

User Manual

Revision 1.100
English

NMEA 2000 / Modbus TCP Slave - Converter

(Order Code: HD67225-A1, HD67225-B2)

for Website information:

www.adfweb.com?Product=HD67225-A1
www.adfweb.com?Product=HD67225-B2

for Price information:

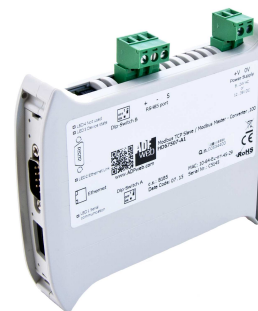
www.adfweb.com?Price=HD67225-A1
www.adfweb.com?Price=HD67225-B2

Benefits and Main Features:

- ✦ Very easy to configure
- ✦ Low cost
- ✦ 32mm Rail DIN mount
- ✦ Wide supply input range
- ✦ Temperature range: -40°C/+85°C (-40°F/+185°F)



User Manual



For others Gateways / Bridges:

NMEA2000 to Modbus

See also the following links:

www.adfweb.com?Product=HD67222 (Modbus RTU)

CANopen to Modbus

See also the following links:

www.adfweb.com?Product=HD67001 (Modbus RTU Master)
www.adfweb.com?Product=HD67502 (Modbus RTU Slave)
www.adfweb.com?Product=HD67004 (Modbus TCP Master)
www.adfweb.com?Product=HD67505 (Modbus TCP Slave)

For others Gateways / Bridges:

For **CAN bus 2.0A** and/or **CAN bus 2.0B to Modbus**

See also the following links:

www.adfweb.com?Product=HD67011 (Modbus RTU Slave)
www.adfweb.com?Product=HD67012 (Modbus RTU Master)
www.adfweb.com?Product=HD67514 (Modbus TCP Slave)
www.adfweb.com?Product=HD67515 (Modbus TCP Master)

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:

| | Page |
|----------------------------------|------|
| INDEX | 2 |
| UPDATED DOCUMENTATION | 2 |
| REVISION LIST | 2 |
| WARNING | 2 |
| TRADEMARKS | 2 |
| SECURITY ALERT | 3 |
| EXAMPLE OF CONNECTION | 4 |
| CONNECTION SCHEME | 5 |
| CHARACTERISTICS | 7 |
| CONFIGURATION | 7 |
| POWER SUPPLY | 8 |
| FUNCTION MODES | 9 |
| LEDS | 10 |
| ETHERNET | 11 |
| NMEA 2000 | 12 |
| USE OF COMPOSITOR SW67225 | 13 |
| NEW PROJECT / OPEN PROJECT | 14 |
| SOFTWARE OPTIONS | 15 |
| SET COMMUNICATION | 16 |
| RECEIVE NMEA 2000 | 18 |
| DEFINE RECEIVE NMEA 2000 | 20 |
| TRANSMIT NMEA 2000 | 21 |
| DEFINE TRANSMIT NMEA 2000 | 23 |
| UPDATE DEVICE VIA SERIAL | 24 |
| UPDATE DEVICE VIA UDP | 25 |
| MECHANICAL DIMENSIONS | 27 |
| ORDER CODE | 28 |
| ACCESSORIES | 28 |
| DISCLAIMER | 29 |
| OTHER REGULATIONS AND STANDARDS | 29 |
| WARRANTIES AND TECHNICAL SUPPORT | 30 |
| RETURN POLICY | 30 |

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 | 06/07/2010 | Dp | All | First release version |
| 1.002 | 11/02/2013 | Nt | All | Added new chapters |
| 1.100 | 26/08/2015 | Ff | All | New hardware version |
| | | | | |

WARNING:

ADFweb.com reserves the right to change information in this manual about our product without warning.
ADFweb.com is not responsible for any error this manual may contain.

TRADEMARKS:

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

SECURITY ALERT:**GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device are required for each individual application, legal and safety regulation. 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

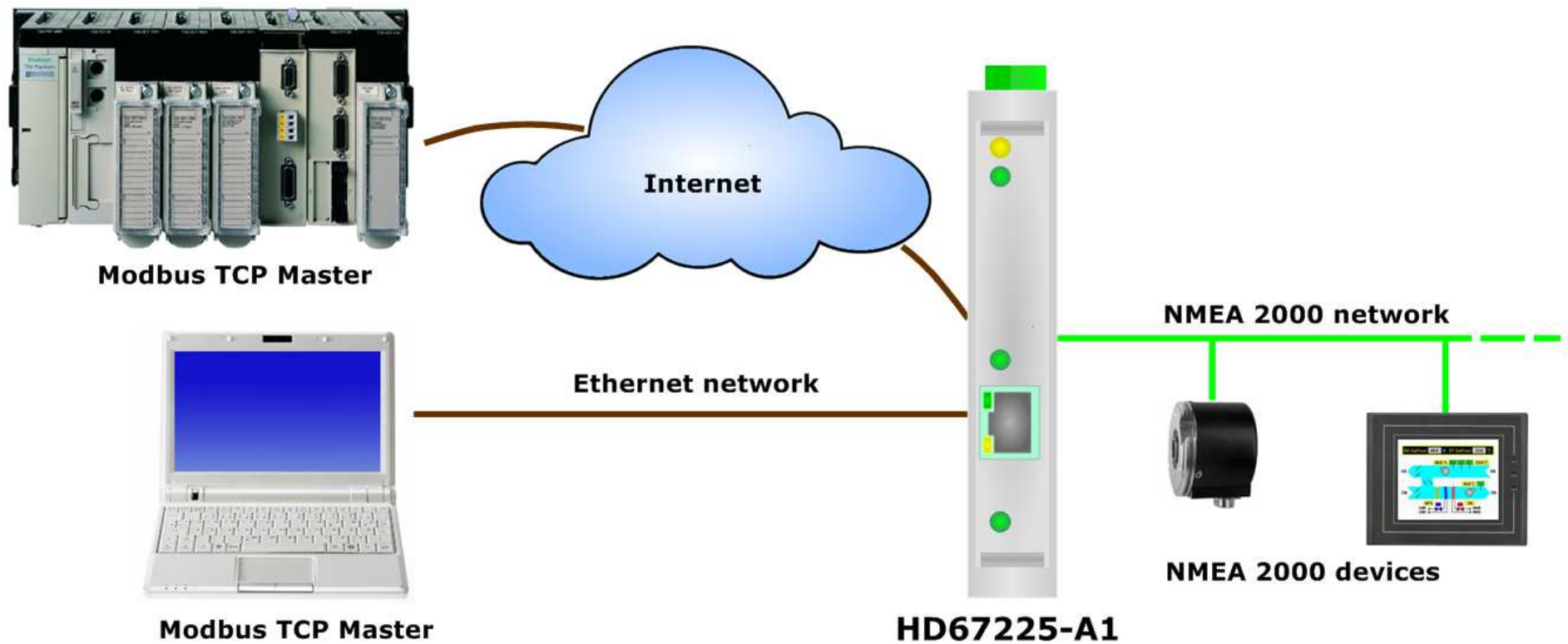
The device is state of the art and is safe. The instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:

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

CE CONFORMITY

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

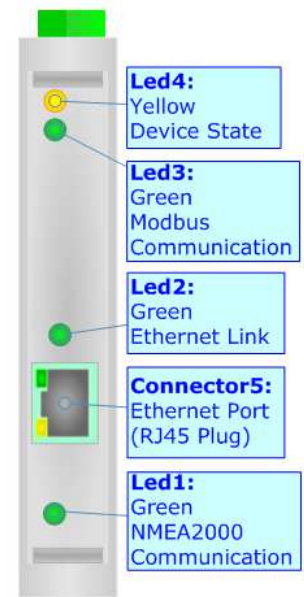
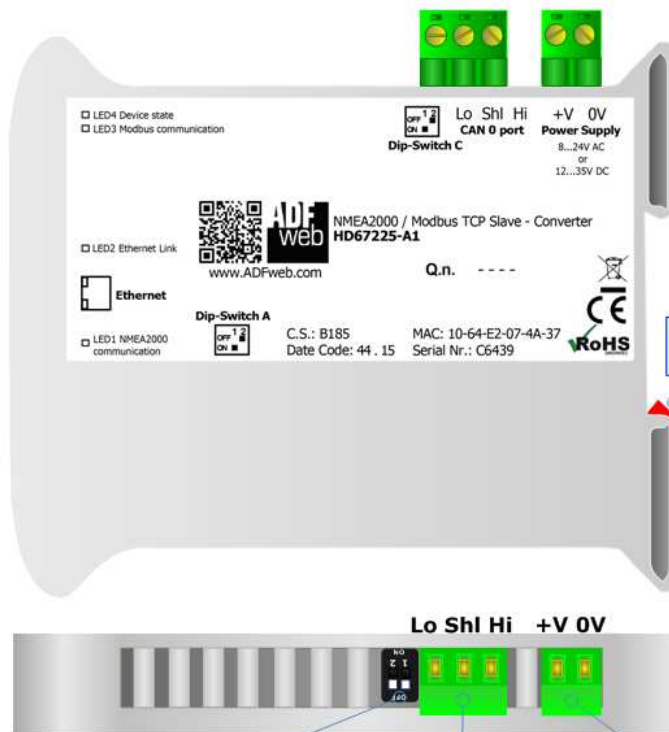
EXAMPLES OF CONNECTION:



CONNECTION SCHEME:

Dip-Switch A:
 -Dip1 – Must be at ON
 -Dip2 – Functioning Mode

= Normal = Boot



Dip-Switch C:
 -Dip1 – NMEA2000 Termination Resistor
 -Dip2 – Not used

= Open = 120 Ohm

Connector2:
 NMEA2000 port (Isolated port)
 Hi = High wire
 Shl = Shield* (to Isolated Ground)
 Lo = Low wire

Connector1:
 Power Supply port
 0V = Ground
 +V = Positive wire
 V AC: min 8V ; max 24V
 V DC: min 12V ; max 35V

Figure 1a: Connection scheme for HD67225-A1

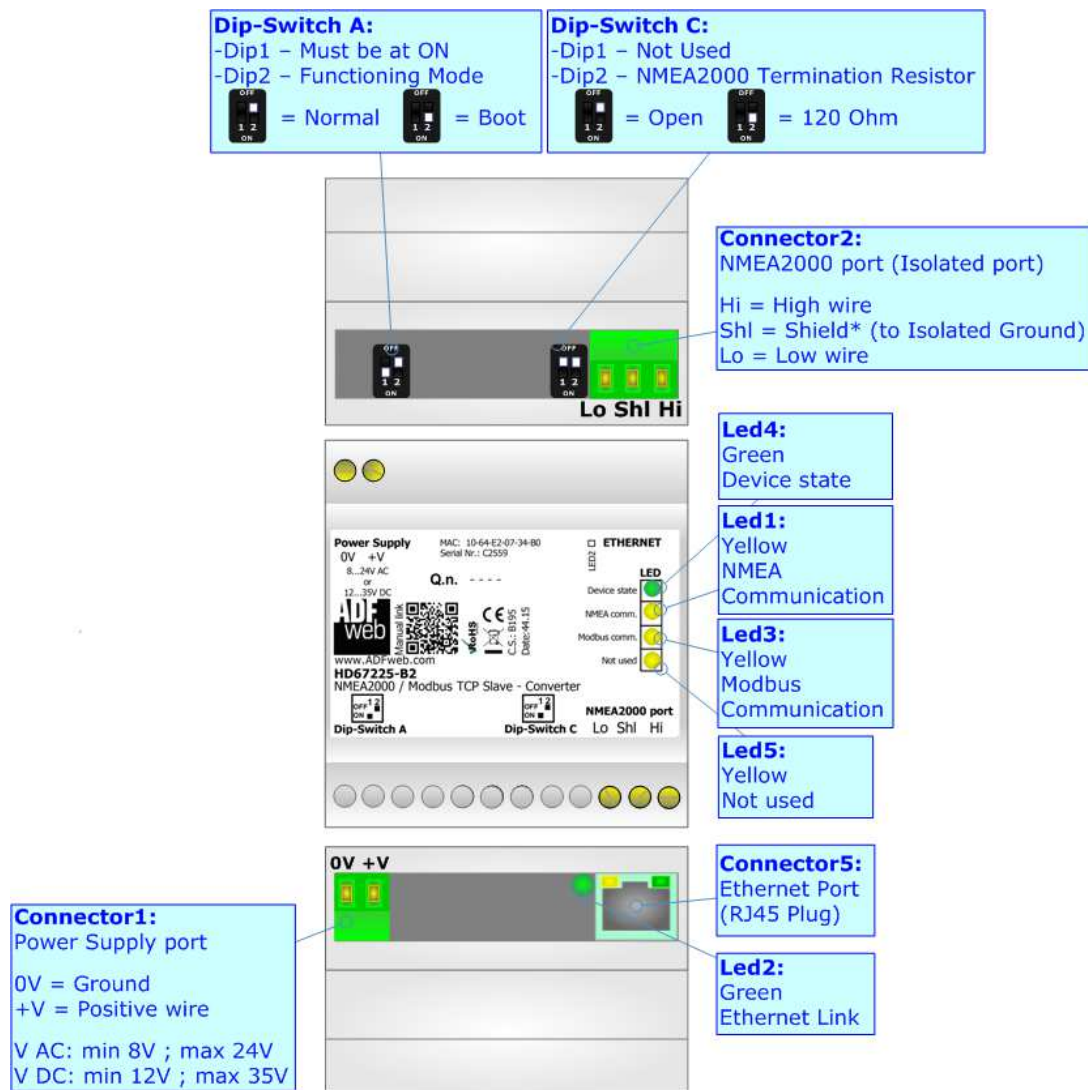


Figure 1b: Connection scheme for HD67225-B2

CHARACTERISTICS:

The "NMEA 2000 / Modbus TCP Slave – Converter" allows the following characteristics:

- two-directional information between networks NMEA 2000 and Modbus;
- electrical isolation between two Buses;
- to read NMEA 2000 frame from Modbus word;
- to write NMEA 2000 frame from Modbus word;
- Mountable on Rail DIN;
- Temperature range from -40°C to +85°C.

This device is able to manage a maximum of four simultaneous connections at Modbus TCP side.

CONFIGURATION:

You need Compositor SW67225 software on your PC in order to perform the following:

- Define the parameter of NMEA 2000;
- Define the parameter of Modbus TCP;
- Define which NMEA 2000 frames are read by the Modbus;
- Define which NMEA 2000 frames are write by the Modbus.

POWER SUPPLY:

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

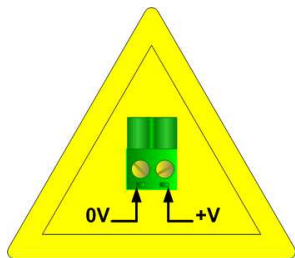
| VAC | | VDC | |
|------|------|------|------|
| Vmin | Vmax | Vmin | Vmax |
| 8V | 24V | 12V | 35V |

Consumption at 24V DC:

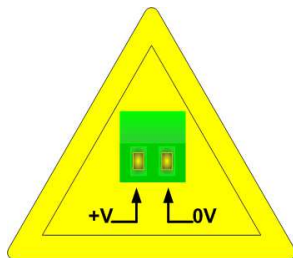
| Device | Consumption [W/VA] |
|------------|--------------------|
| HD67225-A1 | 3.5 |
| HD67225-B2 | 3.5 |



Caution: Not reverse the polarity power

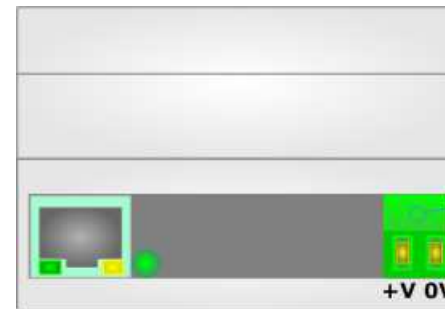


HD67225-A1



HD67225-B2

Connector1:
Power Supply port
0V = Ground
+V = Positive wire
V AC: min 8V ; max 24V
V DC: min 12V ; max 35V



Connector1:
Power Supply port
0V = Ground
+V = Positive wire
V AC: min 8V ; max 24V
V DC: min 12V ; max 35V

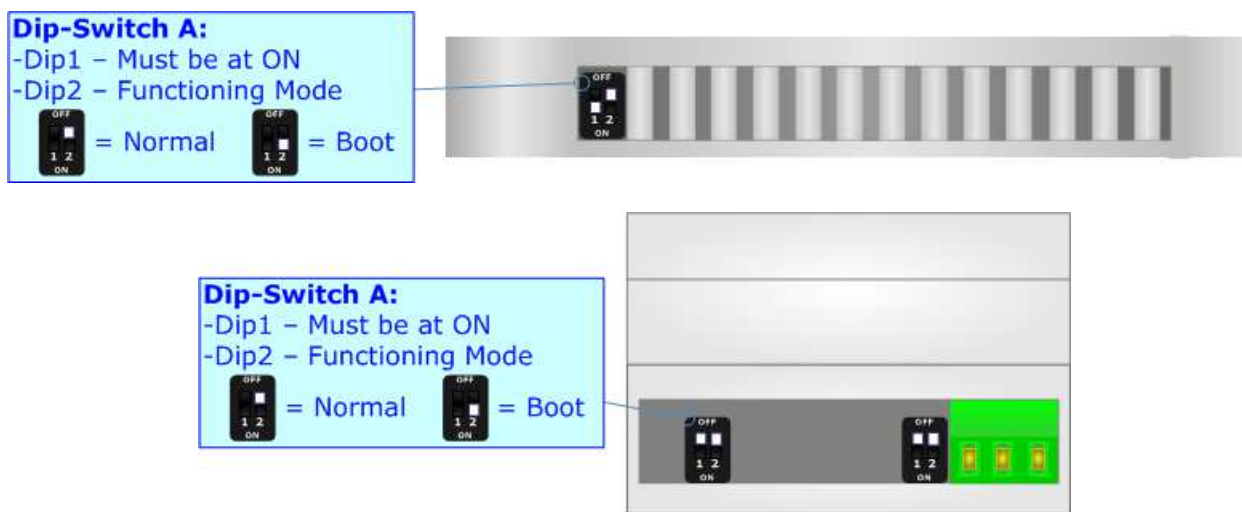
FUNCTION MODES:

The device has got two function modes depending on the position of the 'Dip2 of Dip-Switch A':

- The first, with 'Dip2 of Dip-Switch A' at "OFF" position, is used for the normal working of the device.
- The second, with 'Dip2 of Dip-Switch A' at "ON" position, is used for uploading the Project and/or Firmware.

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

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

**Warning:**

Dip1 of 'Dip-Switch A' must be at ON position to work even if the Ethernet cable is not inserted.

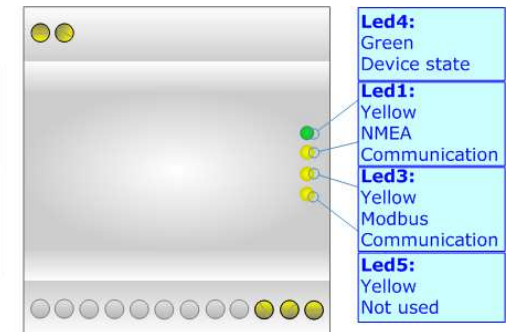
LEDS:

The devices has got four (five for HD67225-B2) 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: NMEA Communication (green) | Blinks when configured NMEA frames are received | Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress |
| 2: Ethernet Link (green) | ON: Ethernet cable connected OFF: Ethernet cable disconnected | ON: Ethernet cable connected OFF: Ethernet cable disconnected |
| 3: Modbus Communication (green) | Blinks when Modbus TCP requests are received | Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress |
| 4: Device State (yellow) | Blinks slowly (~1Hz) | Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress |
| 5: Not used (yellow) (Present only on HD67225-B2) | OFF | Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress |

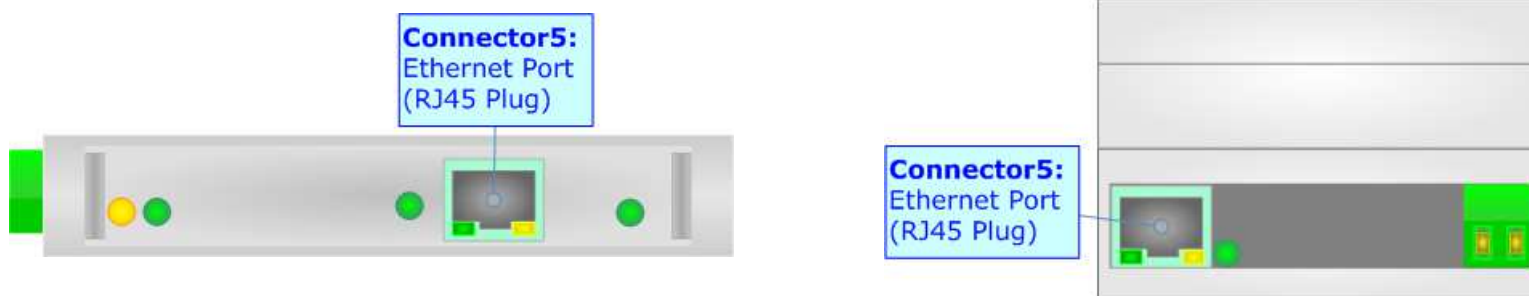


Led2:
Green
Ethernet Link



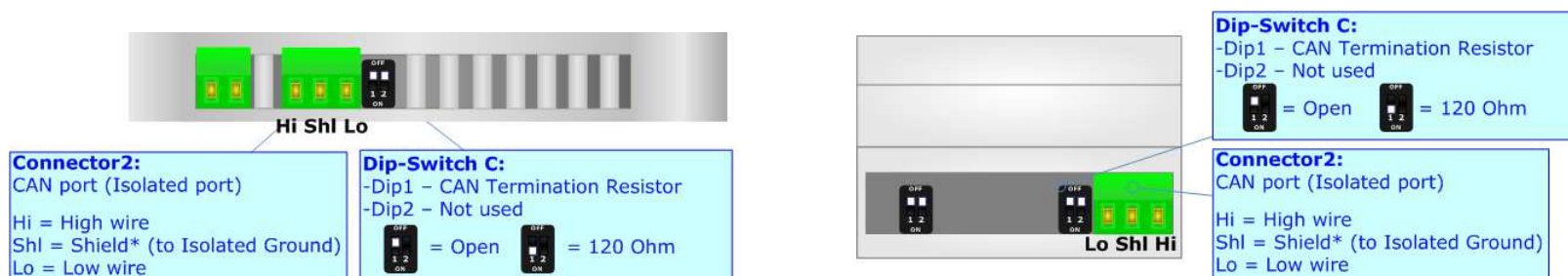
ETHERNET:

The Ethernet connection must be made using Connector5 of HD67225-A1/HD67225-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 a Hub/Switch the use of a straight cable is recommended. To connect the device to a PC/PLC/other the use of a cross cable is recommended.



NMEA 2000:

For terminating the NMEA 2000 line with a 120Ω resistor it is necessary that the Dip1 of 'Dip-Switch C' is 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 |

USE OF COMPOSITOR SW67225:

To configure the Converter, use the available software that runs with Windows called SW67225. 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 SW67225, the window below appears (Fig. 2).



Note:

It is necessary to have installed .Net Framework 4.

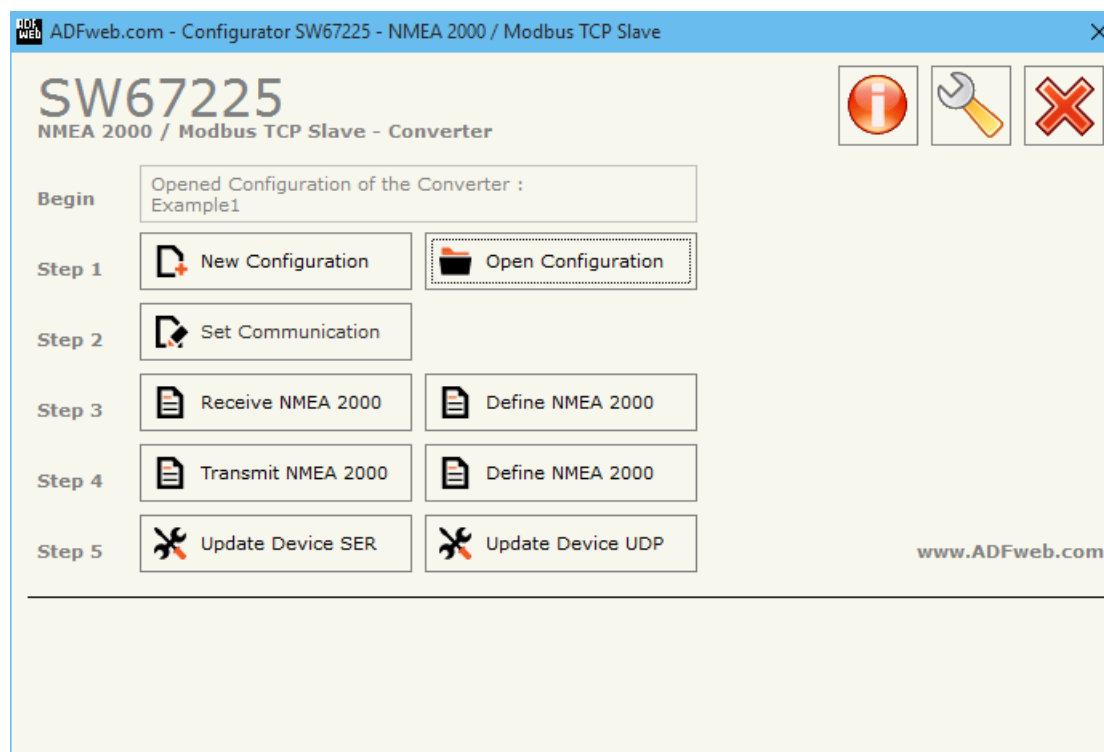
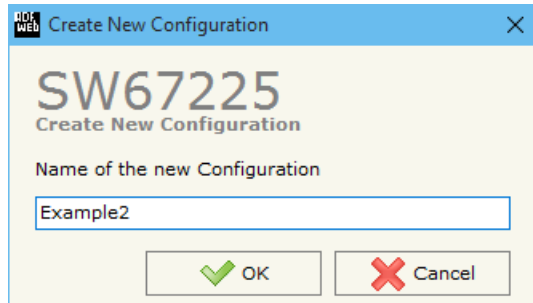


Figure 2: Main window for SW67225

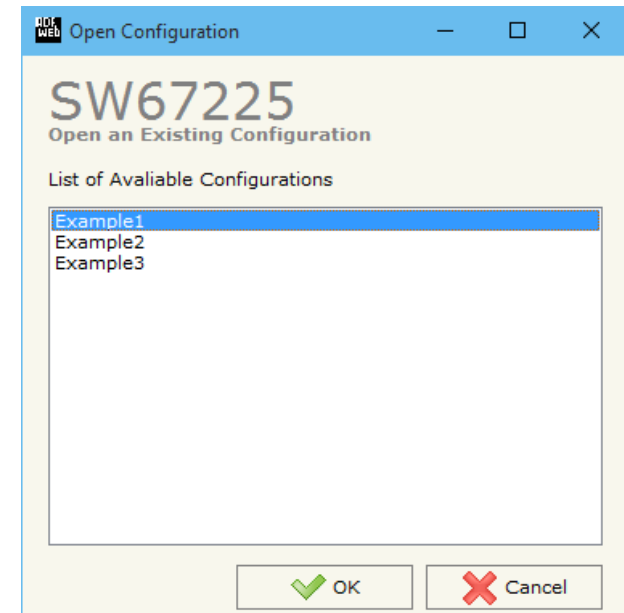
NEW CONFIGURATION / OPEN CONFIGURATION:

The “**New Configuration**” button creates the folder which contains the entire device’s configuration.




A device’s configuration can also be imported or exported:

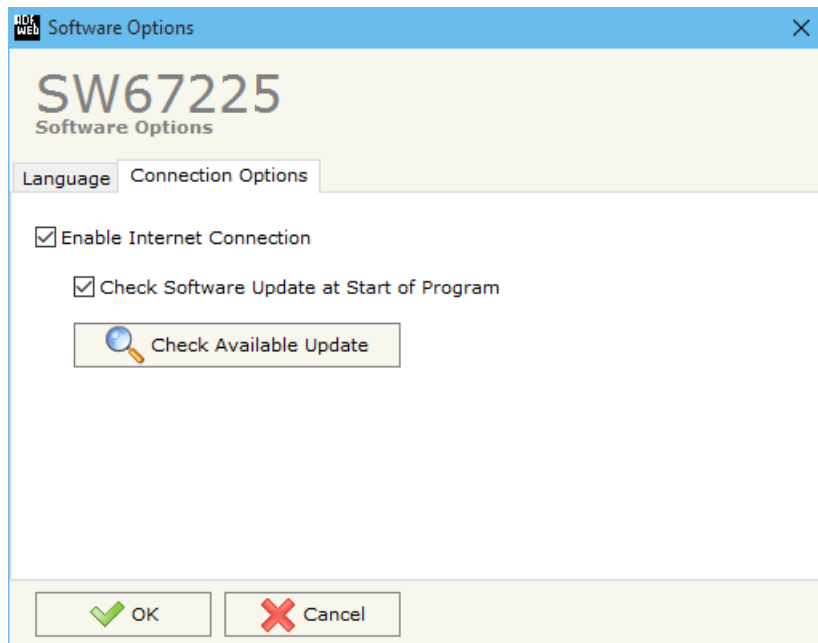
- To clone the configurations of a programmable “NMEA 2000 / Modbus TCP Slave - Converter” in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient 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 SW67225 check automatically if there are updatings when it is launched.

SET COMMUNICATION:

This section defines the fundamental communication parameters of two Buses, NMEA 2000 and Modbus TCP.

By pressing the **“Set Communication”** button from the main window for SW67225 (Fig. 2) the window **“Set communication”** appears (Fig. 3).

This window is divided in two sections, one for configure the NMEA 2000 and the other for the Modbus TCP Slave.

In the section **“Select Device”** it is possible to select the type of converter used:

- Device till April 2014 (with Jumper);
- Device from May 2014 (with Dip-Switches).

I

The means for the fields for the **“NMEA 2000”** are:

- In the field **“Baud Rate”** the baudrate of the NMEA 2000 is defined;
- In the field **“TimeOut”** the timeout of the data is defined. If this time is elapsed the value of the data of the NMEA 2000 frame become **“0”**. If the **“Cancel Data”** field is checked in the **“Receive NMEA 2000”** window;
- If the field **“Enable Peer to Peer”** is checked, the Source Address of the PGNs received by the converter is masked (only if a single NMEA device is connected);
- In the field **“Device ID NMEA 2000”** the ID of the converter is defined (only if **“Device from May 2014 (with Dip-Switches)”** is selected);

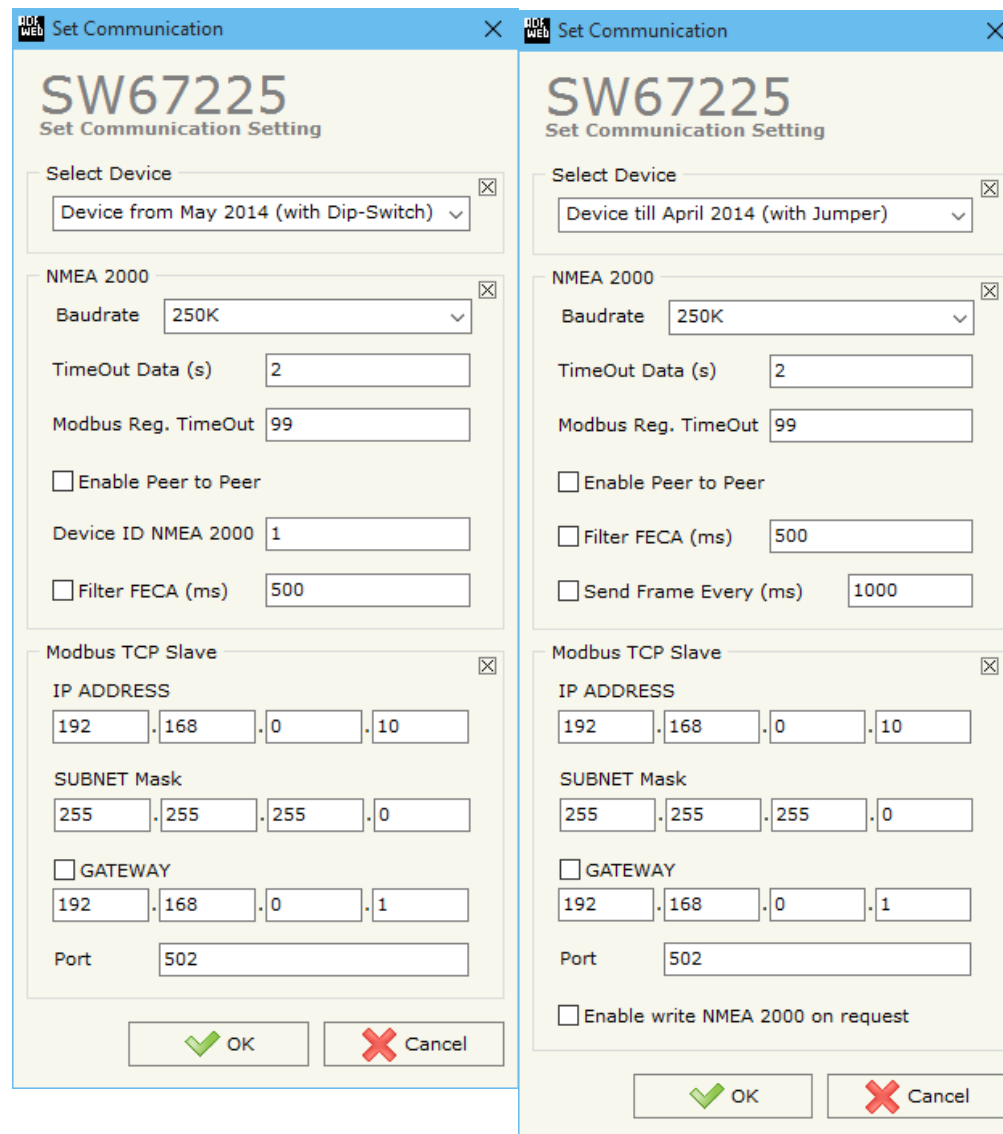


Figure 3: **“Set Communication”** window

- If the field "**Filter FECA (ms)**" is checked when the FECA PGN arrives the gateway puts the values in Standby. If the time, expressed in milliseconds and written at the right side of "Filter FECA", is elapsed and there aren't arrived the frames of Transport Protocol the gateway put the data of FECA into Modbus Registers. Otherwise if the Transport Protocol arrives before the time is elapsed the gateway put his data into Modbus Registers discarding the data of FECA. When this field is checked the values aren't updated when the FECA frame arrive but there is an offset of xx ms. You can use this function if there is only one NMEA 2000 device in the network;
- If the field "**Send frame every (ms)**" is checked the gateway sends cyclically the NMEA 2000 frames defined in "Transmit NMEA" section with the specific delay defined. Otherwise a frame is sent in NMEA 2000 when a modbus register is written into the gateway (only if "Device till April 2014 (with Jumper)" is selected).

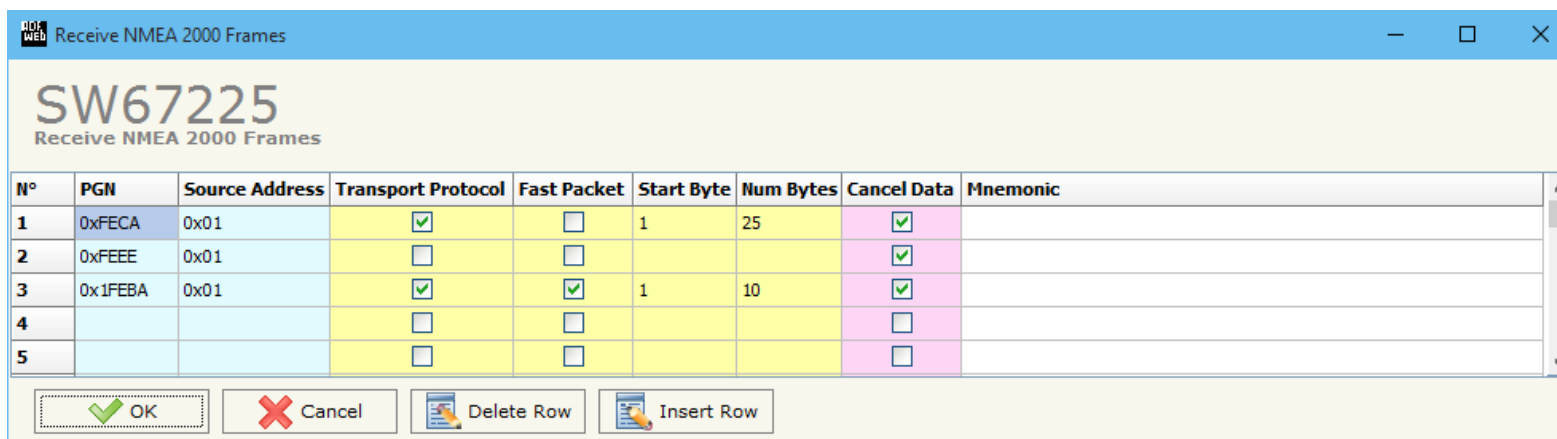
The means for the fields for "Modbus TCP Slave" are:

- In the field "**IP Address**", insert the IP address that you want to give to slave Modbus;
- In the field "**SubNet Mask**" insert the SubNet Mask;
- In the field "**Gateway**", insert the default gateway that you want to use. This feature can be enabled or disabled pressing the Check Box field. This feature is used for going out of the net;
- In the field "**Port**" insert the number of the port;
- If the field "**Fast StartUp**" is checked, the gateway take less time to go online. This command can use only if the gateway is used in a 100Mb/s network (only if "Device till April 2014 (with Jumper)" is set);
- If the field "**Enable write NMEA on request**" is checked, the field "Write NMEA 2000 frame" in "Transmit NMEA 2000 frame info" is enabled. If this field is not checked, the device send a NMEA 2000 frame for every written register. Otherwise it is possible to select when to send the NMEA 2000 frame (only if "Device till April 2014 (with Jumper)" is selected).

RECEIVE NMEA 2000:

By pressing the “**Receive NMEA 2000**” button from the main window for SW67225 (Fig. 2) the window “Receive CAN Frames Definition” appears (Fig. 4). In this section, it is possible to define the CAN frames that the converter will receive from CAN network.

If “Device till April 2014 (with Jumper)” is set in the section “Set Communication”, the window appears like below:

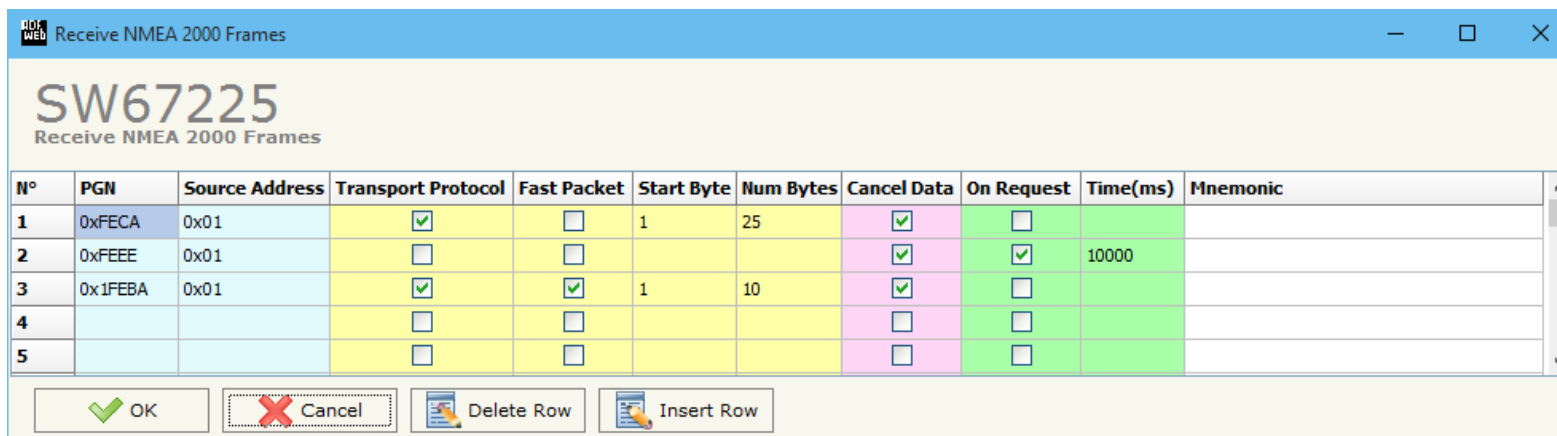


| N° | PGN | Source Address | Transport Protocol | Fast Packet | Start Byte | Num Bytes | Cancel Data | Mnemonic |
|----|---------|----------------|-------------------------------------|-------------------------------------|------------|-----------|-------------------------------------|----------|
| 1 | 0xFECA | 0x01 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1 | 25 | <input checked="" type="checkbox"/> | |
| 2 | 0xFEEE | 0x01 | <input type="checkbox"/> | <input type="checkbox"/> | | | <input checked="" type="checkbox"/> | |
| 3 | 0x1FEBA | 0x01 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | 10 | <input checked="" type="checkbox"/> | |
| 4 | | | <input type="checkbox"/> | <input type="checkbox"/> | | | <input type="checkbox"/> | |
| 5 | | | <input type="checkbox"/> | <input type="checkbox"/> | | | <input type="checkbox"/> | |

Figure 4a: “Receive NMEA 2000 Frames” window

- In the field “**PGN**” insert the PGN of the NMEA 2000 frame;
- In the field “**Source Address**” insert the Source Address of the NMEA 2000 frame;
- If the field “**Transport Protocol**” is checked the frame uses Transport Protocol functions;
- If the field “**Fast Packet**” is checked the frame uses Fast Packet functions;
- In the field “**Start Byte**” insert the byte which you would start read, this field is enable only when the field Transport Protocol is checked;
- In the field “**Num Bytes**” insert the number of byte you would read, for example your Start Byte is 20 an Num Bytes is 10, you can read the byte from 20 to 30;
- If the field “**Cancel Data**” is checked, after the timeout defined in the “Set Communication” window the value of the data of the NMEA 2000 frame become “0xFF”;
- In the field “**Mnemonic**” a description of the frame is defined.

If "Device from May 2014 (with Dip-Switches)" is set in the section "Set Communication", the window appears like below:



| N° | PGN | Source Address | Transport Protocol | Fast Packet | Start Byte | Num Bytes | Cancel Data | On Request | Time(ms) | Mnemonic |
|----|---------|----------------|-------------------------------------|-------------------------------------|------------|-----------|-------------------------------------|-------------------------------------|----------|----------|
| 1 | 0xFECA | 0x01 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 1 | 25 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | |
| 2 | 0xFEEE | 0x01 | <input type="checkbox"/> | <input type="checkbox"/> | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 10000 | |
| 3 | 0x1FEBA | 0x01 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1 | 10 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | |
| 4 | | | <input type="checkbox"/> | <input type="checkbox"/> | | | <input type="checkbox"/> | <input type="checkbox"/> | | |
| 5 | | | <input type="checkbox"/> | <input type="checkbox"/> | | | <input type="checkbox"/> | <input type="checkbox"/> | | |

Figure 4b: "Receive NMEA 2000 Frames" window

- In the field "**PGN**" insert the PGN of the NMEA 2000 frame;
- In the field "**Source Address**" insert the Source Address of the NMEA 2000 frame;
- If the field "**Transport Protocol**" is checked the frame uses Transport Protocol functions;
- If the field "**Fast Packet**" is checked the frame uses Fast Packet functions;
- In the field "**Start Byte**" insert the byte which you would start read, this field is enable only when the field Transport Protocol is checked;
- In the field "**Num Bytes**" insert the number of byte you would read, for example your Start Byte is 20 an Num Bytes is 10, you can read the byte from 20 to 30;
- If the field "**Cancel Data**" is checked, after the timeout defined in the "Set Communication" window the value of the data of the NMEA 2000 frame become "0xFF";
- If the field "**On Request**" is checked, the converter send the request frame to the related PGN in order to receive the frame with the data;
- In the field "**Time (ms)**" is possible to insert the interval used to send the frame "On Request";
- In the field "**Mnemonic**" a description of the frame is defined.

DEFINE NMEA 2000:

By pressing the **Define COB** button near "Receive NMEA 2000" from the main window for SW67225 (Fig. 2) the window "Define Modbus Registers for Receive NMEA 2000 Frames" appears (Fig. 5):

- In the field **"List of Receive CAN Frames"** there is the list of NMEA 2000 frames that you inserted in "Receive NMEA 2000" Section
- In the field **"List of Modbus Registers"** there are the Modbus words.
- In the field **"Create/Modify a Modbus Register"** you can define the index of the Modbus register and the bytes of the can frame that you map in.

For example:

Click on the frame, insert the valid address in the field "Index of Modbus Register", select the byte position (Byte 1 in High Modbus byte and Byte 3 in Low Modbus byte), click the "Create" button, in the field "List of Modbus Registers" appears the new Modbus register created with the data that it contains.

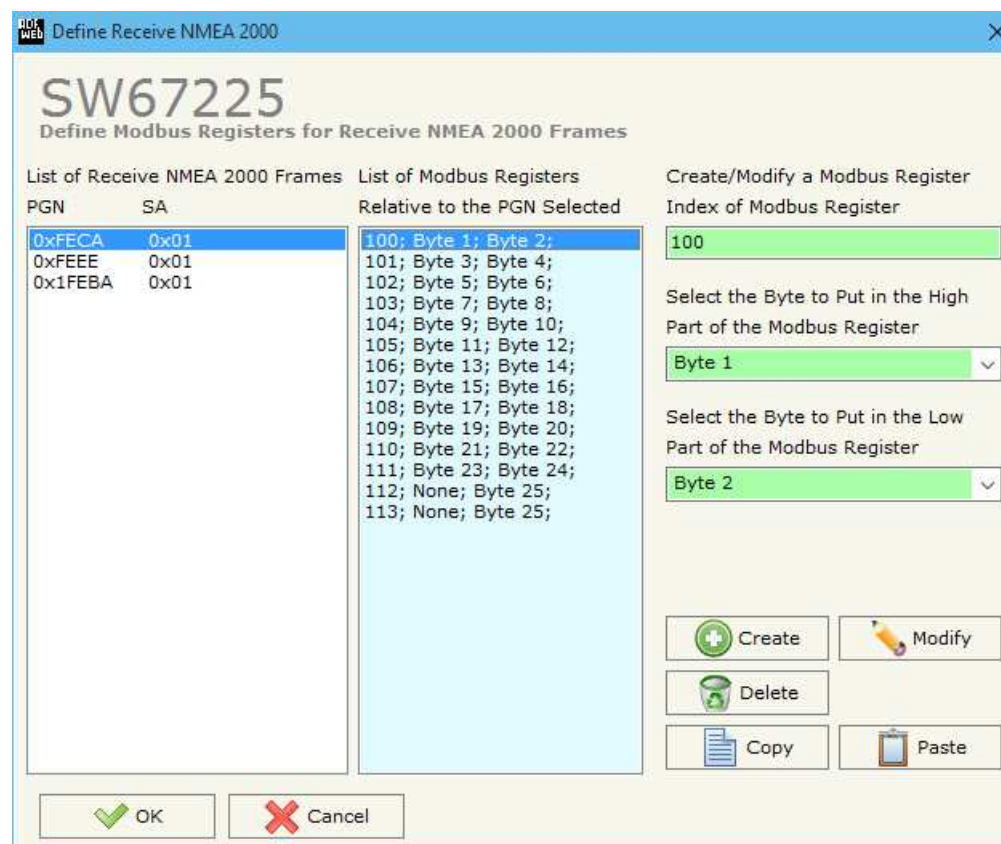
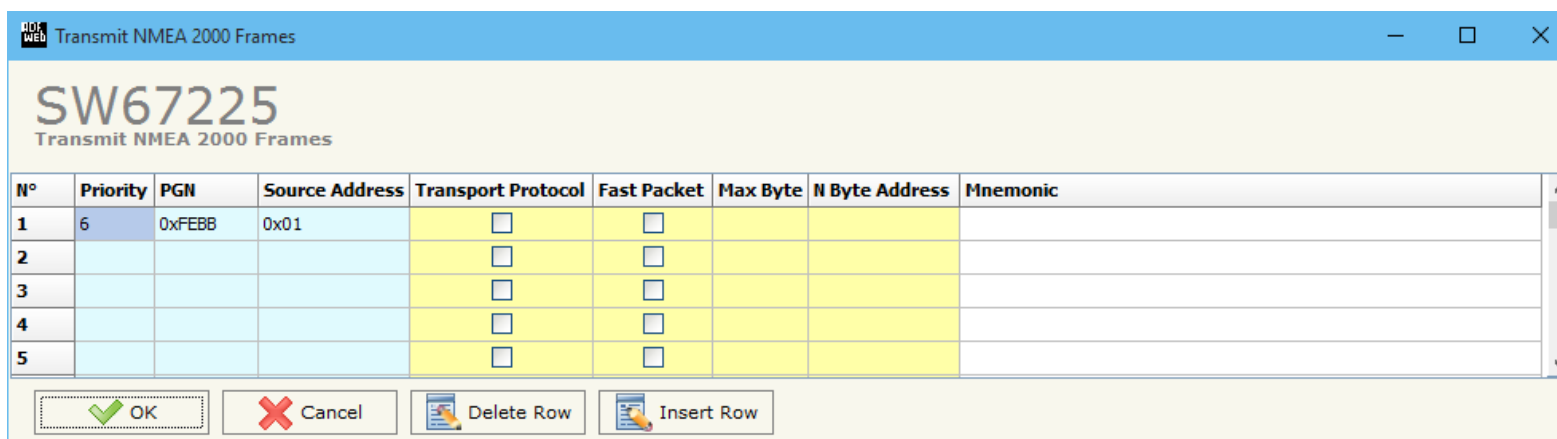


Figure 5: "Define NMEA 2000" window

TRANSMIT NMEA 2000:

By pressing the **“Transmit NMEA 2000”** button from the main window of SW67225 the window “Transmit NMEA 2000 Frames Definition” appears (Fig. 6): in this section, it is possible to define the CAN frames that the converter will send to the CAN network.

If “Device till April 2014 (with Jumper)” is set in the section “Set Communication”, the window appears like below:



| N° | Priority | PGN | Source Address | Transport Protocol | Fast Packet | Max Byte | N Byte Address | Mnemonic |
|----|----------|--------|----------------|--------------------------|--------------------------|----------|----------------|----------|
| 1 | 6 | 0xFE5B | 0x01 | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| 2 | | | | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| 3 | | | | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| 4 | | | | <input type="checkbox"/> | <input type="checkbox"/> | | | |
| 5 | | | | <input type="checkbox"/> | <input type="checkbox"/> | | | |

Figure 6a: “Transmit CAN Frame Definition” window

- In the field **“Priority”** insert the priority of the frame, in NMEA 2000 protocol is a number among 0,1,2,3,4,5,6,7. The number 0 is the highest priority and 7 is the lowest;
- In the field **“PGN”** insert the PGN of the data you would to write from modbus to NMEA 2000 (in the NMEA 2000 protocol the PGN is an identifier);
- In the field **“Source Address”** you insert the ID of device that sends the frame;
- If the field **“Transport Protocol”** is checked the frame uses Transport Protocol functions;
- If the field **“Fast Packet”** is checked the frame uses Fast Packet functions;
- In the field **“Max Byte”** insert the maximum number of bytes that the PGN will have (only if “Transport Protocol” is enabled);
- In the field **“N Byte Address”** insert the Modbus register where the number of bytes of the PGN is written. It must be smaller than “Max Byte” field;
- In the field **“Mnemonic”** the description for the frame is defined.

If "Device from May 2014 (with Dip-Switches)" is set in the section "Set Communication", the window appears like below:

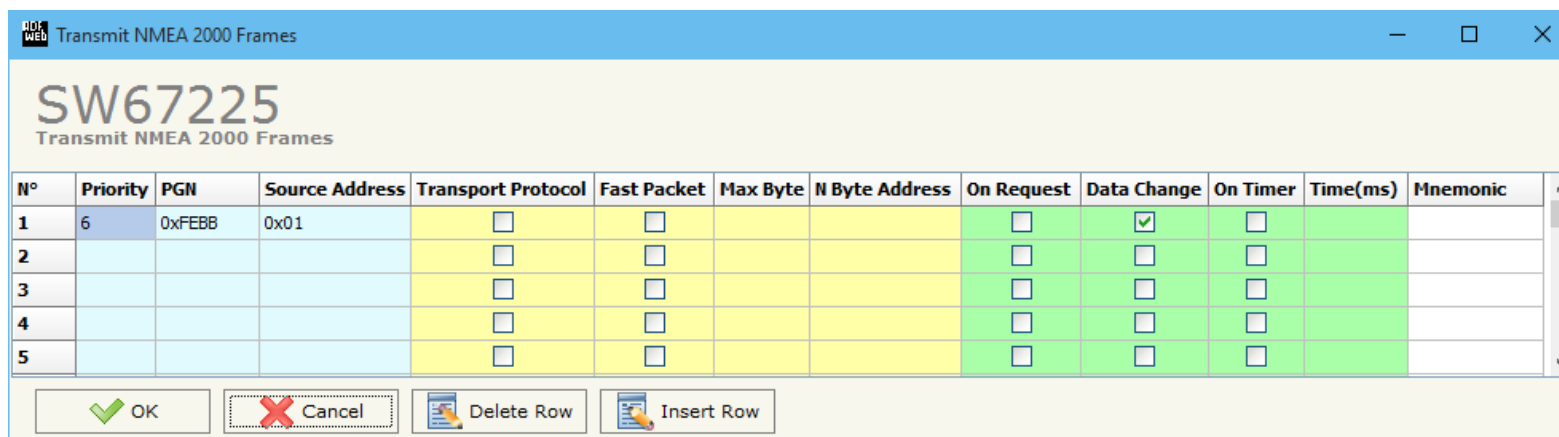


Figure 6b: "Transmit CAN Frame Definition" window

- In the field "**Priority**" insert the priority of the frame, in NMEA 2000 protocol is a number among 0,1,2,3,4,5,6,7. The number 0 is the highest priority and 7 is the lowest;
- In the field "**PGN**" insert the PGN of the data you would to write from modbus to NMEA 2000 (in the NMEA 2000 protocol the PGN is an identifier);
- In the field "**Source Address**" you insert the ID of device that send the frame;
- If the field "**Transport Protocol**" is checked the frame uses Transport Protocol functions;
- If the field "**Fast Packet**" is checked the frame uses Fast Packet functions;
- In the field "**Max Byte**" insert the maximum number of bytes that the PGN will have (only if "Transport Protocol" is enabled);
- In the field "**N Byte Address**" insert the Modbus register where the number of bytes of the PGN is written. It must be smaller than "Max Byte" field;
- If the field "**On Request**" is checked, the frame is sent when the converter receives the "On Request" command;
- If the field "**Data Change**" is checked, the frame is sent when the data changes;
- If the field "**On Timer**" is checked, the frame is send cyclically;
- In the field "**Time (ms)**" insert the interval used to send the frame with the option "On Timer";
- In the field "**Mnemonic**" the description for the frame is defined.

DEFINE NMEA 2000:

By pressing the **Define NMEA 2000** button, near "Transmit NMEA 2000" from the main window of SW67225 (Fig. 2) the window "Define Modbus Registers for Transmit NMEA 2000" appears (Fig. 7).

The meaning of the fields of the table are:

- In the field **List of Transmit NMEA 2000 Frames** there is the list of frames NMEA 2000 who you inserted in "Transmit NMEA 2000" Section;
- In the field **List of Modbus Registers** there is the list of Modbus registers you have defined for the selected NMEA 2000 frame;
- In the field **Index of Modbus Register** insert a value for the Modbus register;
- In the field **Select the Byte to put in the High Part of Modbus Register** select which byte of the NMEA 2000 frame you want to save in the high part of Modbus register;
- In the field **Select the Byte to put in the Low Part of Modbus Register** select which byte of the NMEA 2000 frame you want to save in the low part of Modbus register;
- In the field **Send NMEA 2000 frame on Modbus Write** is possible to decide if the NMEA 2000 frame is sent when the related Modbus register is written by the Modbus master.

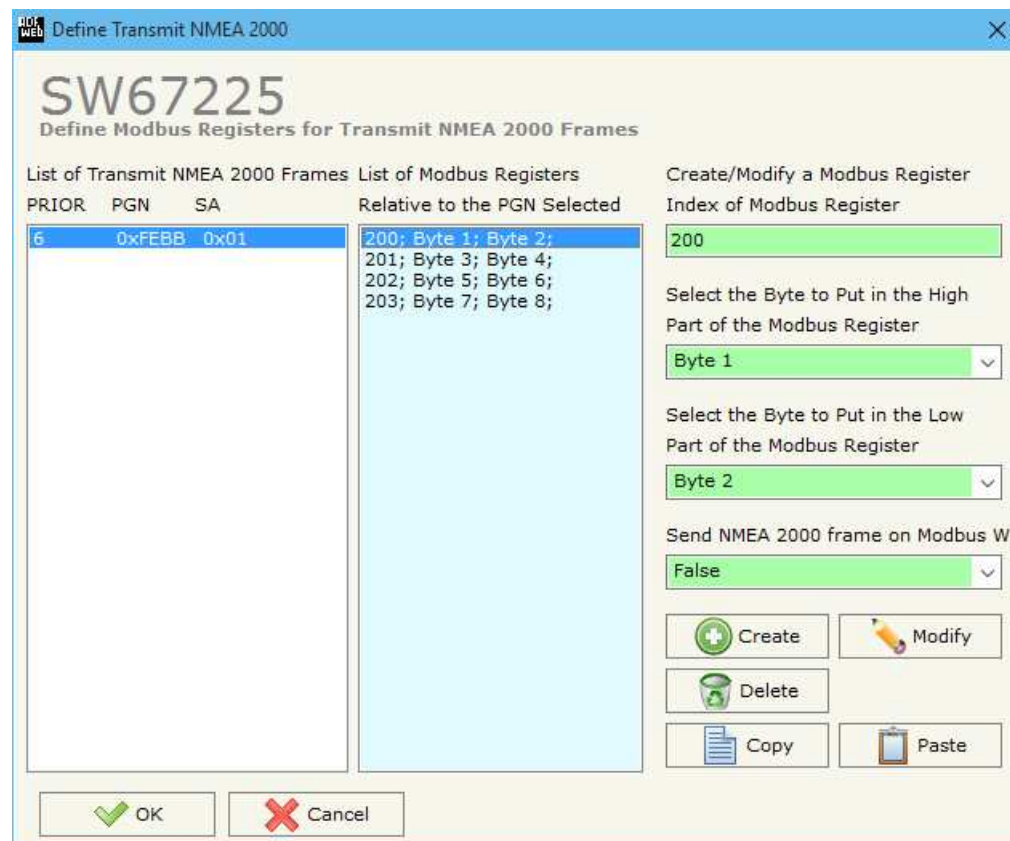


Figure 7: "Define NMEA 2000" window

For example:

Select one of the J1939 frames you have defined, insert a valid address in the field "Index of Modbus Register", select the byte position (Byte 1 in high MODBUS byte and Byte 2 in low MODBUS byte), press the **Create** button. In the field "List of Modbus Registers" appears the modbus register you have defined.

UPDATE VIA SERIAL (only if "Device till April 2014 (with Jumper)" is set):

By pressing the "Update Device" button it is possible to load the created Configuration into the device, and also the Firmware if is necessary, using the RS232 port.

In order to load the parameters or update the firmware in the device, follow these instructions:

- Turn off the Device;
- Connect the RS232 Null Modem cable form your PC to the Converter;
- Put Dip2 of 'Dip-Switch A' in ON position;
- Select the "COM port" and press the "Connect" button;
- Turn on the device;
- Check the "Device state" Led. It must blink quickly (see "LEDS" section);
- Press the "Next" button;
- 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 Dip2 of 'Dip-Switch A' in OFF position;
- Disconnect the RS232 cable;
- Turn on the device.

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

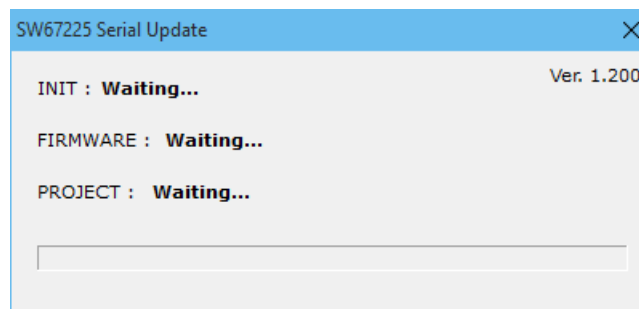
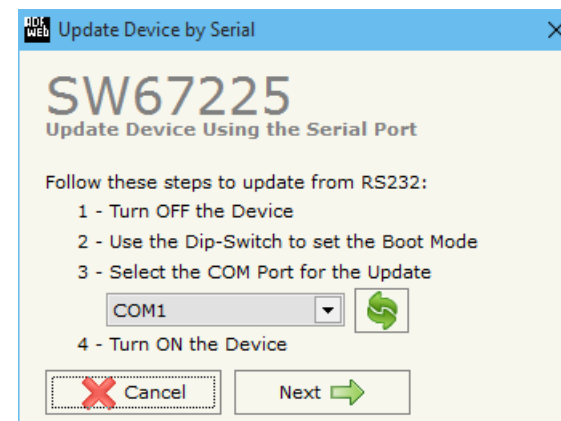


Figure 8a: "Update Device" windows

UPDATE VIA UDP:

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 Dip2 of 'Dip-Switch A' in ON position;
- Turn on the device
- Connect the Ethernet cable;
- Insert the IP “**192.168.2.205**”;
- Press the “**Ping**” button, “Device Found! must appear”;
- Press the “**Next**” button;
- 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 Dip2 of 'Dip-Switch A' in OFF position;
- Turn on the device.

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

If you know the actual IP address of the device, you have to use this procedure:

- Turn on the Device with the Ethernet cable inserted;
- Insert the actual IP of the Converter;
- Press the “**Ping**” button, must appear “Device Found!”;
- Press the “**Next**” button;
- 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.

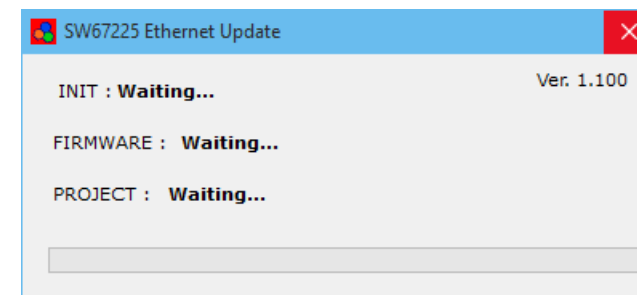
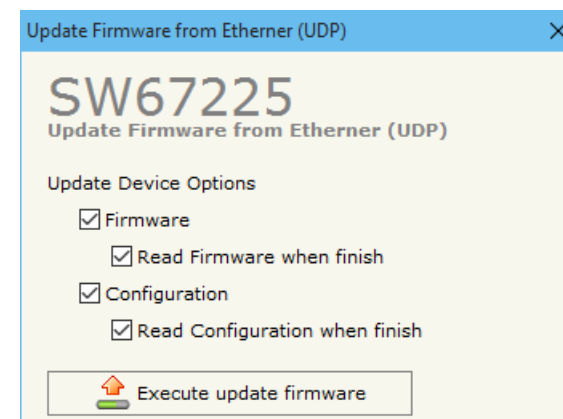
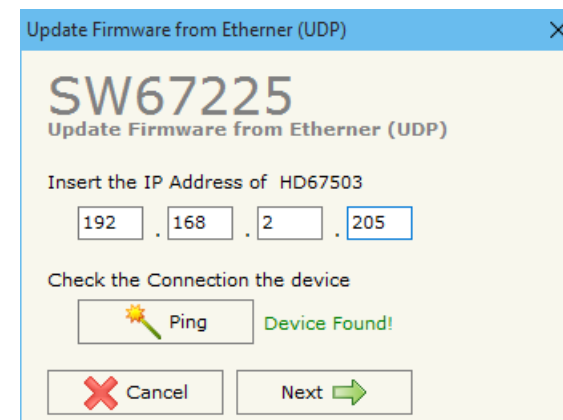




Figure 8b: “Update device” windows

 **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 HD67225-A1 or HD67225-B2 device.

 **Note:**
When you receive the device, for the first time, you also have to update the Firmware in the HD67225-A1 or HD67225-B2 device.

 **Warning:**
If Fig. 9 appears when you try to do the Update try these points before seeking assistance:

- Check if the serial COM port selected is the correct one;
- Check if the serial cable is connected between the PC and the device;
- Try to repeat the operations for the updating;
- If you are using a USB↔RS232 converter try with a native COM port or change the converter;
- 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 and 8 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 you have to launch the "Command Prompt" with Administrator Rights;
- Pay attention at Firewall lock.

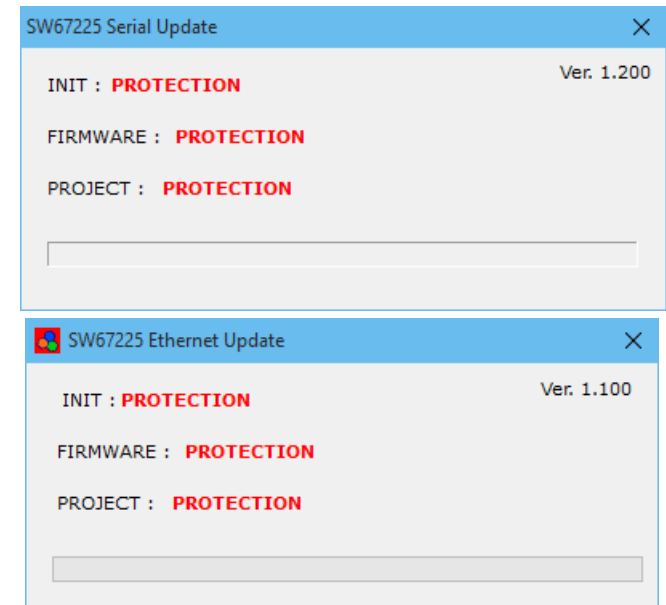
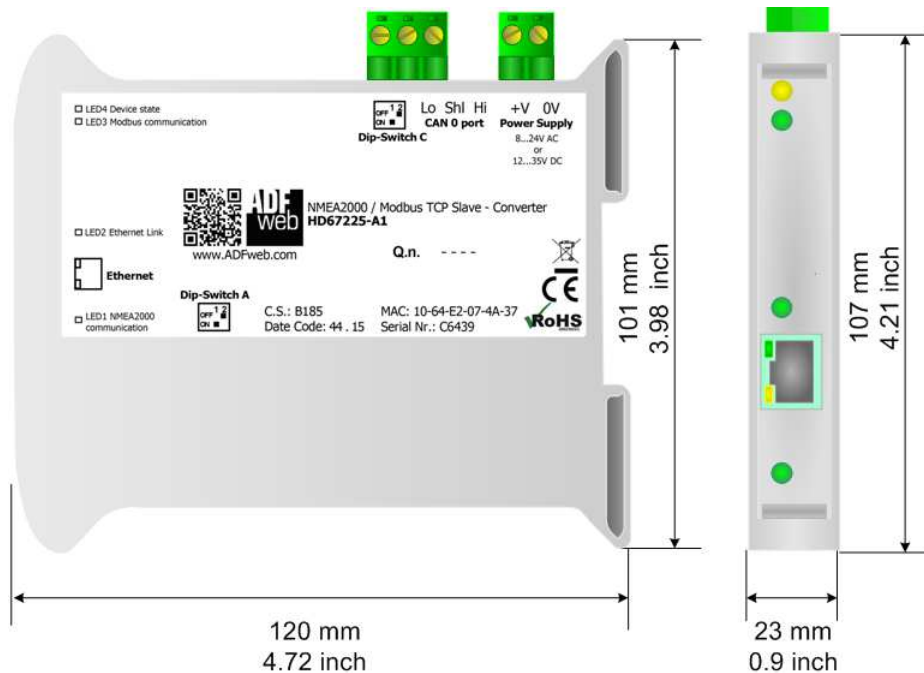


Figure 9: "Protection" window

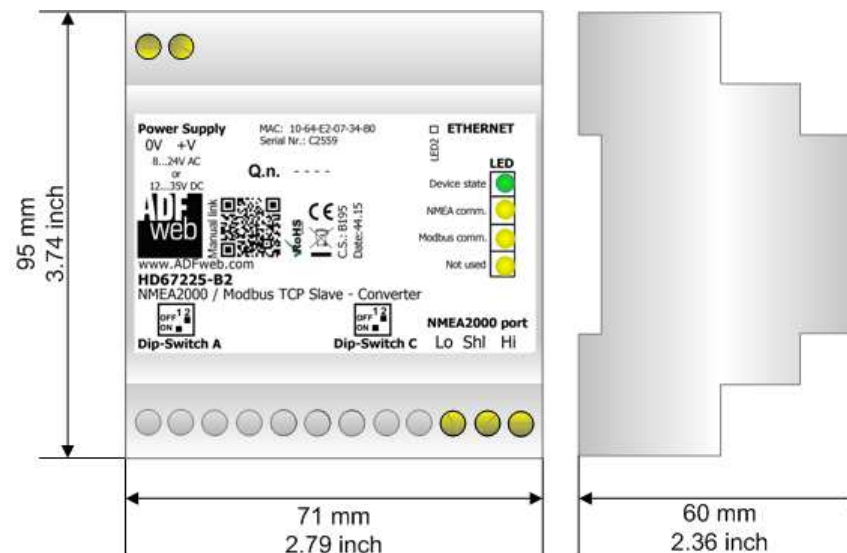
In the case of HD67225-A1 or HD67225-B2 you have to use the software "SW67225": www.adfweb.com/download/filefold/SW67225.zip.

MECHANICAL DIMENSIONS:



Housing: PVC
Weight: 200g (Approx)

Figure 10a: Mechanical dimensions scheme for HD67225-A1



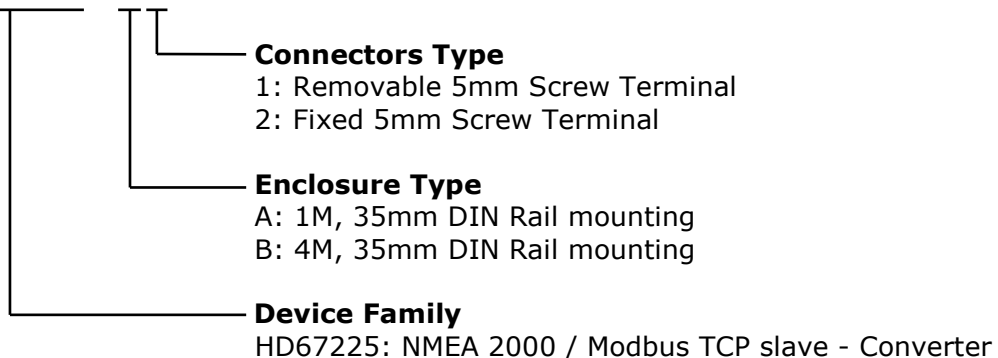
Housing: PVC
Weight: 200g (Approx)

Figure 10b: Mechanical dimensions scheme for HD67225-B2

ORDERING INFORMATIONS:

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

HD67225 - x x



Order Code: **HD67225-A1** - NMEA 2000 / Modbus TCP slave - Converter

Order Code: **HD67225-B2** - NMEA 2000 / Modbus TCP slave - Converter

ACCESSORIES:

Order Code: **AC34001** - 35mm Rail DIN - Power Supply 220/240V AC 50/60Hz - 12 V AC

Order Code: **AC34002** - 35mm Rail DIN - Power Supply 110V AC 50/60Hz - 12 V AC

DISCLAIMER:

All technical content within this document can be modified without notice. The content of the document is a under continual renewal. For losses due to fire, earthquake, third party access or other accidents, or intentional or accidental abuse, misuse, or use under abnormal conditions repairs are charged to the user. ADFweb.com S.r.l. will not be liable for accidental loss of use or inability to use this product, such as loss of business income. ADFweb.com S.r.l. shall not be liable for consequences of improper use.

OTHER REGULATIONS AND STANDARDS:**WEEE INFORMATION**

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

— This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and impact of human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE

The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

CE MARKING

The product conforms with the essential requirements of the applicable EC directives.

WARRANTIES AND TECHNICAL SUPPORT:

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at www.adfweb.com.
Otherwise contact us at the address support@adfweb.com

RETURN POLICY:

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- Obtain a Product Return Number (PRN) from our internet support at www.adfweb.com. Together with the request, you need to provide detailed information about the problem.
- Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.



ADFweb.com S.r.l.
Via Strada Nuova, 17
IT-31010 Mareno di Piave
TREVISO (Italy)
Phone +39.0438.30.91.31
Fax +39.0438.49.20.99
www.adfweb.com

