User Manual

Revision 1.102
English

PROFIBUS Slave / Ethernet - Converter

(Order Code: HD67563-A1, HD67563M)

For Website information:
www.adfweb.com?Product=HD67563

For Price information:
www.adfweb.com?Price=HD67563-A1
www.adfweb.com?Price=HD67563M

Benefits and Main Features:

- Triple electrical isolation
- Two Ethernet ports (A1 version)
- Temperature range: -40°C/+85°C (-40°F/+185°F)

For others Gateway / Adapters:
PROFIBUS to
See also the following link:

www.adfweb.com?Product=HD67551	(**CANopen**)
www.adfweb.com?Product=HD67552	(**CAN**)
www.adfweb.com?Product=HD67553	(**J1939**)
www.adfweb.com?Product=HD67554	(**DeviceNet**)
www.adfweb.com?Product=HD67564M	(**Modbus TCP Client**)
www.adfweb.com?Product=HD67565M	(**Modbus TCP Server**)

For others Converter / Adapter:
Ethernet to
See also the following link:

www.adfweb.com?Product=HD67503	(**CANopen**)
www.adfweb.com?Product=HD67513	(**CAN**)
www.adfweb.com?Product=HD67213	(**J1939**)

Do you have an your customer protocol?
See the following link:
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

User Manual

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
CONFUGURATION	7
POWER SUPPLY	8
FUNCTION MODES	9
LEDS (HD67563-A1)	10
LEDS (HD67563M)	11
PROFIBUS	12
ETHERNET	13
RS232	13
USE OF COMPOSITOR SW67563	14
NEW CONFIGURATION / OPEN CONFIGURATION	15
SOFTWARE OPTIONS	16
SET COMMUNICATION	17
GSD FILE	18
UPDATE VIA SERIAL (ONLY FOR HD67563M)	19
UPDATE VIA UDP (ONLY FOR HD67563-A1)	20
ETHERNET PROTOCOL	22
MECHANICAL DIMENSIONS	24
ORDER CODE	26
ACCESSORIES	26
DISCLAIMER	27
OTHER REGULATIONS AND STANDARDS	27
WARRANTIES AND TECHNICAL SUPPORT	28
RETURN POLICY	28

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
1.100	14/04/2015	Ff	All	Added A1 version
1.101	17/04/2025	Ln	All	New design
1.102	15/12/2025	Ln	All	New hardware

WARNING:

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

TRADEMARKS:

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

SECURITY ALERT:

GENERAL INFORMATION

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

INTENDED USE

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

QUALIFIED PERSONNEL

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

RESIDUAL RISKS

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

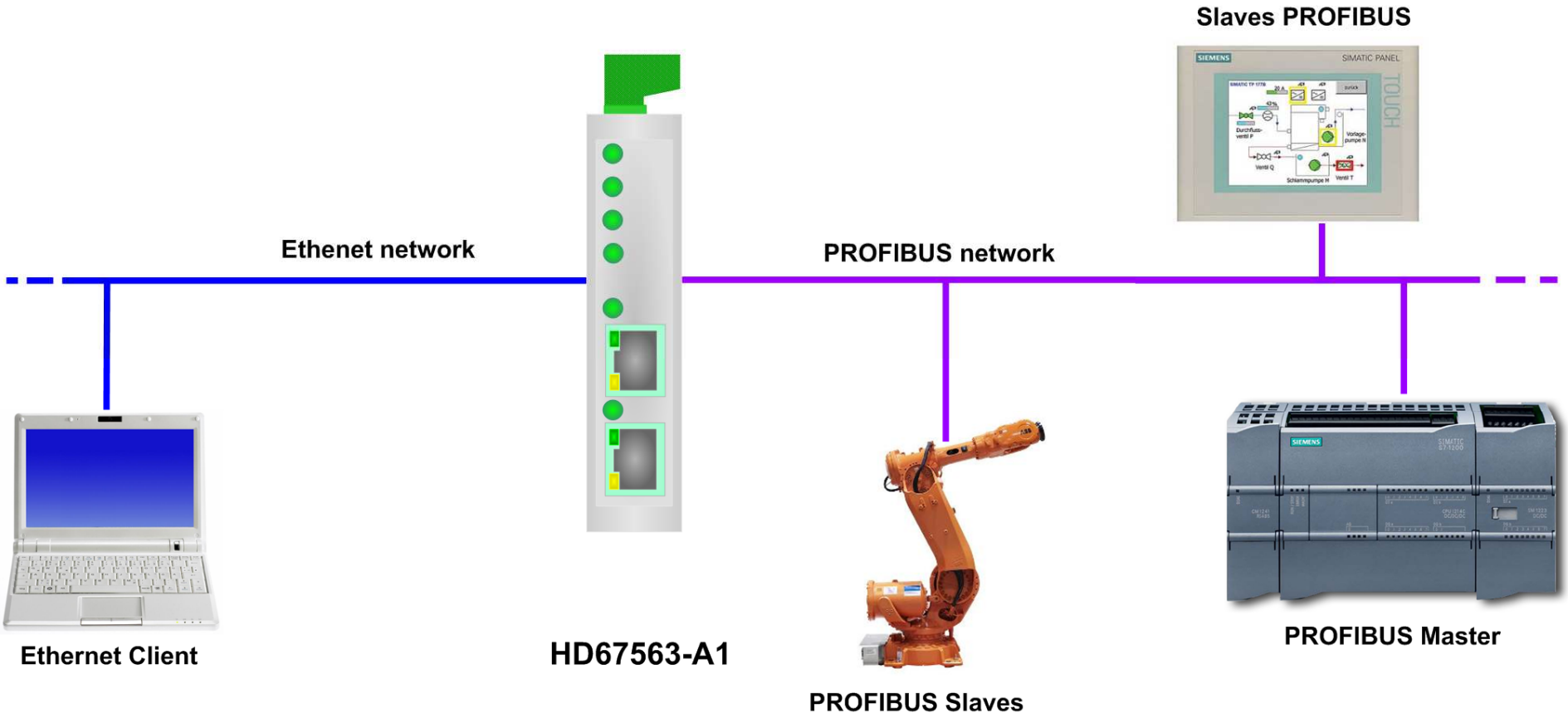


This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

CE CONFORMITY

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

EXAMPLE OF CONNECTION:



CONNECTION SCHEME:

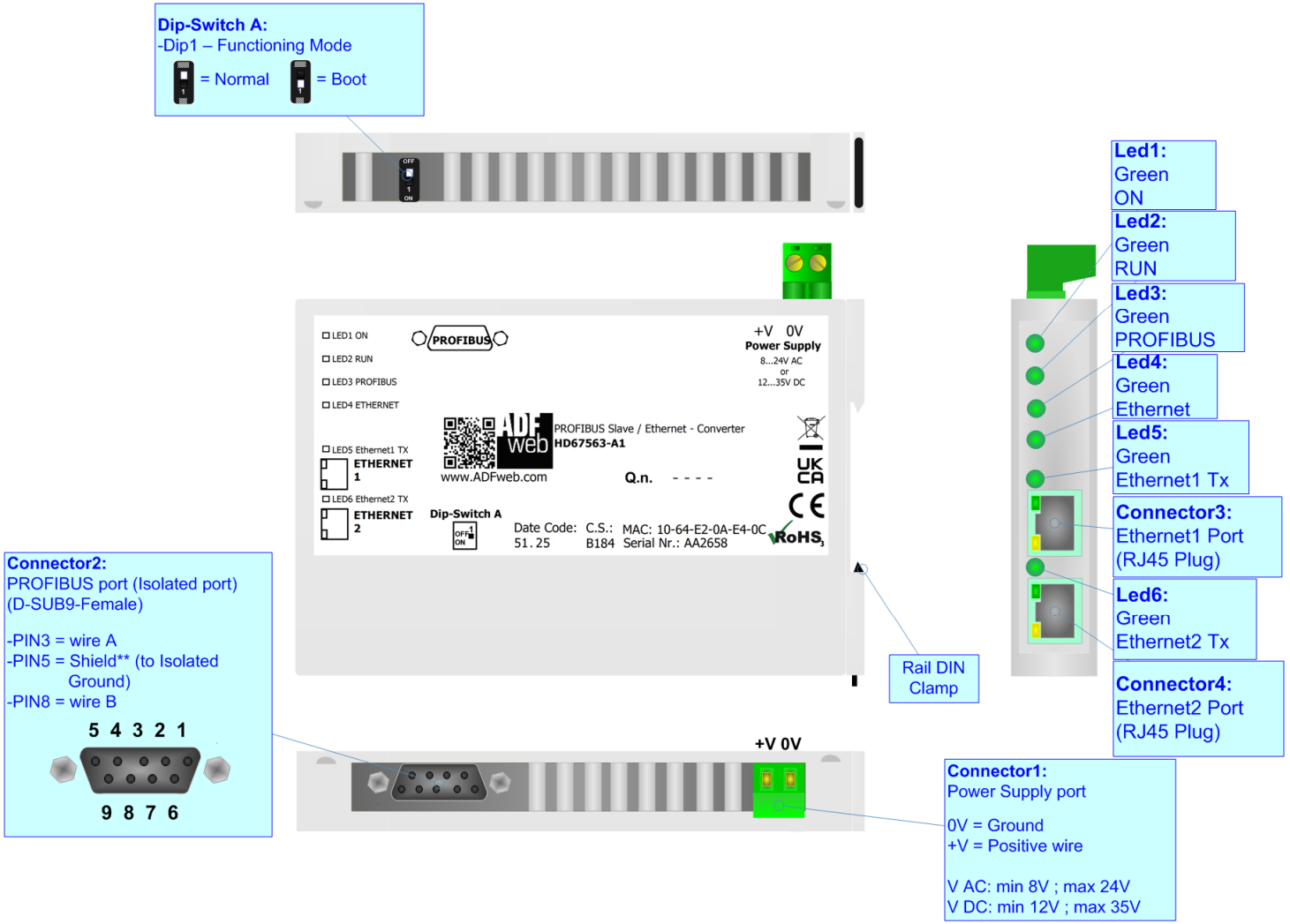


Figure 1a: Connection scheme for HD67563-A1

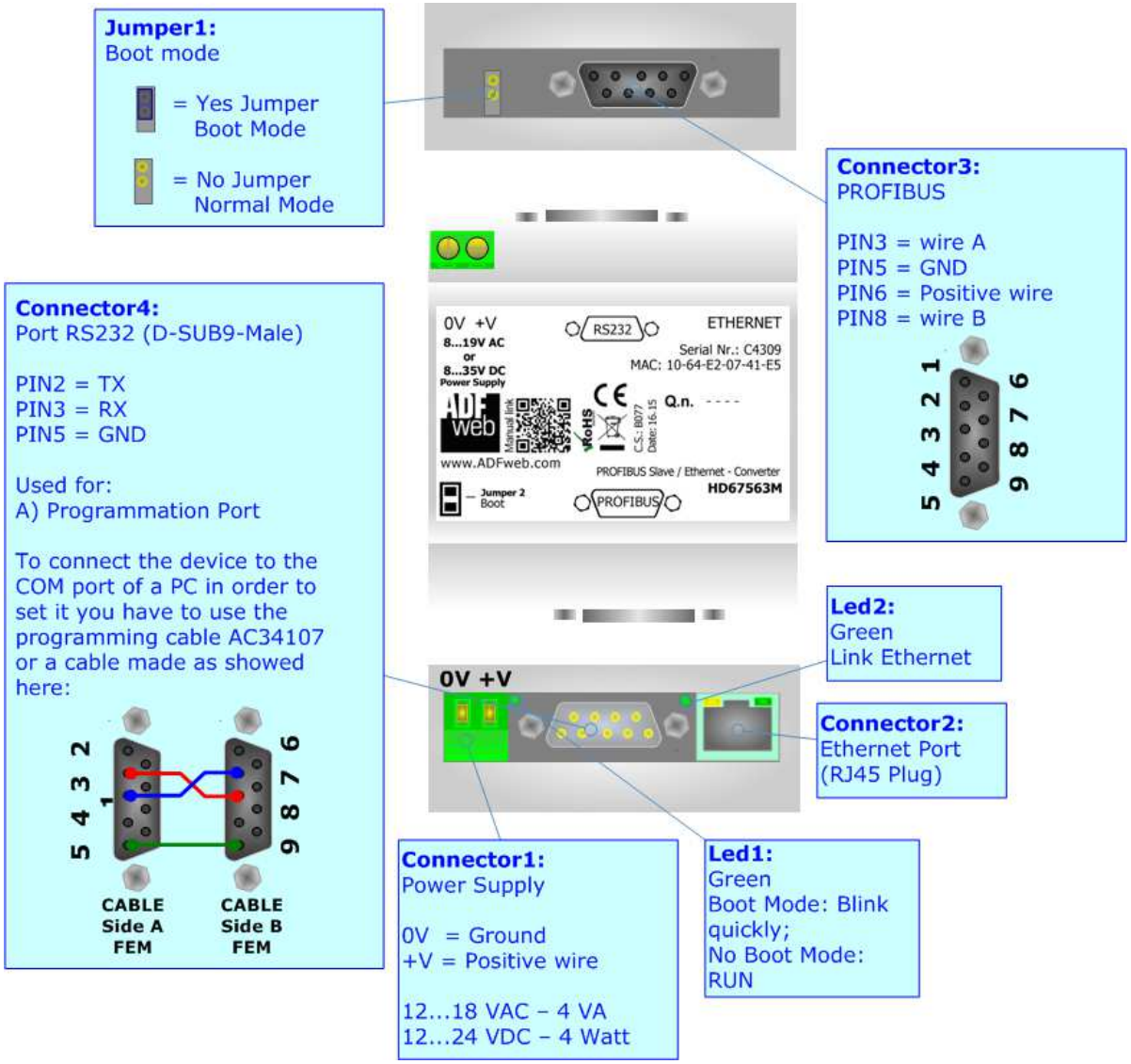


Figure 1b: Connection scheme for HD67563M

CHARACTERISTICS:

The HD67563-A1 and HD67563M are a PROFIBUS Slave / Ethernet Converter.

They allows the following characteristics:

- Two-directional information between Ethernet network and PROFIBUS;
- Eletrical isolation between two buses;
- Up to 244 bytes in reading and 244 bytes in writing;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 8…24V AC or 12…35V DC;
- Wide temperature range: -40°C / +85°C [-40°F / +185°F].

CONFIGURATION:

You need Compositor SW67563 software on your PC in order to perform the following:

- Define the parameter of the PROFIBUS;
- Define the parameter of Ethernet;
- Define which Modbus registers save in the PROFIBUS arrays;
- Create a GSD file;
- Update the device.

POWER SUPPLY:

The devices can be powered at 8…24V AC and 12…35V DC (for the HD67563-A1) and at 8…19V AC and 8…35V DC (for HD67563M). The consumption depends to the code of the device. For more details see the two tables below.

VAC ~		VDC ⎓	
Vmin	Vmax	Vmin	Vmax
8V	24V	12V	35V

HD67563-A1

VAC ~		VDC ⎓	
Vmin	Vmax	Vmin	Vmax
8V	19V	8V	35V

HD67563M

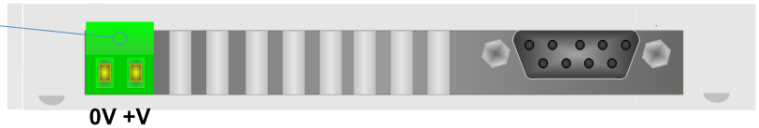
Consumption at 24V DC:

Device	Consumption [W/VA]
HD67563-A1	3.5
HD67563M	3.5

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

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



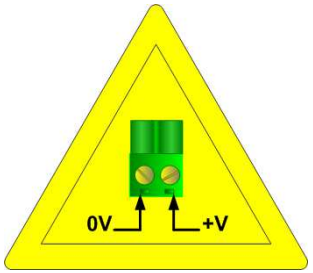
Connector1:
Power Supply

0V = Ground
+V = Positive wire

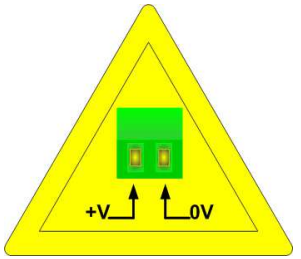
12...18 VAC – 4 VA
12...24 VDC – 4 Watt



Caution: Not reverse the polarity power



HD67563-A1



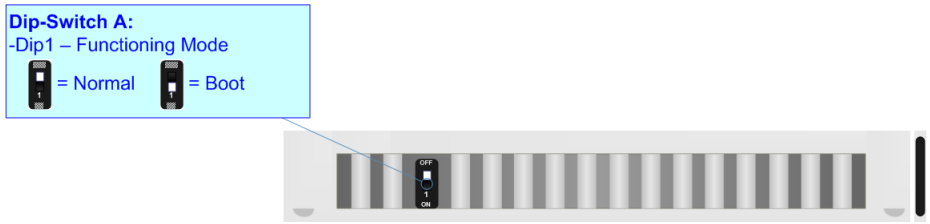
HD67563M

FUNCTION MODES:

HD67563-A1

The device has got two function modes depending on the position of the 'Dip1 of Dip-Switch A':

- The first, with 'Dip1 of Dip-Switch A' at "OFF" position, is used for the normal working of the device.
- The second, with 'Dip1 of Dip-Switch A' at "ON" position, is used for uploading the Project and/or Firmware.



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

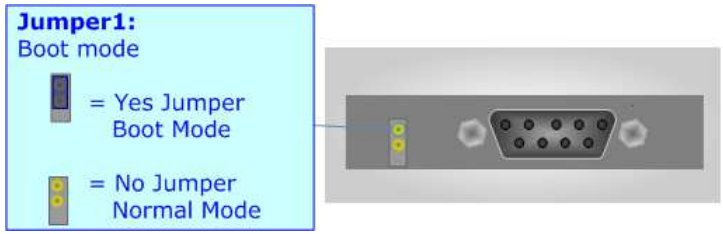
According to the functioning mode, the LEDs will have specific functions, see 'LEDS' section.

Warning:
Dip1 of 'Dip-Switch A' must be at ON position for working even if the Ethernet cable isn't inserted.

HD67563M

The HD67563M has got two functions mode depending of the position of the 'Jumper1':

- The first, with 'Jumper1' not inserted, is used for the normal working of the device.
- The second, with 'Jumper1' inserted, is used for upload the Project and/or Firmware.

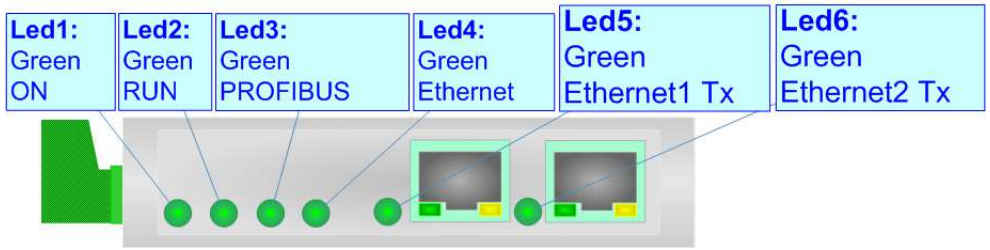


For the operations to follow for the updating, see 'UPDATE DEVICE' section.
According to the functioning mode, the LEDs will have specifics functions, see 'LEDS' section.

LEDS (HD67563-A1):

The device has got six LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

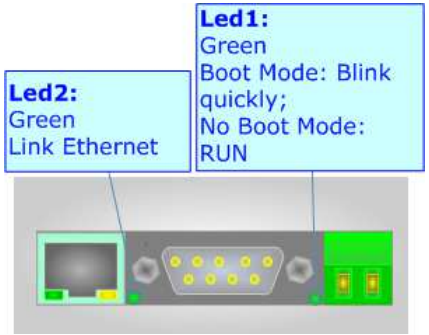
LED	Normal Mode	Boot Mode
1: ON [supply voltage] (green)	**ON:** Device powered **OFF:** Device not powered	**ON:** Device powered **OFF:** Device not powered
2: Device State (green)	Blinks slowly (~1Hz)	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: PROFIBUS comm. (green)	**Flashing:** PROFIBUS communication is working correctly **OFF:** PROFIBUS communication is not working	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: Ethernet comm. (green)	Changes state when a correct Ethernet request is received	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
5: Ethernet1 link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable not connected	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
6: Ethernet2 link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable not connected	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress



LEDS (HD67563M):

The device has got two 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
2: Ethernet link (green)	**ON:** Ethernet cable connected **OFF:** Ethernet cable not connected	OFF

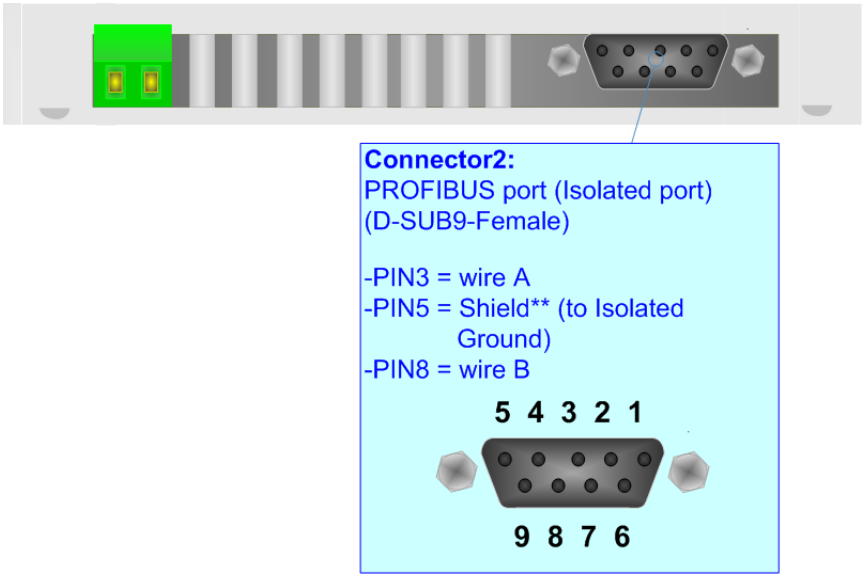


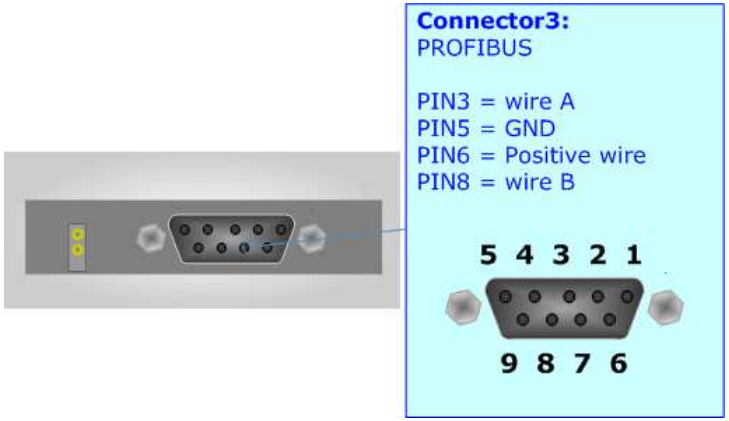
PROFIBUS:

The PROFIBUS uses a 9-pin D-SUB connector. The pin assignment is defined like in the following figure.

Here some codes of cables:

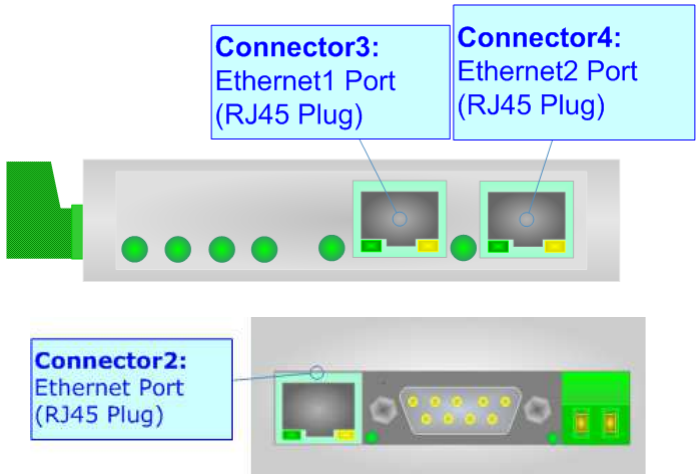
- Belden: p/n 183079A - Continuous Armor DataBus® ISA/SP-50 PROFIBUS Cable.





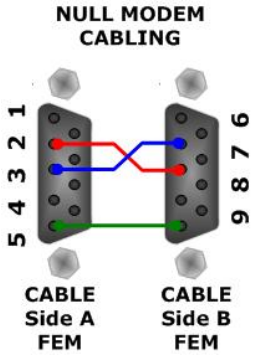
ETHERNET:

The Ethernet connection must be made using Connector2/3/4 of HD67563-A1/HD67563M 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.



RS232 (only for HD67563M):

The connection from RS232 socket to a serial port (example one from a personal computer), must be made with a Null Modem cable (a serial cable where the pins 2 and 3 are crossed). It is recommended that the RS232C Cable not exceed 15 meters.
The serial port is used for programming the device.



USE OF COMPOSITOR SW67563:

To configure the Converter, use the available software that runs with Windows called SW67563. It is downloadable on the site www.adfweb.com and its operation is described in this document. *(This manual is referenced to the last version of the software present on our web site)*. The software works with MSWindows (XP, Vista, Seven, 8, 10 or 11; 32/64bit).

When launching the SW67563, the window below appears (Fig. 2).

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

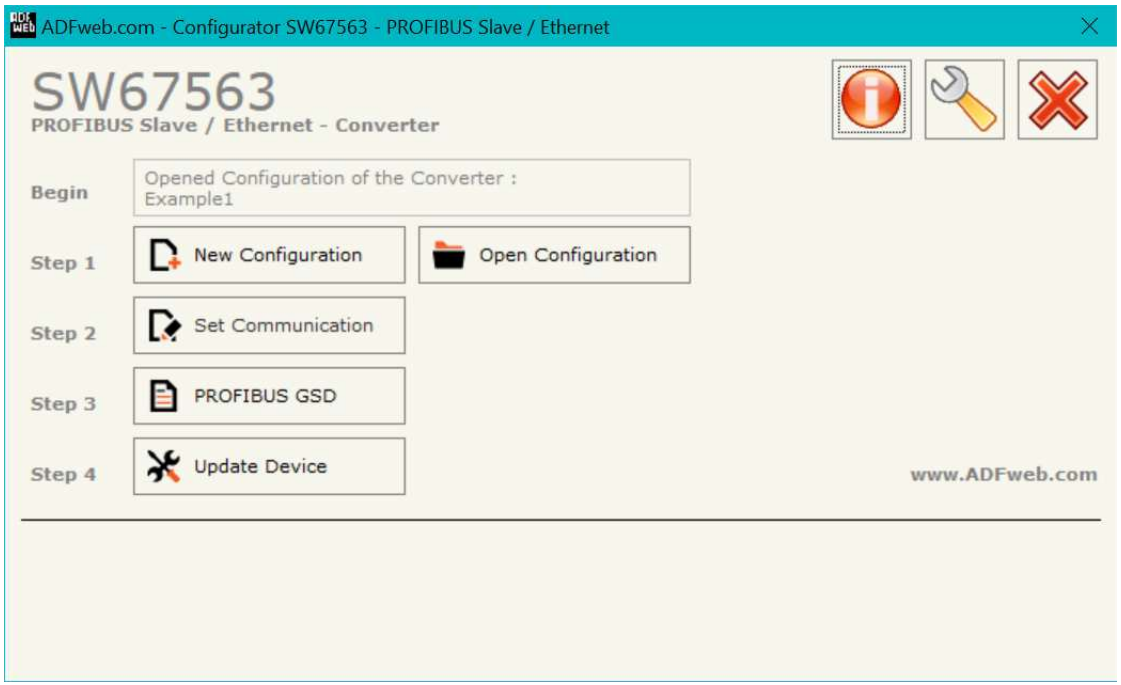
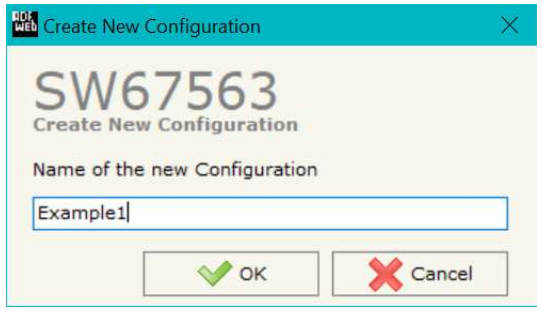


Figure 2: Main window for SW67563

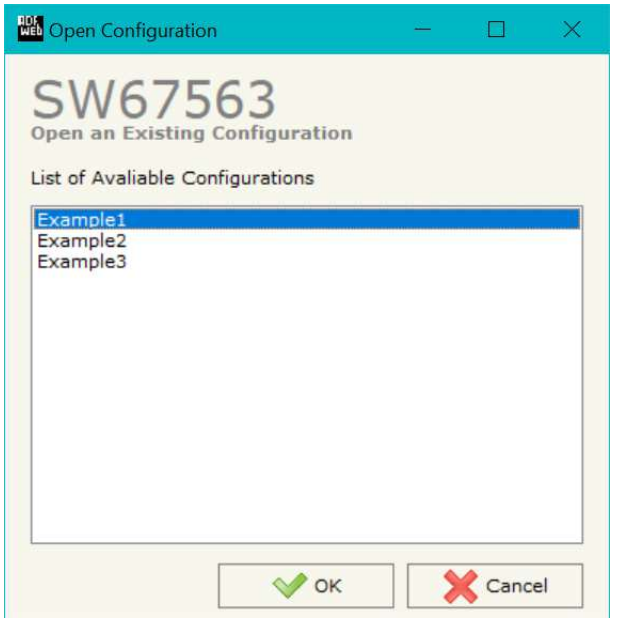
NEW CONFIGURATION / OPEN CONFIGURATION:

The "**New Configuration**" button creates the folder which contains the entire device's configuration.



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

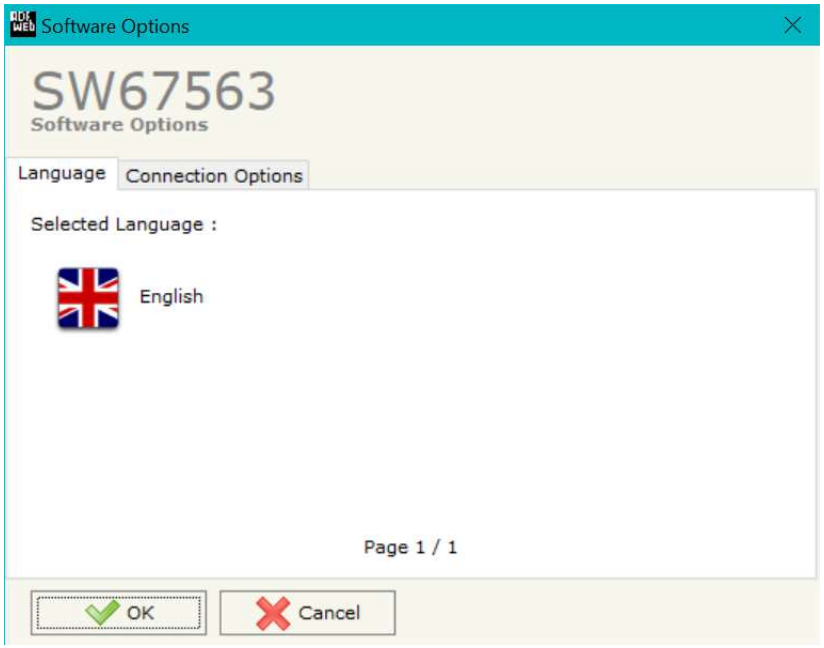
- To clone the configurations of a Programmable "PROFIBUS Slave / Ethernet - Converter" in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button "**Open Configuration**".

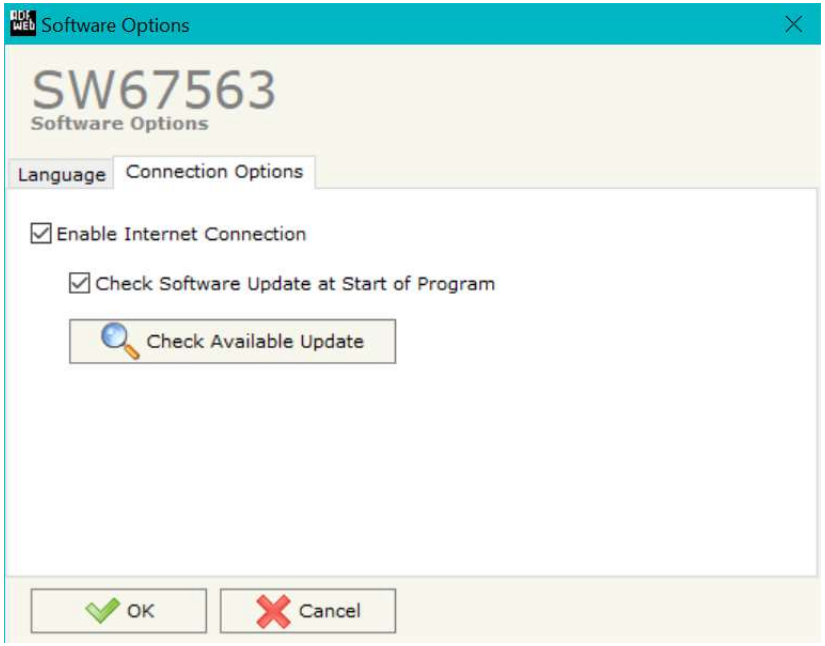


SOFTWARE OPTIONS:

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 SW67563 check automatically if there are updatings when it is launched.

SET COMMUNICATION:

This section defines the fundamental communication parameters of two buses, PROFIBUS and Ethernet.

By pressing the "**Set Communication**" button from the main window for SW67563 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The window is divided in three sections, one for selecting the device used, one for the Ethernet and one for the PROFIBUS.

In the section "**Select Device**" is possible to select the type of converter used:

- HD67563-A1 ("Device from May 2014 (with Dip-Switch)");
- HD67563M ("Device till April 2014 (with Jumper)").

The means of the fields for "**PROFIBUS Slave**" are:

- In the field "**ID Device**", the address of the PROFIBUS side is defined;
- In the field "**Baudrate**", the baudrate of the PROFIBUS side is defined (fixed to "Auto Baudrate");
- In the field "**Number Byte IN**", the number of Input bytes of PROFIBUS is defined (at maximum it is possible to use 244 byte);
- In the field "**Number Byte OUT**", the number of Output bytes of PROFIBUS is defined (at maximum it is possible to use 244 byte).

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

- In the field "**IP ADDRESS**", the IP address of the Ethernet side is defined;
- In the field "**SUBNET Mask**", SubNet Mask of the Ethernet network is defined;
- If the field "**GATEWAY**" is checked, 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**", the number of the port of the Ethernet side is defined;
- In the field "**Protocol**", the Ethernet protocol to use is defined (both enabled on HD67563-A1).

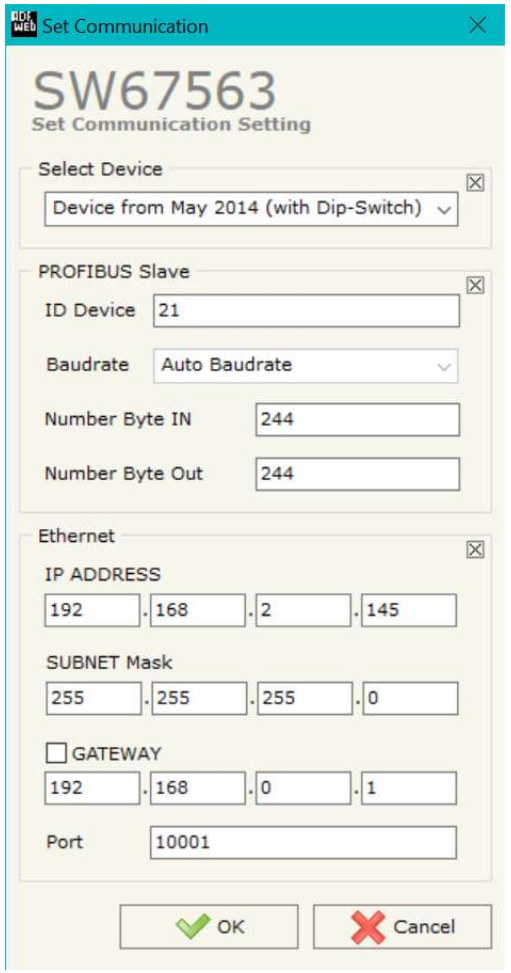


Figure 3: "Set Communication" window

GSD FILE:

By pressing the "**PROFIBUS GSD File**" button it is possible to save the GSD file for the PROFIBUS side.
With this feature you can save the configuration of the gateway of the PROFIBUS side.

Note:
When you import the .gsd file on your Master PROFIBUS you have to add all the modules that are present inside it in the correct order.

UPDATE VIA SERIAL (only for the HD67563M):

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 cable from your PC to the Converter;
- Insert the Jumper1 in the Boot 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;
- Remove the Jumper1;
- Disconnect the RS232 cable;
- Turn on the device.



Figure 4: "Update via Serial" windows

UPDATE VIA UDP (only for HD67563-A1):

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**";
- 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 Dip1 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.

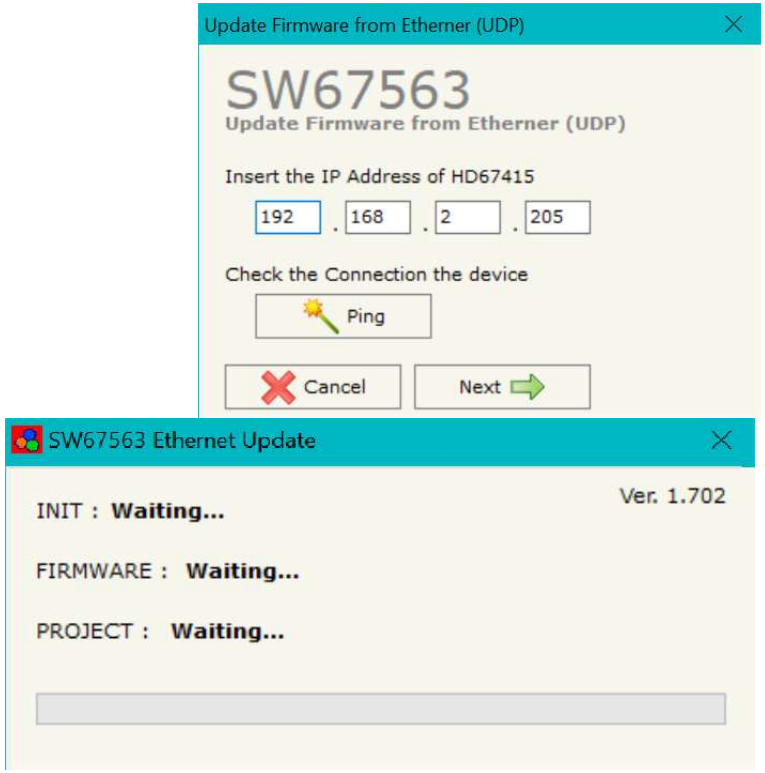


Figure 5: "Update via UDP" windows

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 HD67563 device.

Note:
When you receive the device, for the first time, you also have to update the Firmware in the HD67563 device.

Warning:
If Fig. 6 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;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows Seven, Vista, 8, 10 or 11 make sure that you have the administrator privileges;
- In case you have to program more than one device, using the "UDP Update", you have to cancel the ARP table every time you connect a new device on Ethernet. For do this you have to launch the "Command Prompt" and write the command "arp -d". Pay attention that with Windows Vista, Seven, 8, 10 or 11 you have to launch the "Command Prompt" with Administrator Rights;
- Pay attention at Firewall lock.

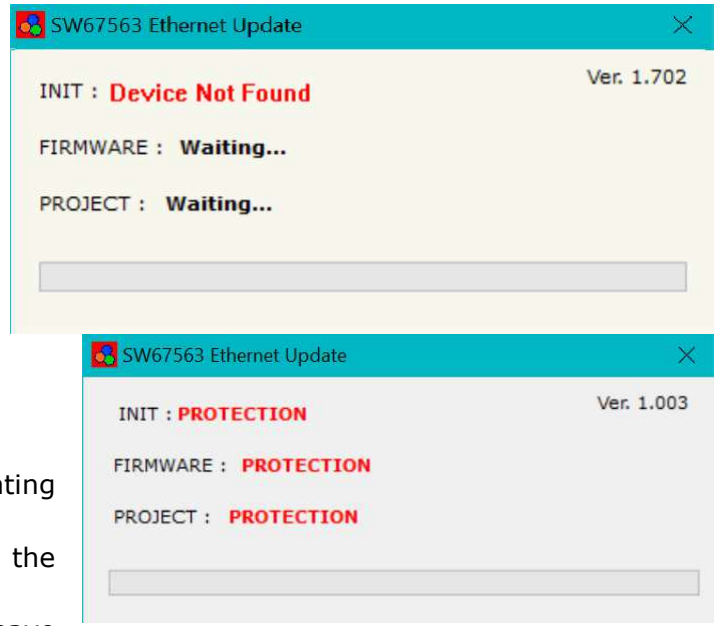


Figure 6: "Error" windows

In the case of HD67563 you have to use the software "SW67563": www.adfweb.com\download\filefold\SW67563.zip.

ETHERNET PROTOCOL:

This protocol has got a single function for write and/or read frames. This routine can use both the UDP protocol and the TCP by setting the parameter wanted with the Compositor SW67563.

The request include the following byte:

Byte Number	Description
1	Starting Address Read Hi
2	Starting Address Read Lo
3	Number of Byte to Read Hi
4	Number of Byte to Read Lo
5	Starting Address Write Hi
6	Starting Address Write Lo
7	Number of Byte to Write Hi
8	Number of Byte to Write Lo
9÷n+8	Data Write

n=Number of Byte to Write

If the "Number of Byte to Write" has got the value 0x0000 there are not data and so the frame has got only eight byte.

The response includes the following byte:

Byte Number	Description
1	Write Error Byte
2	Read Error Byte
3÷n+2	Data Read

n=Number of Byte to Read

The "Write/Read Error Byte" (Byte 1/Byte 2) can have three values:

- 0x00: No error;
- 0x01: Starting Address doesn't exist;
- 0x02: Too many Data to Read/Write.

If you do not want to Read/Write it is necessary to insert the value 0x0000 in the bytes "Starting Address Read/Write" and "Number of Byte to Read/Write".

If there are not Data to read (Starting Address Read = 0x0000, Number of Byte to Read = 0x0000) only the first two bytes are present.

Table of errors:

In the case with this feature (N Byte IN=0x0F, N Byte OUT=0x14)

Starting Address Read	Number of Byte to Read	Read Error Byte
0x0007	0x0005	0x00
0x0000	0x0005	0x01
0x0003	0x0013	0x02
0x0005	0x0000	0x02
0x0015	0x0003	0x02

Starting Address Write	Number of Byte to Write	Write Error Byte
0x0006	0x0004	0x00
0x0000	0x0006	0x01
0x0002	0x0011	0x02
0x0004	0x0000	0x02
0x0010	0x0002	0x02

Examples:

1) We want to write ten bytes from Starting Address 1 and read ten bytes from Starting Address 15. So the string of hexadecimal numbers is:
   REQ: [00][0F][00][0A][00][01][00][0A][10][11][12][13][14][15][16][17][18][19]
   RES: [00][00][20][21][22][23][24][25][26][27][28][29]

2) We want to read five bytes from Starting Address 7. So the string of hexadecimal numbers is:
   REQ: [00][07][00][05][00][00][00][00]
   RES: [00][00][28][29][2A][2B][2C]

3) We want to write four bytes from Starting Address 9. So the string of hexadecimal numbers is:
   REQ: [00][00][00][00][00][09][00][04][30][31][32][33]
   RES: [00][00]

MECHANICAL DIMENSIONS:

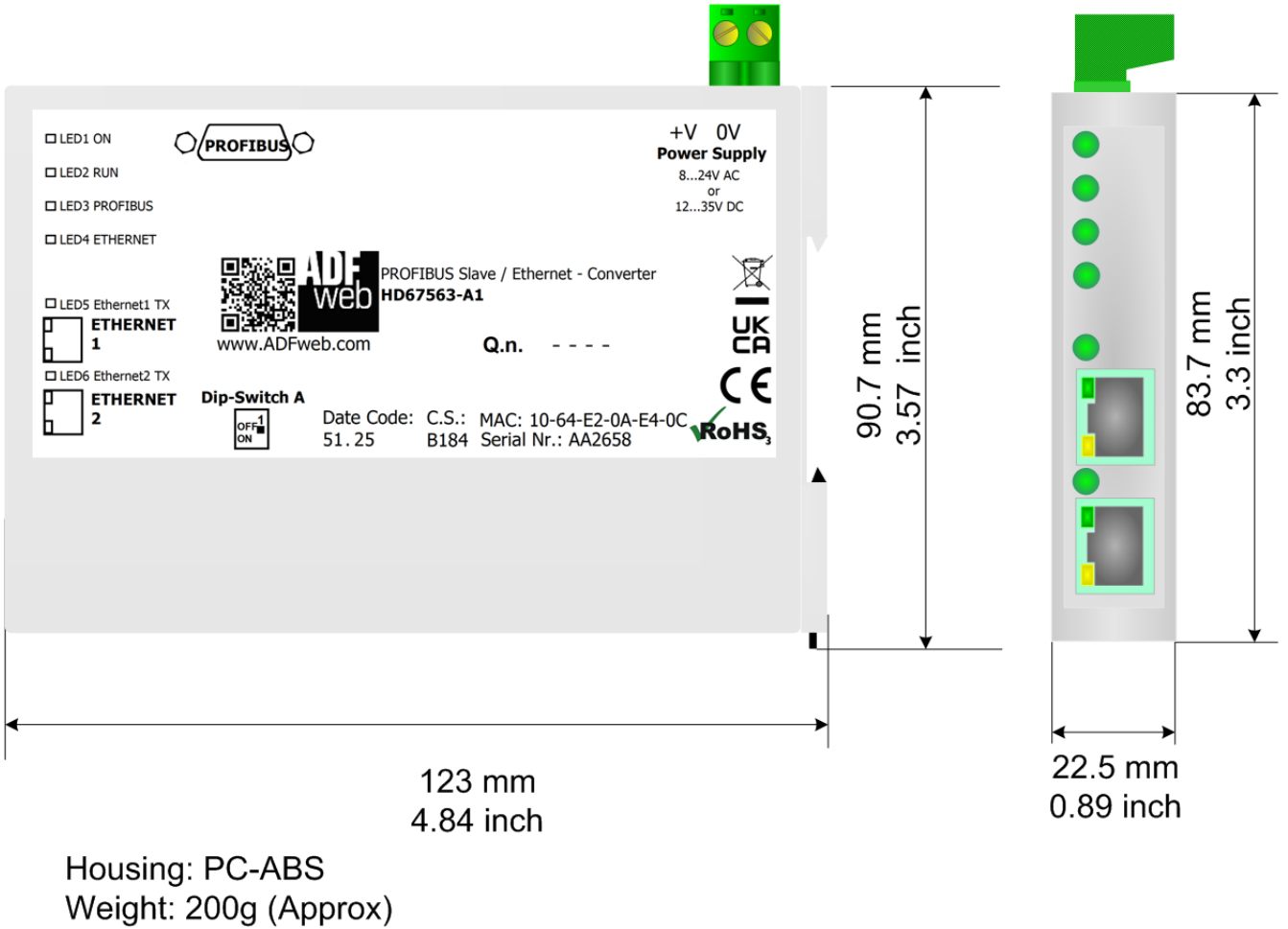


Figure 7a: Mechanical dimensions for HD67563-A1

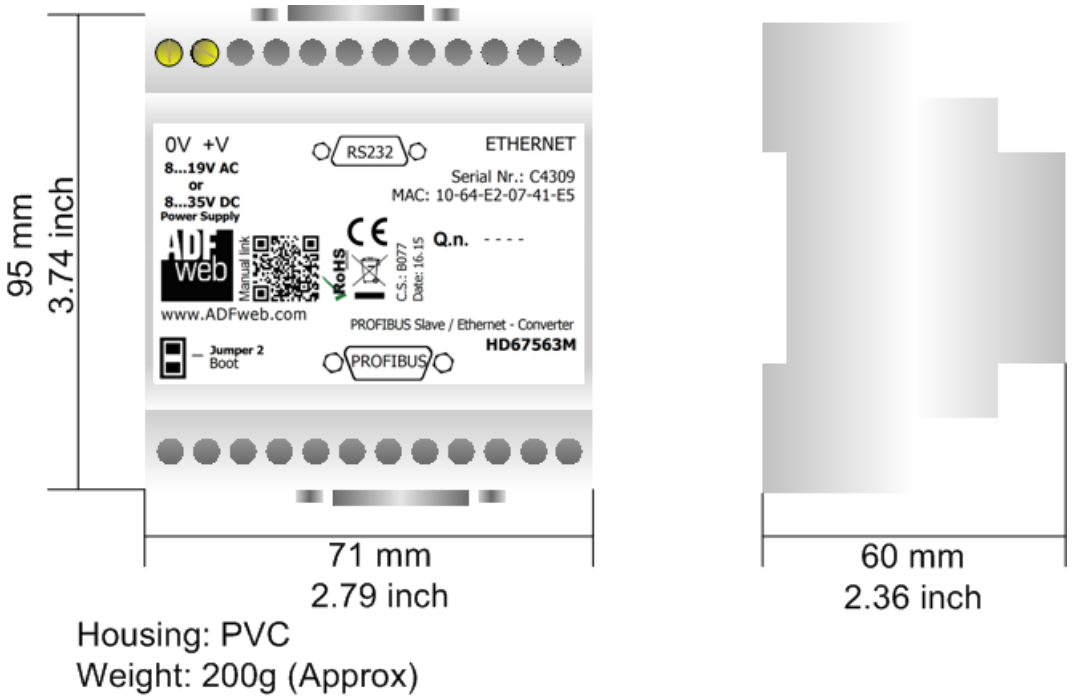


Figure 7b: Mechanical dimensions for HD67563M

ORDER CODE:

Order Code: **HD67563-A1** **-** PROFIBUS Slave / Ethernet - Converter (Housing type: A, Terminal Blocks Connectors)

Order Code: **HD67563M** **-** PROFIBUS Slave / Ethernet - Converter (Housing type: B, Terminal Blocks Connectors)

ACCESSORIES:

Order Code: **AC34107** **-** Null Modem Cable Fem/Fem D-sub 9 Pin 1,5 m

Order Code: **AC34114** - Null Modem Cable Fem/Fem D-sub 9 Pin 5 m

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

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