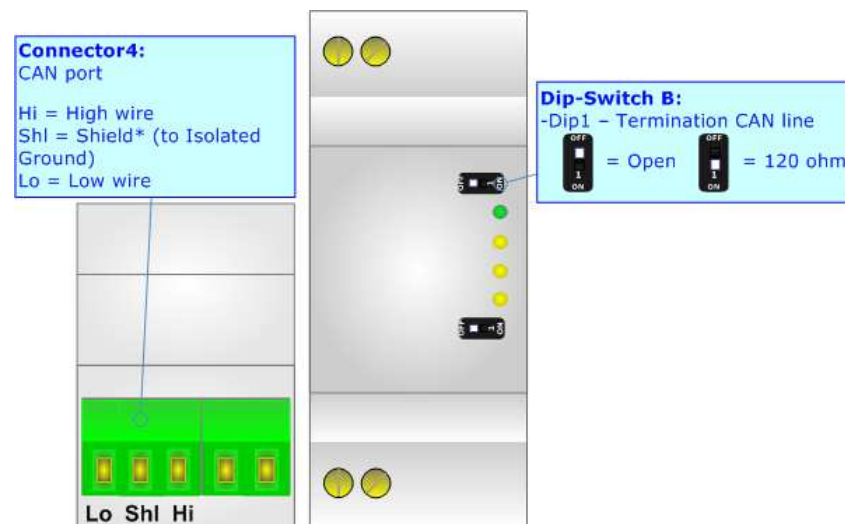
Connector2:
DALI Port
(Unpolarized)
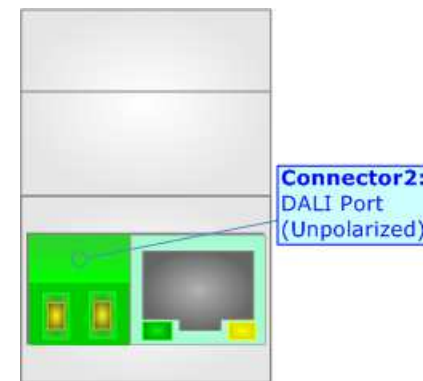
Characteristics	Description
Medium	Shielded Twisted Pair
Topology	Linear, Star or mixed
Device power consumption	Max 250 mA
DALI voltage	9.5 V – 22.5 V (typical 16 V)
Maximum cable length	300 m (1.5 mm2 wire)
Maximum number of DALI devices	64
Baud rate	1200 bps
Maximum number of DALI groups	16
Maximum number of DALI scenes	16

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CANOPEN:

For terminating the CANopen line with a 120Ω resistor it is necessary to put Dip1 of 'Dip-Switch B' at ON position.

Cable characteristics:

DC parameter:		Impedance	70	Ohm/m

AC parameters:		Impedance	120	Ohm/m
		Delay	5	ns/m

Length	Baud Rate [bps]	Length MAX [m]
	10 K	5000
	20 K	2500
	50 K	1000
	100 K	650
	125 K	500
	250 K	250
	500 K	100
	800 K	50
	1000 K	25

Connector4:
CAN port

Hi = High wire
Shl = Shield* (to Isolated Ground)
Lo = Low wire

Lo Shl Hi

Dip-Switch B:
-Dip1 – Termination CAN line

= Open   = 120 ohm

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ETHERNET:

The Ethernet port is used for programming DALI network and for programming the converter.
The Ethernet connection must be made using Connector2 of HD67835-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 is recommended the use of a cross cable.

Connector3:
Ethernet Port
(RJ45 Plug)

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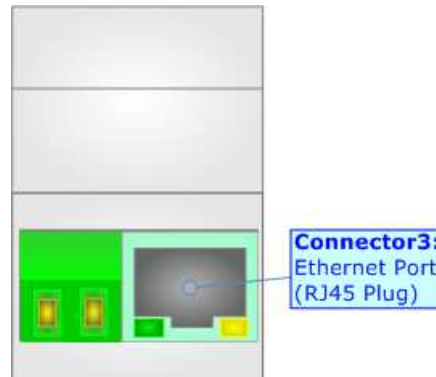
USE OF COMPOSITOR SW67835:

To configure the Converter, use the available software that runs with Windows called SW67835. 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 SW67835, the window below appears (Fig. 2).

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


Figure 2: Main window for SW67835

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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 "DALI / CANopen - 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**".
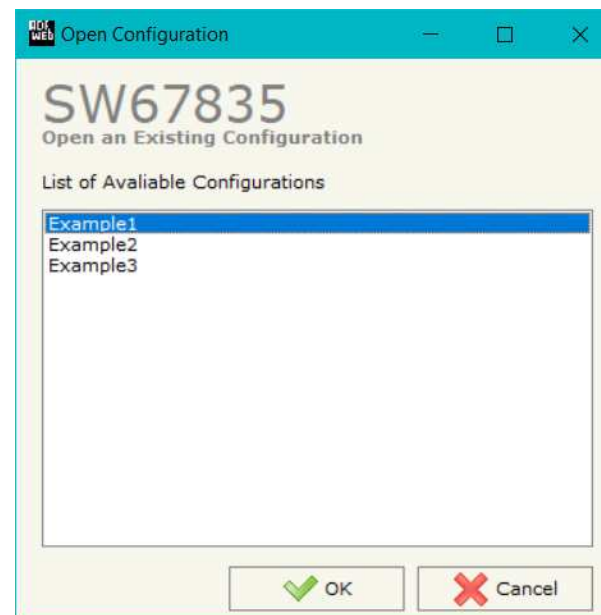

SOFTWARE OPTIONS:

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.
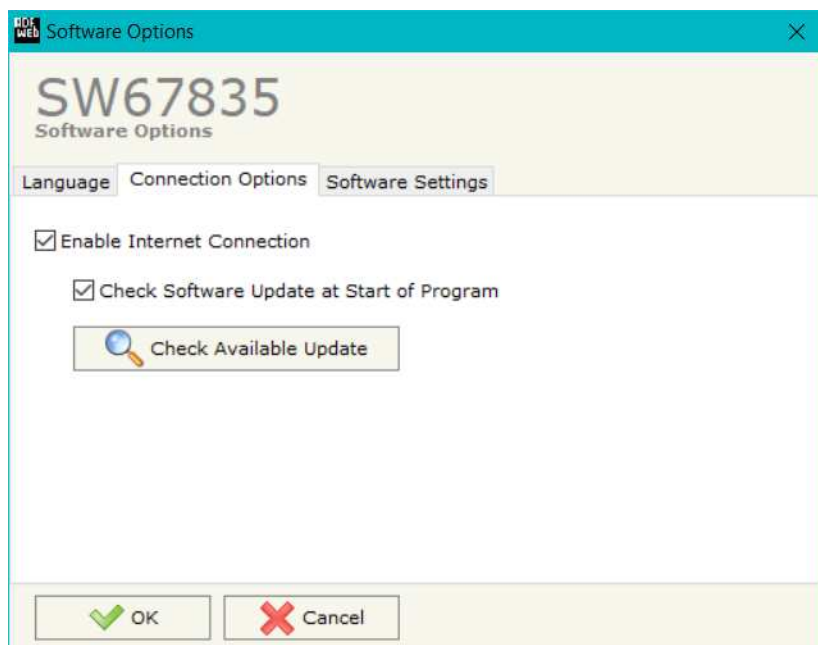
In the section "Connection Options", it is possible to check if there are some updatings of the software compositor in ADFweb.com website.
Checking the option "**Check Software Update at Start of Program**", the SW67835 check automatically if there are updatings when it is launched.

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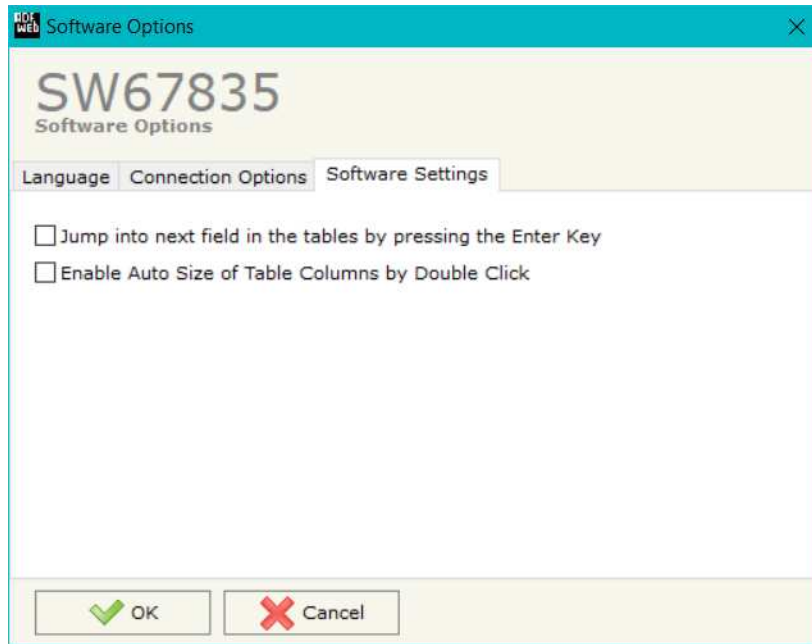
In the section "Software Settings", it is possible to enable/disable some keyboard's commands for an easier navigation inside the tables contained in the different sections of the software.

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SET COMMUNICATION:

This section define the fundamental communication parameters of CANopen and DALI buses.

By Pressing the "**Set Communication**" button from the main window for SW67835 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The means of the fields for the "CANopen" section are:

➔ In the field "**Device ID**" the ID of the CANopen side is defined;
➔ In the field "**Baud Rate**" the data rate of the CANopen line is defined;
➔ In the field "**Set Operational State at Start-Up**" the state of the CANopen is defined. I.e. If it is checked the board starts in Operational State, else it starts in Pre-Operational;
➔ In the field "**Network Start at Start-Up**" the state of the CANopen network is defined. I.e. If it is checked the board sends a command to set the Operational State of all the devices present in the network, after the time defined in the "Delay" field;
➔ In the field "**Delay (s)**" the delay before sending the "Start" command for the CANopen is defined;
➔ In the field "**SDO Client TimeOut (1/10 ms)**" the maximum time that the device attends for the answer from the Slave interrogated is defined.

The means of the fields for the "DALI" section are:

➔ In the field "**DALI Console Port**" the UDP port used for Ethernet communication is defined;
➔ If the option "**Disable DALI Scan**" is checked, the automatic scanning of DALI side is disabled. The DALI side is scanned only on Ethernet command;
➔ If the option "**Enable DALI 2**" is checked, DALI 2 functions are enabled (normally used with DALI sensors, actuators, exc.).

Figure 3: "Set Communication" window

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The means of the fields for the "Ethernet" section are:

- In the field "**IP ADDRESS**" the IP address of the converter is defined;
- In the field "**SUBNET Mask**" the SubNet Mask is defined;
- In the field "**GATEWAY**" the default gateway of the Ethernet network is defined. This feature can be enabled or disabled pressing the Check Box field. This feature is used for going out of the net.

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DALI ACCESS:

By pressing the "**DALI Access**" button from the main window for SW67835 (Fig. 2) the window "Select the DALI Device Present in the Network" appears (Fig. 4).

This section is used to define the DALI devices connected to the converter. It is enough to check/uncheck the connected/unconnected DALI devices.
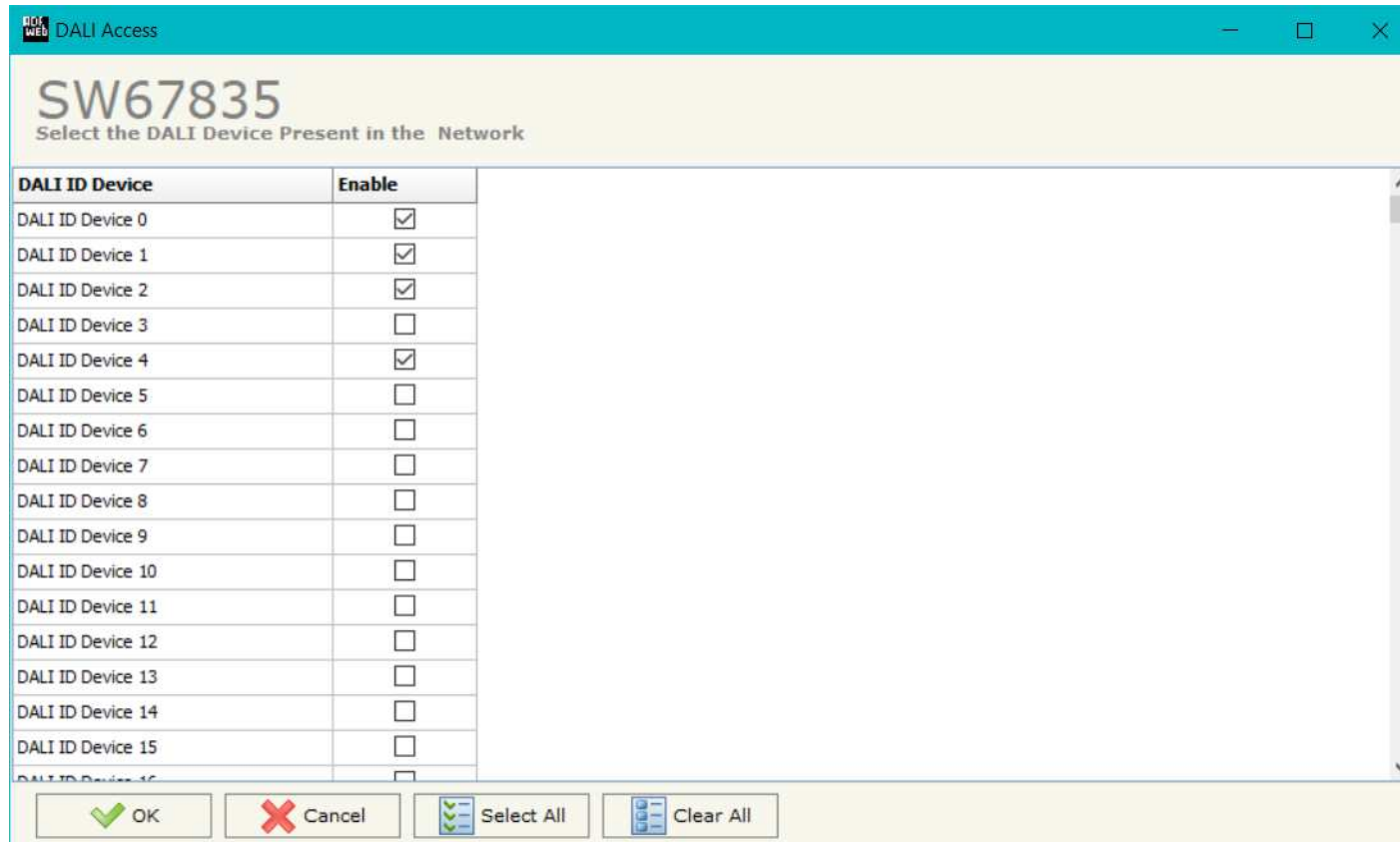

Figure 4: "DALI Access" window

SET SDO SERVER:

By pressing the "**Set SDO Server**" button from the main window for SW67835 (Fig. 2) the window "Set SDO Server Access" appears (Fig. 5).

This window is made to create the SDO in read or write in the CANopen side, and to indicate which byte of the DALI internal memory array are associated to these SDOs.
It is divided in two parts, the "SDO in read" and the "SDO in Write".
The first part is used to read, using the SDO, the data arrived from DALI side. The second is used to write, using SDO, the data to send to DALI side.

The data of the columns have the following meanings:

Figure 5: "Set SDO Server Access" window

- In the field "**Index**" the address of the SDO is defined;
- In the field "**SubIndex**" the second address of the SDO is defined;
- If the field "**N Byte**" the dimension of the SDO is defined (it can be 1, 2 or 4);
- In the field "**Address Byte1**" insert the address of the DALI internal memory array where reading/writing first byte of the SDO;
- In the field "**Address Byte2**" insert the address of the DALI internal memory array where reading/writing second byte of the SDO (only if N Byte is 2 or 4);
- In the field "**Address Byte3**" insert the address of the DALI internal memory array where reading/writing third byte of the SDO (only if N Byte is 4);
- In the field "**Address Byte4**" insert the address of the DALI internal memory array where reading/writing fourth byte of the SDO (only if N Byte is 4);
- In the field "**Mnemonic**" the description for the SDO is defined.

Note:
    The data into the DALI internal memory array is mapped following the description on page 37.
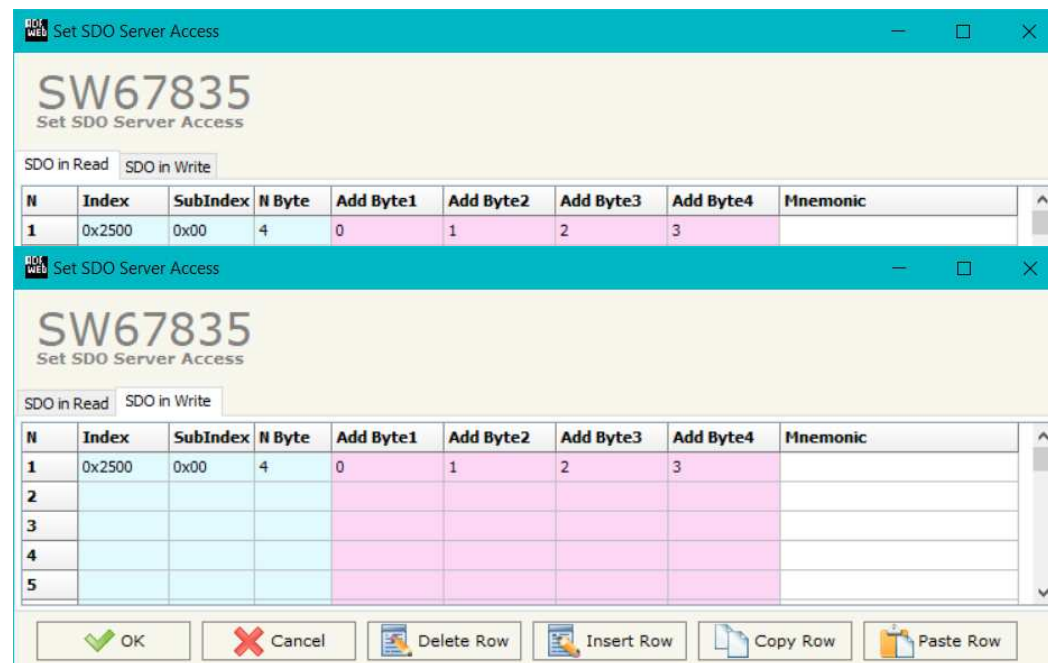
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SET SDO CLIENT:

By pressing the "**Set SDO Client**" button from the main window for SW67835 (Fig. 2) the window "Set SDO Client Access" appears (Fig. 6a and 6b).

With the SDO Client the HD67835 Gateway can read and/or write the data from other devices connected in the CANopen network.

It is divided in two parts, the " SDO Read" and the "SDO Write". The first part is used to read, using the SDO, the data in another device and then put them in the DALI internal memory array. The second part is used to write, using the SDO, the data present in the DALI internal memory array to the CANopen devices.

The data of the columns in the "SDO Read" have the following meanings:

+ In the field "**Device ID**" insert the ID of the device to read;
+ In the field "**Index**" the address for the SDO is defined;
+ In the field "**SubIndex**" the second address for the SDO is defined;
+ In the field "**N Byte**" the dimension of the SDO is defined (it can be 1, 2, or 4);
+ In the field "**Poll Time**" insert the cyclic time to make this request;

Figure 6a: "Set SDO Client Access – SDO Read" window

+ In the field "**Address Byte1**" the address of the DALI internal memory array where coping the first byte of the SDO read is defined;
+ In the field "**Address Byte2**" the address of the DALI internal memory array where coping the second byte of the SDO read is defined (only if N Byte is 2 or 4);
+ In the field "**Address Byte3**" the address of the DALI internal memory array where coping the third byte of the SDO read is defined (only if N Byte is 4);
+ In the field "**Address Byte4**" the address of the DALI internal memory array where coping the fourth byte of the SDO read is defined (only if N Byte is 4);
+ In the field "**Mnemonic**" the description for the SDO is defined.

The data of the columns in the "SDO Write" have the following meanings:

- In the field "**Device ID**" insert the ID of the device to write;
- In the field "**Index**" the address for the SDO is defined;
- In the field "**SubIndex**" the second address for the SDO is defined;
- In the field "**N Byte**" the dimension of the SDO is defined (it can be 1, 2, or 4);
- In the field "**Poll Time**" insert the cyclic time to make this request;
- If the field "**On Change**" is checked, the gateway sends the Write SDO request when the data change the value;
- In the field "**Address Byte1**" the address of the DALI internal memory array where reading the first byte of the SDO write is defined;
- In the field "**Address Byte2**" the address of the DALI internal memory array where reading the second byte of the SDO write is defined (only if N Byte is 2 or 4);
- In the field "**Address Byte3**" the address of the DALI internal memory array where reading the third byte of the SDO write is defined (only if N Byte is 4);
- In the field "**Address Byte4**" the address of the DALI internal memory array where reading the fourth byte of the SDO write is defined (only if N Byte is 4);
- In the field "**Mnemonic**" the description for the SDO is defined.
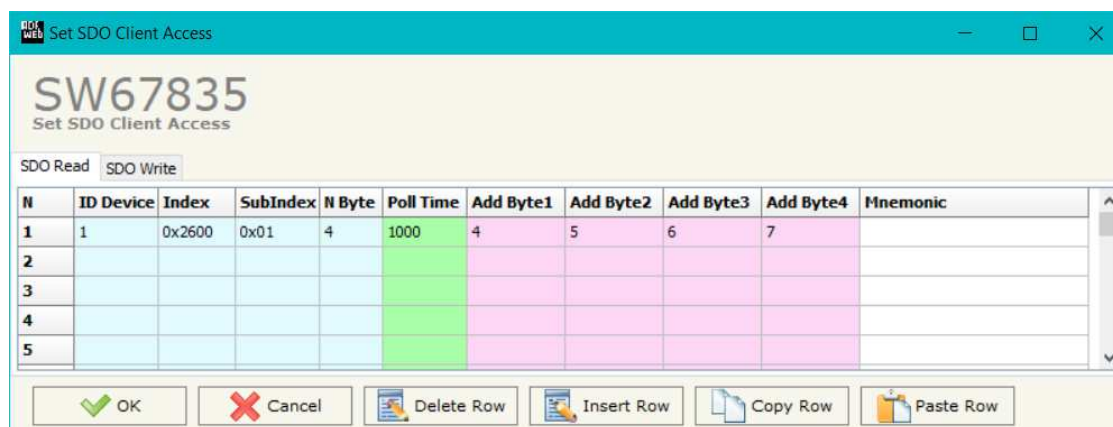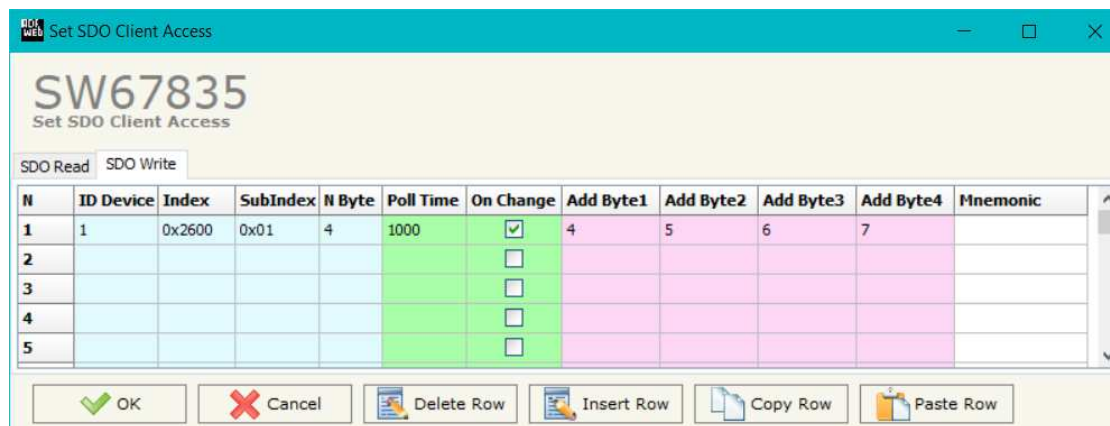

Figure 6b: "Set SDO Client Access – SDO Write" window

Note:
    The data into the DALI internal memory array is mapped following the description on page 37.

SET PDO ACCESS:

By pressing the "**Set PDO Access**" button from the main window for SW67835 (Fig. 2) the window "Set PDO Access" appears (Fig. 7a and 7b).

This window is made to create the Receive and the Transmit PDO in the CANopen side, and to indicate which bytes are associated to these PDO.

It is divided in two parts, the " Receive PDO" and the " Transmit PDO ". The first part is used to receive PDO in the CANopen network and copy the data in the DALI internal memory array. The second part is used to transmit PDO in the CANopen network with the data of DALI internal memory array.

The data of the columns in the "Receive PDO" have the following meanings:

Figure 7a: "Set PDO Access – Receive PDO" window

+ In the Field "**Cob-ID**" the address for the PDO is defined;

+ In the Field "**Dimension**" the dimension of the PDO is defined (it can be between 1 and 8);

+ In the Field "**Add B1**" the first byte where the data will be saved in the DALI internal memory array is defined;

+ In the Field "**Add B2**" the second byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 1);

+ In the Field "**Add B3**" the third byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 2);

+ In the Field "**Add B4**" the fourth byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 3);

+ In the Field "**Add B5**" the fifth byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 4);

+ In the Field "**Add B6**" the sixth byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 5);

+ In the Field "**Add B7**" the seventh byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 6);
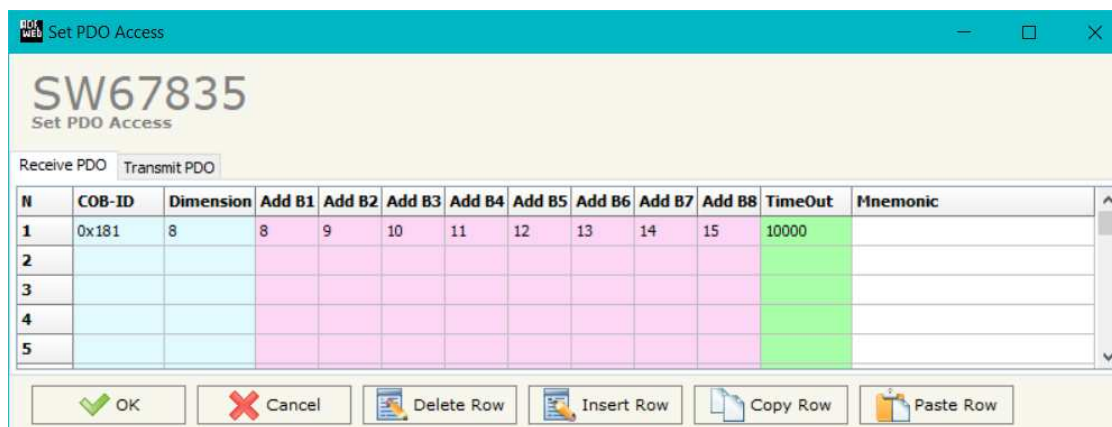
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- In the Field "**Add B8**" the eighth byte where the data will be saved in the DALI internal memory array is defined (only if **Dimension** > 7);
- The field "**TimeOut**" is used for put at zero the data into DALI internal memory array if the PDO doesn't arrive with a frequency less than the time expressed in the field. If the value in the field is 0, it means that you don't want to use this feature, and so the value is never deleted;
- In the field "**Mnemonic**" the description for the PDO is defined.

The data of the columns in the "Transmit PDO" have the following meanings:

- In the Field "**Cob-ID**" the address for the PDO is defined;
- In the Field "**Dimension**" the dimension of the PDO is defined (it can be between 1 and 8);
- In the Field "**Add B1**" the first byte where the data will be loaded in the DALI internal memory array is defined;
- In the Field "**Add B2**" the second byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 1);
- In the Field "**Add B3**" the third byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 2);

Figure 7b: "Set PDO Access – Transmit PDO" window

- In the Field "**Add B4**" the fourth byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 3);
- In the Field "**Add B5**" the fifth byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 4);
- In the Field "**Add B6**" the sixth byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 5);
- In the Field "**Add B7**" the seventh byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 6);
- In the Field "**Add B8**" the eighth byte where the data will be loaded in the DALI internal memory array is defined (only if **Dimension** > 7);
- In the Field "**Send Time** " insert the interval used to send the PDO. The time is in milliseconds;

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- If the field "**On Change**" is checked, the gateway send the Transmit PDO when the data change the value;
- In the field "**Mnemonic**" the description for the PDO is defined.

Note:
   The data into the DALI internal memory array is mapped following the description on page 37.

EDS FILE:

By Pressing the "**EDS FILE**" button from the main window for SW67835 (Fig. 2) it is possible to generate the EDS file to be imported into the master CANopen.

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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.

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.
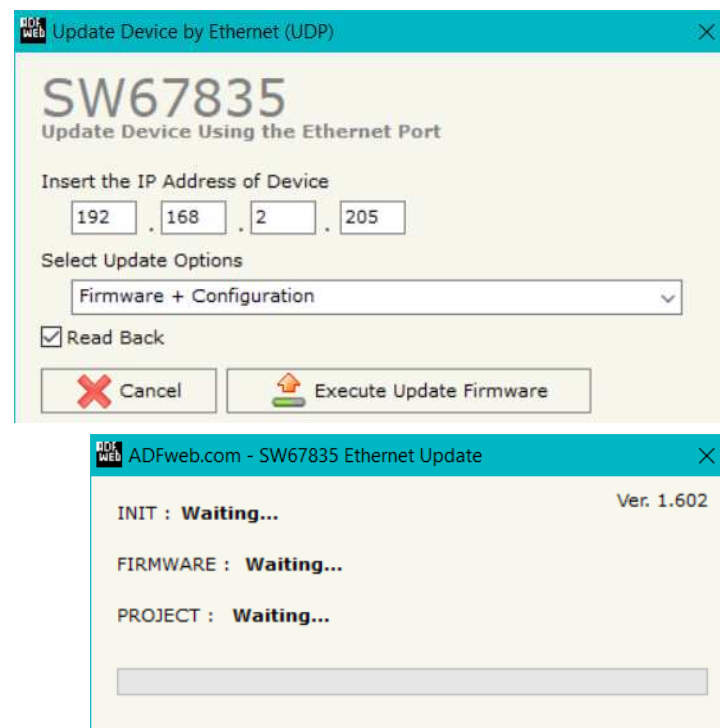
Figure 8: "Update device" windows

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 HD67835 device.

Note:
When you receive the device, for the first time, you also have to update the Firmware in the HD67835 device.

Warning:
If Fig. 9 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;
- Check the Wi-Fi 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.
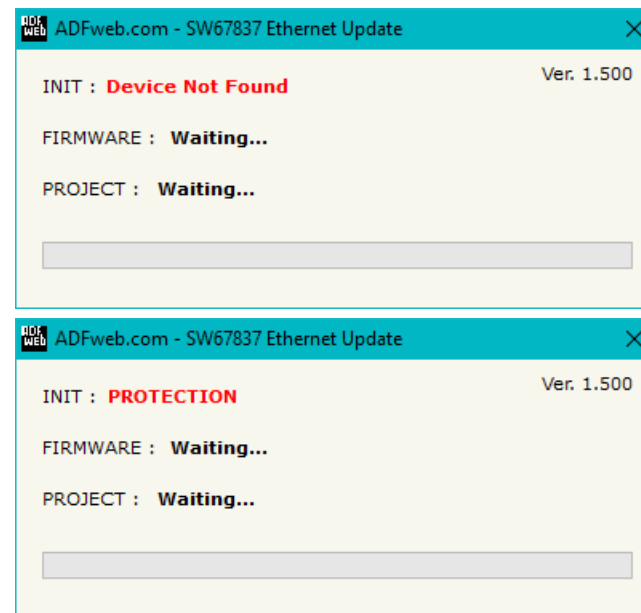
Figure 9: "Protection" window

In the case of HD67835 you have to use the software "SW67835": www.adfweb.com\download\filefold\SW67835.zip.

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USE OF DALI CONSOLE SOFTWARE:

To configure DALI network and test the communication, it is possible to use the available software that runs with Windows called "DALI Console". 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 DALI Console, the window below appears (Fig. 10).
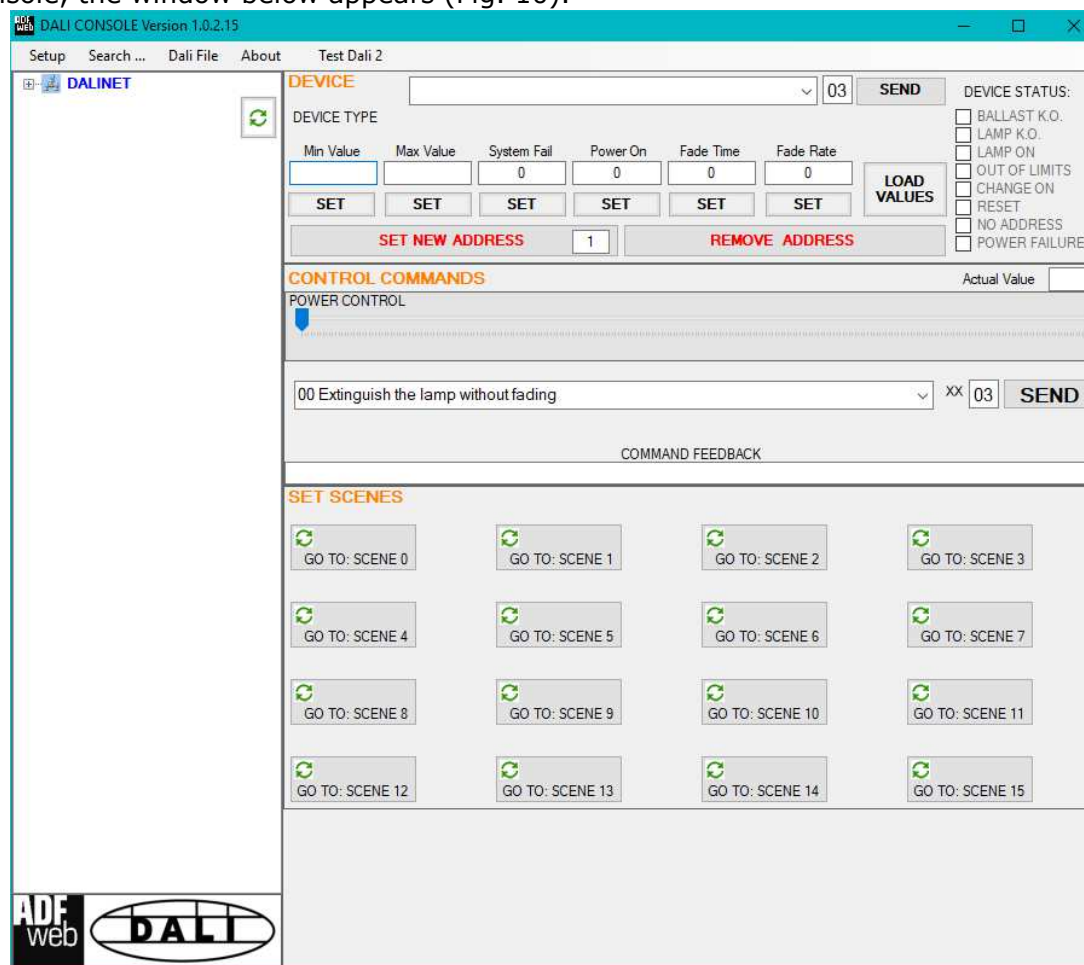
Figure 10: Main window for DALI Console

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STRUCTURE OF THE SOFTWARE:

The software layout is very simple and it is structured in this way:

- "**Menu bar**" (Fig. 11, Point 1): it is possible to open the setup window and see the informations about the DALI Console software;
- "**Network view**" (Fig. 11, Point 2): it is possible to see all the DALI devices connected to the HD67835 converter, the groups and the scenes set;
- "**Settings / commands view**" (Fig. 11, Point 3): it is possible to set and manage the parameters to the single DALI device, to the groups or for the full network.
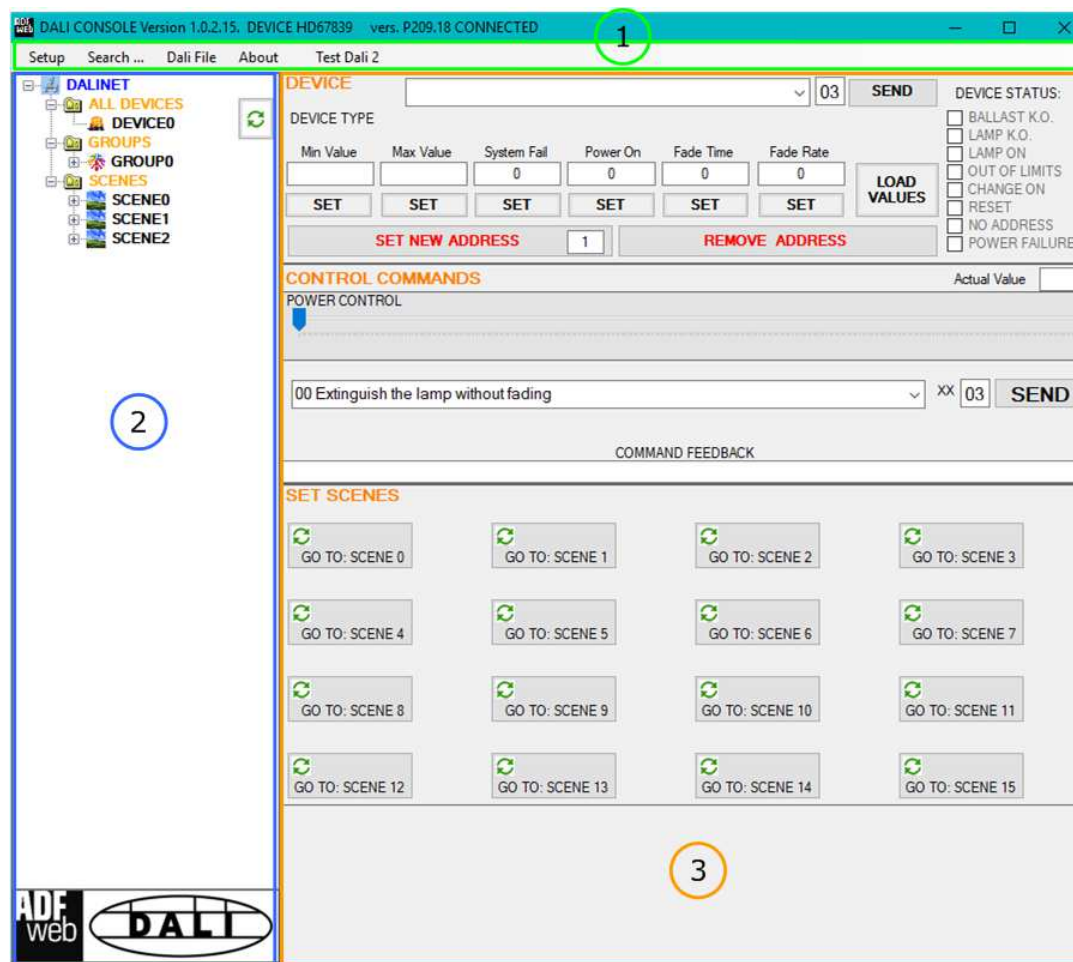
(1) Menu bar

(2) Network view

(3) Settings / commands view

Figure 11: Structure of DALI Console software

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MENU BAR

SETUP:

This section defines the connection's parameters to the Ethernet side of the HD67835 converter.
By Pressing the "**Setup**" button from the menu bar of the DALI Console software, the "SETUP" window appears (Fig. 12).

Figure 12: "Setup" window

The means of the fields for the "SETUP" window are:

- In the field "**IP ADDRESS**" insert the IP address set inside the converter;
- In the field "**DEVICE PORT**" insert the communication port used for the Ethernet communication with the converter (fixed to '10000');
- In the field "**CONSOLE PORT**" insert the communication port used for the Ethernet communication with the converter (defined with SW67835);
- In the fields "**SCI X Protocol**", it is possible to select the Ethernet protocol to use. It is possible to use SCI 1 (from Tridonic), SCI 2 (from Tridonic) or SCI 3 (from ADFweb.com);
- In the fields "**DALIX**", it is possible to select the DALI version to use. It is possible to use DALI1 or DALI2;
- If the option "**DISABLE AUTOMATIC SCAN**" is checked, the automatic scanning of DALI side is disabled. The DALI side is scanned only on Ethernet command;
- If the option "**AutoRefresh**" is checked, the list of DALI devices is refreshed automatically;
- In the field "**NUM DEVICES**" the number of DALI devices connected to the converter is defined.

SEARCH...:

This section is used to scan the DALI network and assign automatically the ID to the DALI nodes connected to the converter.
It is possible to reprogram the entire DALI network deleting and reprogramming the ID to all DALI devices ("Full Search") or set the ID only to the DALI devices without it ("Partial Search").

DALI FILE:

In this section, it is possible to save or load the DALI devices' list.

TEST DALI 2:

In this section it is possible to test DALI 2 devices (like sensors). It is possible to send commands or see the events from them.
The communication will start by pressing "Connect" button.
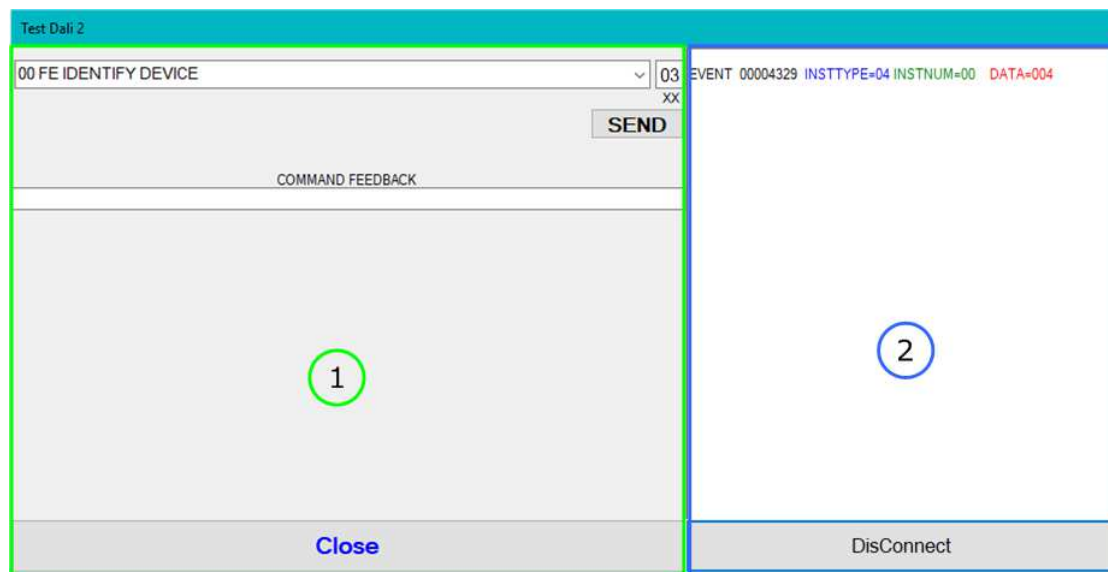
Figure 13: "Test DALI 2" window

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NETWORK SETTING:

By pressing the ⟳ button in the Network view, it is possible to scan the full DALI network and find all the DALI devices, the groups set and the scenes configured.

By selecting the single DALI devices found, the single groups, the single scene or the entire DALI network, it is possible to manage and test the functioning of the network.

DEVICES:

The means of the fields for "DEVICE INFO" are:

➥ In the field "**Device Type**" the type of DALI device is printed;

➥ In the field "**Software version**" the software version of the DALI device is printed;

➥ In the fields "**Power Range**" the Min value, Actual Value and Max Value of the ADV of the DALI device is printed;

➥ In the fields "**DEVICE STATUS**" the actual status of the DALI device is printed;

➥ By clicking on "**LOAD VALUES**" button, the data from the DALI device will be read;

➥ By clicking on "**SET NEW ADDRESS**" button, the new address inside the button is set to the DALI device;

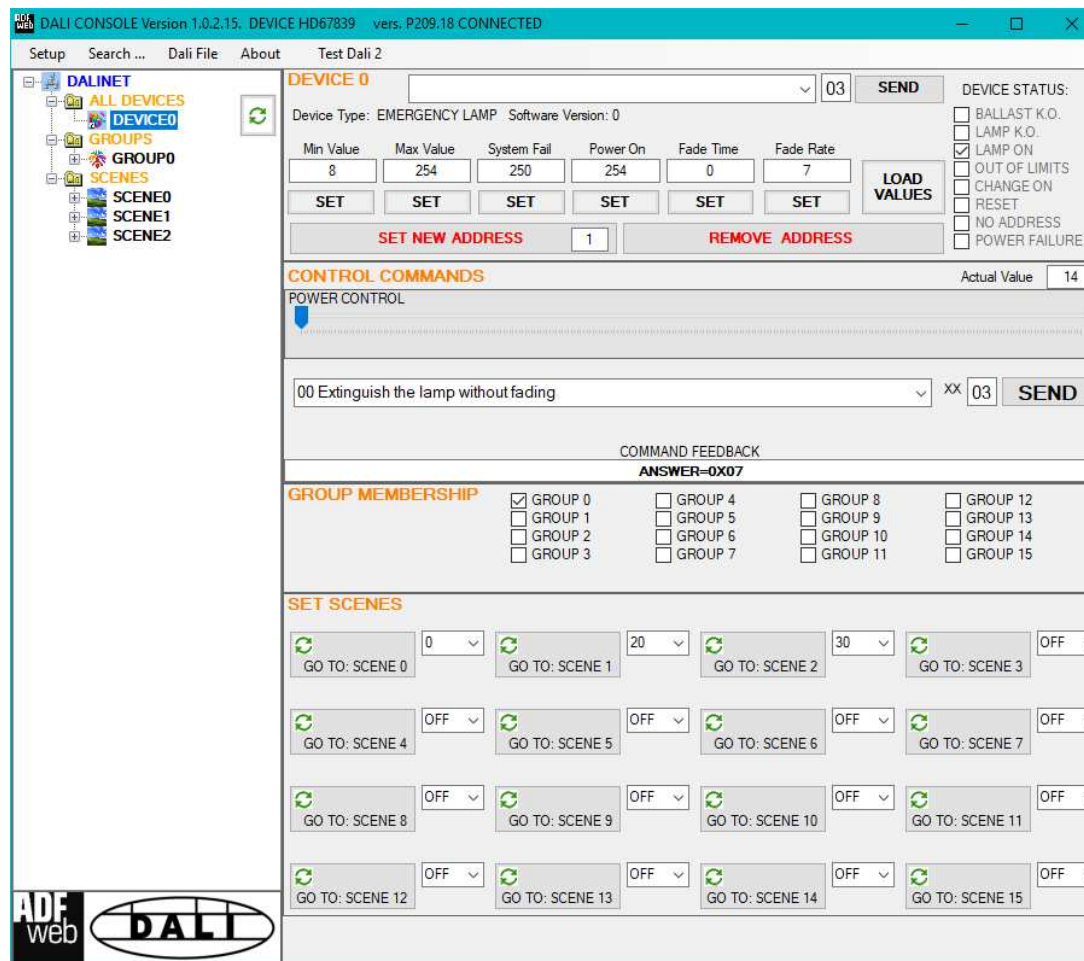➥ By clicking on "**REMOVE ADDRESS**" button, the ID will be removed from the DALI device.

Figure 14: "Device settings" window

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The means of the fields for the "CONTROL COMMANDS" section are:

➔ In the "**POWER CONTROL**" bar it is possible to change the actual ADV of the selected DALI device;
➔ In the field "**COMMAND**" it is possible to select a DALI command to send to the selected DALI device. For set commands, it is possible to insert the value to set in the field "**xx**". As soon as the command to send is selected, the command is sent: in order to send the same command more times, it is possible to press the "**SEND**" button;
➔ In the field "**COMMAND FEEDBACK**" the response from the DALI device is printed.

Note:
This section is used to test the functioning of the DALI device in the network and to set specific parameters if ned (like new Minimum or Maximum ADV value).

In the "GROUP MEMBERSHIP" section it is possible to see the Groups which the selected DALI device is in. The checked checkboxes mean that the device is in the correspondent groups, the unchecked checkboxes mean that the device is not included in the correspondent groups. It is possible to change the group settings for the selected DALI device by checking/unchecking the correspondent checkboxes.

In the "SET SCENES" section it is possible to see the programmed scenes of the selected DALI device, program new ones and activate them:

➔ By pressing the buttons "**GO TO: SCENE X**" it is possible to activate the correspondent scene inside the selected DALI device; the programmed ADV for the selected scene is defined in the drop-down list on the right;
➔ By selecting a value into the drop-down lists next to the "GO TO: SCENE x" buttons, it is possible to set the ADV associated to the correspondent scene. It is possible to select:
    o Value between 0 and 255: the scene will have the defined value of ADV;
    o ACT: the scene will take the programmed ADV value into the "POWER CONTROL" bar;
    o OFF: the scene is disabled.

GROUPS:

The means of the fields for the "CONTROL COMMANDS" section are:

+ In the "**POWER CONTROL**" bar it is possible to change the actual ADV of the selected DALI group;
+ In the field "**COMMAND**" it is possible to select a DALI command to send to the selected DALI group. For set commands, it is possible to insert the value to set in the field "**xx**". As soon as the command to send is selected, the command is sent: in order to send the same command more times, it is possible to press the "**SEND**" button;
+ In the field "**COMMAND FEEDBACK**" the response from the DALI group is printed.

Note:
    This section is used to test the functioning of the DALI groups in the network.

In the "SET SCENES" section it is possible to activate the programmed scenes to the selected group:

+ By pressing the buttons "**GO TO: SCENE X**" it is possible to activate the correspondent scene inside the selected DALI group.
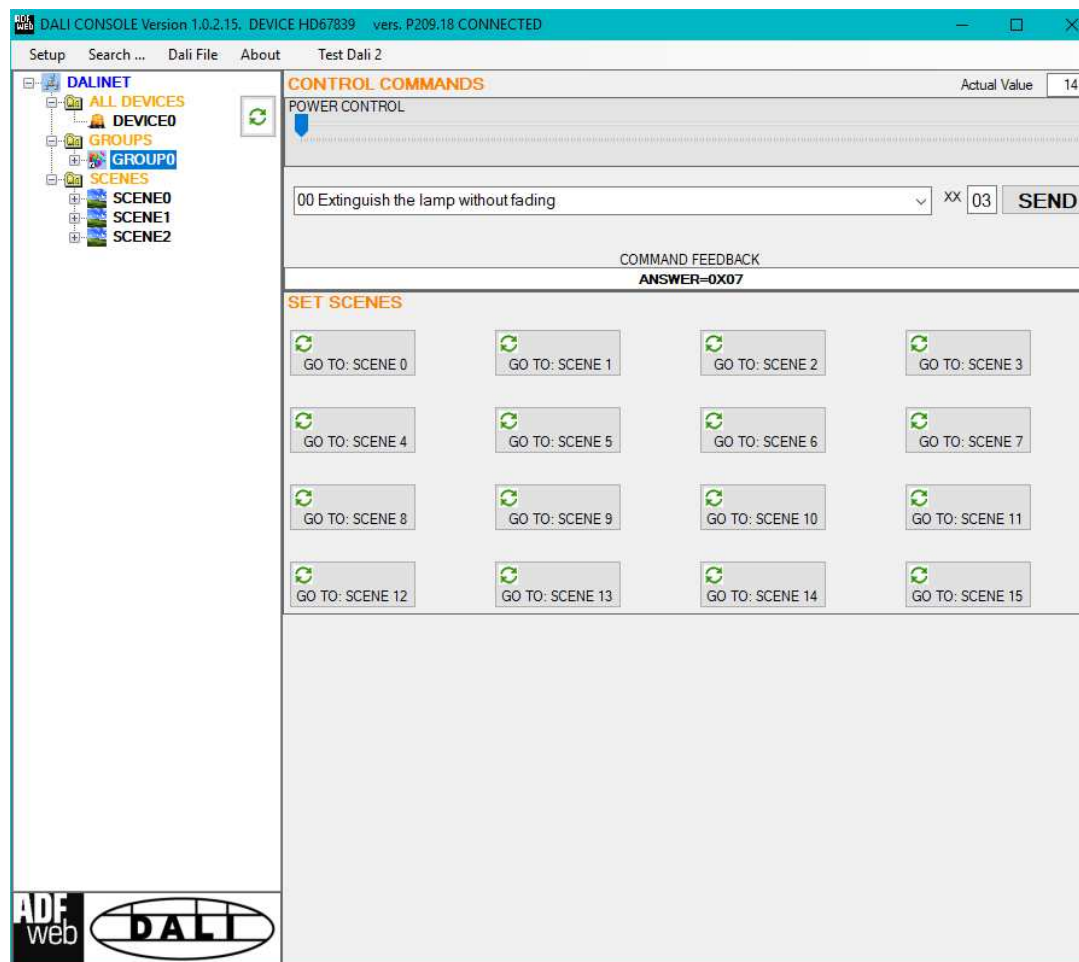
Figure 15: "Groups settings" window

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SCENES:

By selecting a DALI scene from the Network view, it is possible to see the devices that have programmed the selected scene.

It is also possible to activate it by pressing the "**ACTIVATE SCENE X**" button.
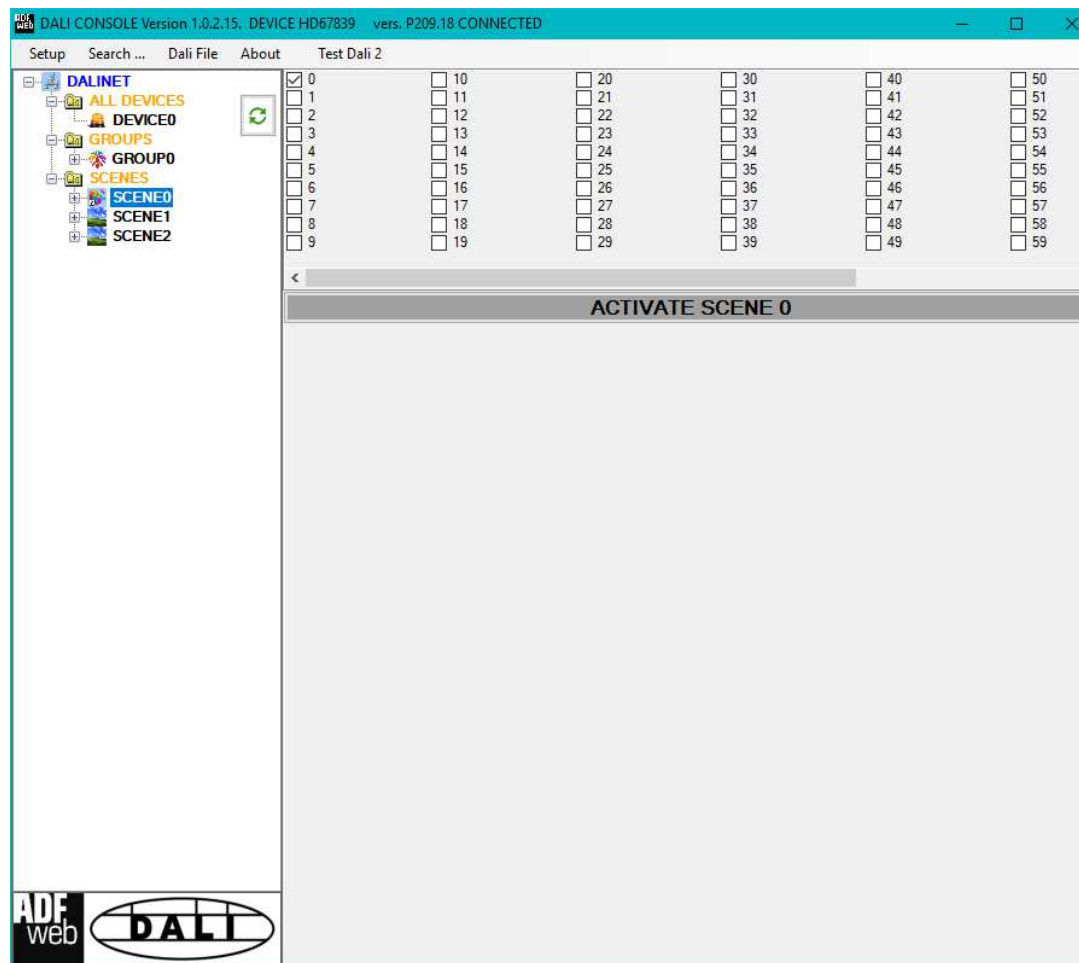
Figure 16: "Scenes settings" window

![ADFweb logo] Industrial Electronic Devices

ALL DEVICES (BROADCAST):

The means of the fields for the "CONTROL COMMANDS" section are:

- In the "**POWER CONTROL**" bar it is possible to change the actual ADV of the entire DALI network;
- In the field "**COMMAND**" it is possible to select a DALI command to send to the entire DALI network. For set commands, it is possible to insert the value to set in the field "**xx**". As soon as the command to send is selected, the command is sent: in order to send the same command more times, it is possible to press the "**SEND**" button;
- In the field "**COMMAND FEEDBACK**" the response from the DALI network is printed.

Note:
This section is used to test the functioning of the DALI network.

In the "SET SCENES" section it is possible to activate the programmed scenes into all the DALI devices that have them:

- By pressing the buttons "**GO TO: SCENE X**" it is possible to activate the correspondent scene in the DALI network. Only the devices that have it will accept the command.
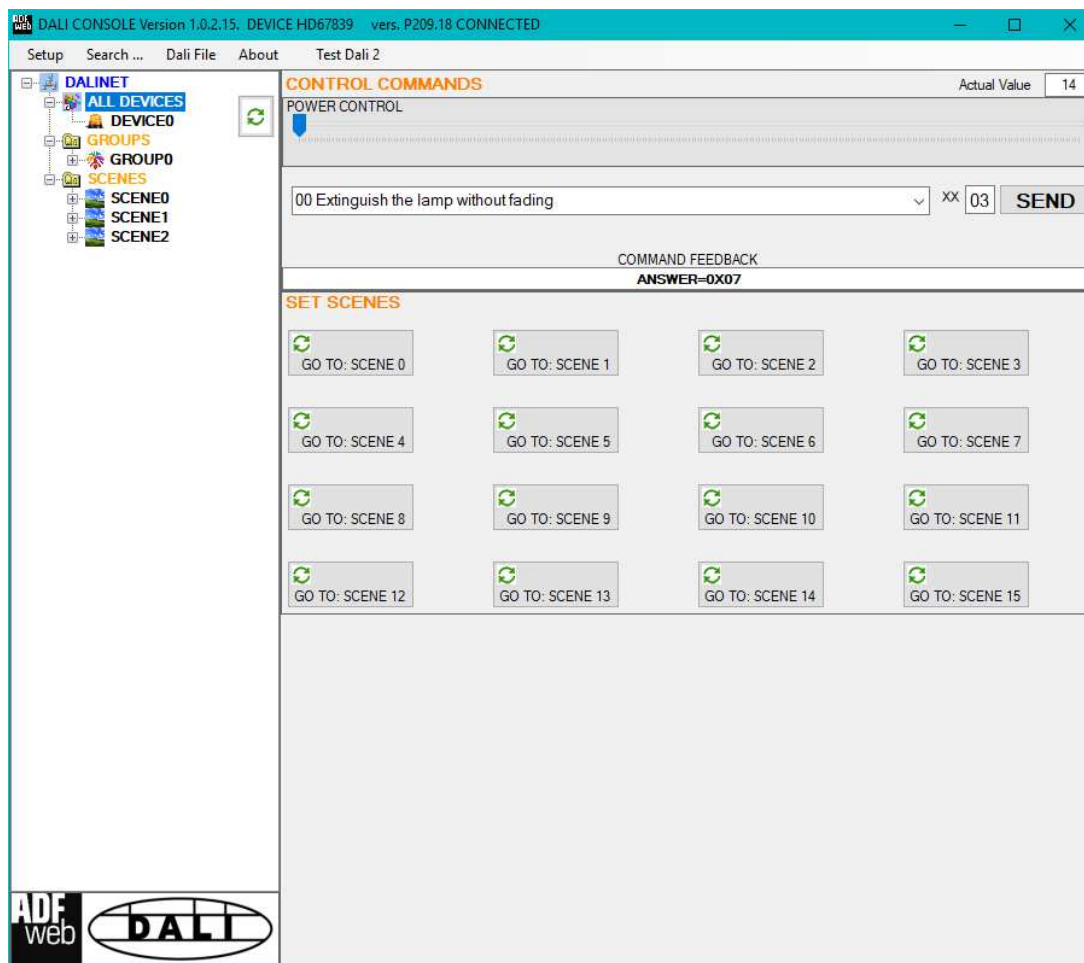
Figure 17: "Broadcast settings" window

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DALI MAP:

Internally to the converter, there are two different arrays of bytes. The data inside them are different:

- DALI memory array in IN: data read from DALI network;
- DALI memory array in OUT: data written to DALI network.

Structure of the DALI memory array in OUT (DALI → CANopen)

For each DALI node configured, the converter will reserve 8 bytes: using the SW67835, it is possible to map the required bytes into the CANopen objects.

Below, it is possible to see the generic structure of 8 bytes reserved for each DALI node:

Offset	Description
0	**Status** of DALI node
1	**ADV** of DALI node
2	**Response received after command** from DALI node
3	Bit 0, 1, 2, 3 (least significant) = **Type** of DALI node Bit 4, 5, 6, 7 (most significant) = **Version** of DALI node
4	**Min. settable value** of DALI node

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5	**Max. settable value** of DALI node
6	Each bit has a different meaning. '0' means 'Group not configured', '1' means 'Group configured'. ⇨ Bit 0 (less significant) = Group 0 ⇨ Bit 1 = Group 1 ⇨ Bit 2 = Group 2 ⇨ Bit 3 = Group 3 ⇨ Bit 4 = Group 4 ⇨ Bit 5 = Group 5 ⇨ Bit 6 = Group 6 ⇨ Bit 7 (most significant) = Group 7
7	⇨ Bit 0 (least significant) = Group 8 ⇨ Bit 1 = Group 9 ⇨ Bit 2 = Group 10 ⇨ Bit 3 = Group 11 ⇨ Bit 4 = Group 12 ⇨ Bit 5 = Group 13 ⇨ Bit 6 = Group 14 ⇨ Bit 7 (most significant) = Group 15

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Structure of the DALI memory array in IN (CANopen → DALI)

ADV SETTING FOR SINGLE DALI NODES	
DALI memory byte	**Description**
0	ADV to set on DALI node 0
1	ADV to set on DALI node 1
2	ADV to set on DALI node 2
3	ADV to set on DALI node 3
4	ADV to set on DALI node 4
5	ADV to set on DALI node 5
6	ADV to set on DALI node 6
7	ADV to set on DALI node 7
8	ADV to set on DALI node 8
9	ADV to set on DALI node 9
10	ADV to set on DALI node 10
11	ADV to set on DALI node 11
12	ADV to set on DALI node 12
13	ADV to set on DALI node 13
14	ADV to set on DALI node 14
15	ADV to set on DALI node 15
16	ADV to set on DALI node 16
17	ADV to set on DALI node 17
18	ADV to set on DALI node 18
19	ADV to set on DALI node 19
20	ADV to set on DALI node 20

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21	ADV to set on DALI node 21
22	ADV to set on DALI node 22
23	ADV to set on DALI node 23
24	ADV to set on DALI node 24
25	ADV to set on DALI node 25
26	ADV to set on DALI node 26
27	ADV to set on DALI node 27
28	ADV to set on DALI node 28
29	ADV to set on DALI node 29
30	ADV to set on DALI node 30
31	ADV to set on DALI node 31
32	ADV to set on DALI node 32
33	ADV to set on DALI node 33
34	ADV to set on DALI node 34
35	ADV to set on DALI node 35
36	ADV to set on DALI node 36
37	ADV to set on DALI node 37
38	ADV to set on DALI node 38
39	ADV to set on DALI node 39
40	ADV to set on DALI node 40
41	ADV to set on DALI node 41
42	ADV to set on DALI node 42
43	ADV to set on DALI node 43
44	ADV to set on DALI node 44

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45	ADV to set on DALI node 45
46	ADV to set on DALI node 46
47	ADV to set on DALI node 47
48	ADV to set on DALI node 48
49	ADV to set on DALI node 49
50	ADV to set on DALI node 50
51	ADV to set on DALI node 51
52	ADV to set on DALI node 52
53	ADV to set on DALI node 53
54	ADV to set on DALI node 54
55	ADV to set on DALI node 55
56	ADV to set on DALI node 56
57	ADV to set on DALI node 57
58	ADV to set on DALI node 58
59	ADV to set on DALI node 59
60	ADV to set on DALI node 60
61	ADV to set on DALI node 61
62	ADV to set on DALI node 62
63	ADV to set on DALI node 63

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ADV SETTING FOR GROUPS	
DALI memory byte	**Description**
64	ADV to set on Group 0
65	ADV to set on Group 1
66	ADV to set on Group 2
67	ADV to set on Group 3
68	ADV to set on Group 4
69	ADV to set on Group 5
70	ADV to set on Group 6
71	ADV to set on Group 7
72	ADV to set on Group 8
73	ADV to set on Group 9
74	ADV to set on Group 10
75	ADV to set on Group 11
76	ADV to set on Group 12
77	ADV to set on Group 13
78	ADV to set on Group 14
79	ADV to set on Group 15

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ADV SETTING (BROADCAST)	
DALI memory byte	**Description**
80	ADV to set

Note:
    The range of ADV can be from 0 to 255. The minimum and the maximum value of the ADV for each DALI node depends on the setting of the DALI node. These values can be programmed using "DALI Console" software.

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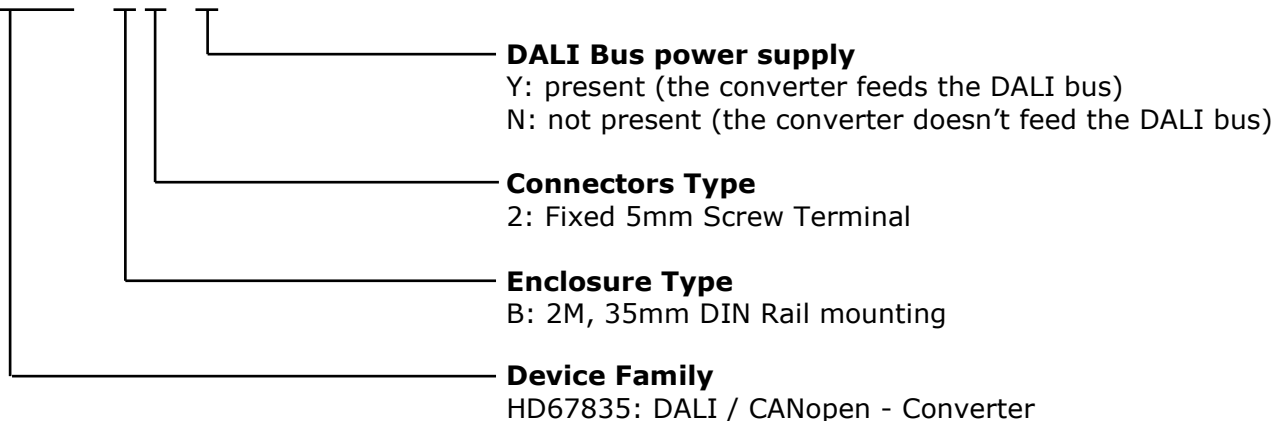| SCENE CONTROL	
DALI memory byte	**Description**
128	Control byte: it must be increased of +1 every times that the command must be sent on DALI.
129	ID of DALI device to command (for commands, most significant bit must be set to '1' as DALI specifications): ↓ 0-63 = Single DALI device ↓ 64-79 = Groups ↓ 127 = Broadcast
130	Scene to control: ↓ 0x10 = Scene 0 ↓ 0x11 = Scene 1 ↓ 0x12 = Scene 2 ↓ 0x13 = Scene 3 ↓ 0x14 = Scene 4 ↓ 0x15 = Scene 5 ↓ 0x16 = Scene 6 ↓ 0x17 = Scene 7 ↓ 0x18 = Scene 8 ↓ 0x19 = Scene 9 ↓ 0x1A = Scene 10 ↓ 0x1B = Scene 11 ↓ 0x1C = Scene 12 ↓ 0x1D = Scene 13 ↓ 0x1E = Scene 14 ↓ 0x1F = Scene 15

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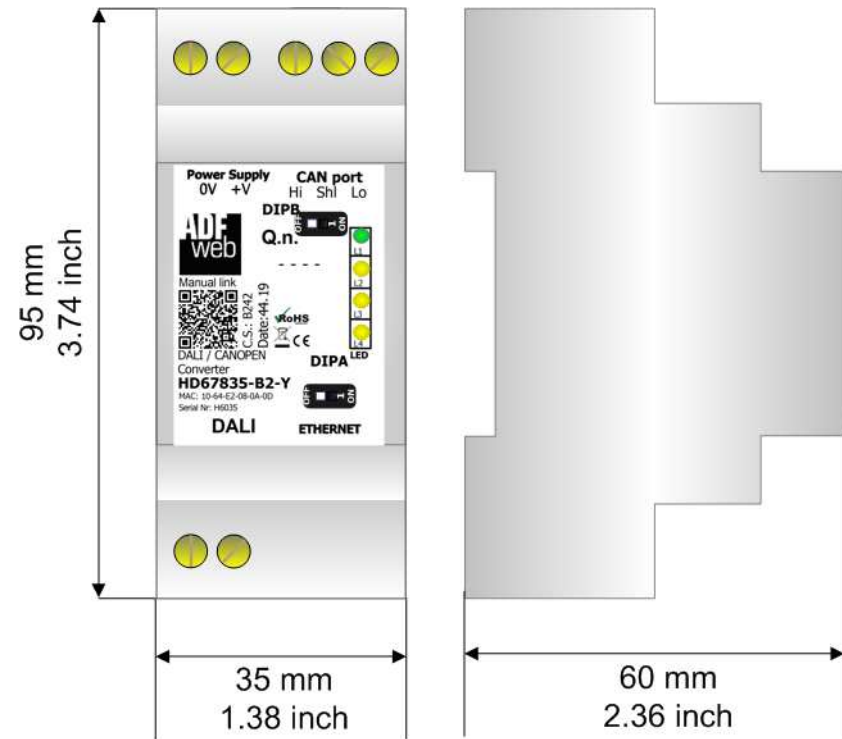
MECHANICAL DIMENSIONS:

Figure 18: Mechanical dimensions scheme for HD67835-B2-x

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ORDERING INFORMATIONS:

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

HD67835 – B 2 - x

DALI Bus power supply
Y: present (the converter feeds the DALI bus)
N: not present (the converter doesn't feed the DALI bus)

Connectors Type
2: Fixed 5mm Screw Terminal

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

Device Family
HD67835: DALI / CANopen - Converter

Order Code: **HD67835-B2-Y**   -   DALI / CANopen – Converter (DALI bus power supply present)
Order Code: **HD67835-B2-N**   -   DALI / CANopen – Converter (DALI bus power supply not present)

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.

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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.