

User Manual

Revision 1.010
English

Ethernet Server from/to PROFIBUS Master

(Order Code: HD67575-A1)

for Website information:

<http://www.adfweb.com/?Product=HD67575>

for Price information:

<http://www.adfweb.com/?Price=HD67575-A1>

Benefits and Main Features:

- ▶ Very easy to configure
- ▶ Low cost
- ▶ Industrial temperature range:
-40°C / 85°C (-40°F / 185°F)

For others PROFIBUS devices, see also the following links:

PROFIBUS Slave from/to ...

www.adfweb.com?Product=HD67045	(... Serial)
www.adfweb.com?Product=HD67053	(... M-Bus Master)
www.adfweb.com?Product=HD67551	(... CANopen)
www.adfweb.com?Product=HD67552	(... CAN)
www.adfweb.com?Product=HD67553	(... J1939)
www.adfweb.com?Product=HD67554	(... DeviceNet Slave)
www.adfweb.com?Product=HD67555	(... DeviceNet Master)
www.adfweb.com?Product=HD67561	(... Modbus Master)
www.adfweb.com?Product=HD67562	(... Modbus Slave)
www.adfweb.com?Product=HD67563	(... Ethernet Server)
www.adfweb.com?Product=HD67564	(... Modbus TCP Client)
www.adfweb.com?Product=HD67565	(... Modbus TCP Server)

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

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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.

To obtain the updated documentation for the product that you own, note the "Document Code" (Abbreviated written "Doc. Code" on the label on the product) and download the updated from our web site www.adfweb.com/download/

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	07/11/2011	FI	All	First release version
1.010	16/03/2012	FI	All	Software changed (v1.101)

WARNING:

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

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CONNECTION SCHEME:

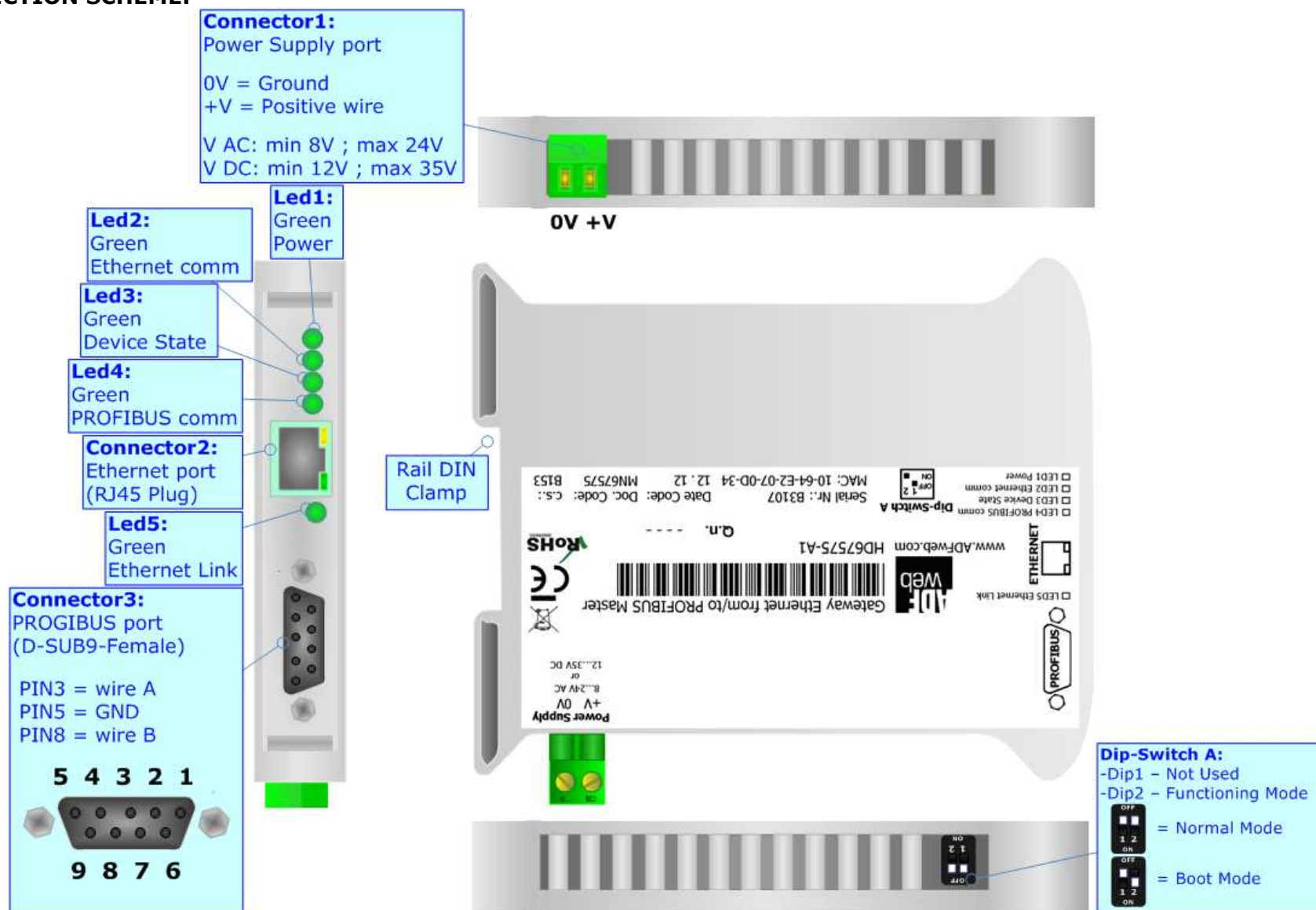


Figure 1a: Connection scheme for HD67575-A1 with c.s.: B153

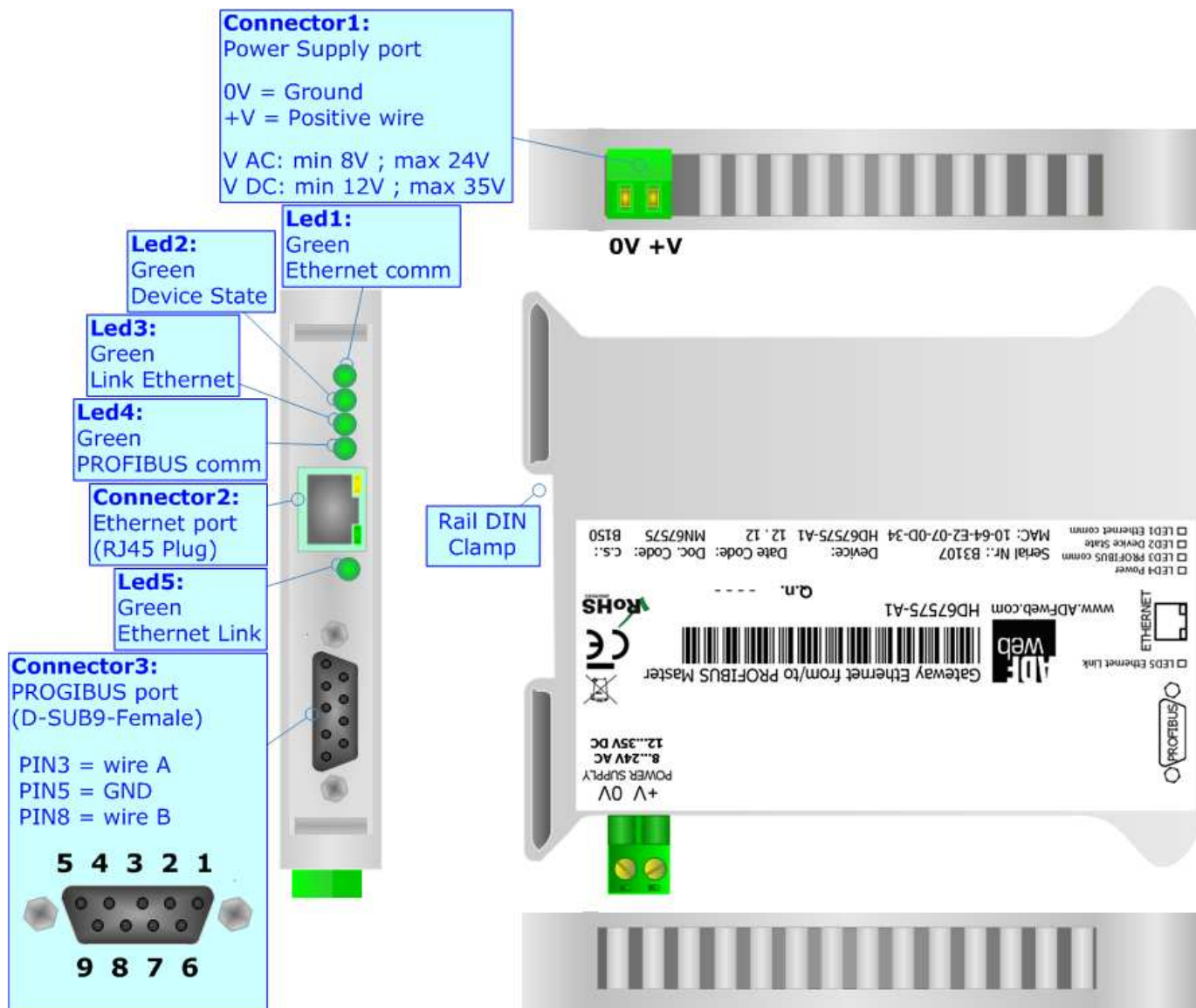


Figure 1b: Connection scheme for HD67575-A1 with c.s.: B150

CHARACTERISTICS:

The configurable "Ethernet Server from/to PROFIBUS Master" gateway allows the following characteristics:

- TCP/IP and UDP protocol at Ethernet side;
- Mountable on 35mm Rail DIN;
- Power Supply 8...24V AC or 12...35V DC;
- Temperature range -40°C to 85°C.



CONFIGURATION:

You need Compositor SW67575 software on your PC in order to perform the following:

- Define the parameter of the PROFIBUS;
- Define the parameter of the Ethernet line;
- Define the PROFIBUS network.

POWER SUPPLY:

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

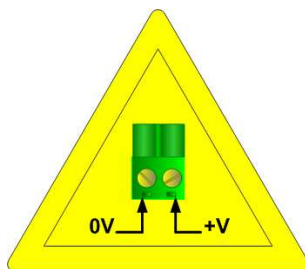
	VAC 		VDC 	
	Vmin	Vmax	Vmin	Vmax
HD67575-A1	8V	24V	8V	35V

Consumption at 24V DC:

Device	W/VA
HD67575-A1	4

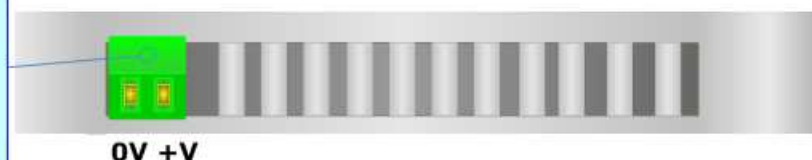


Caution: Not reverse the polarity power



HD67575-A1

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



FUNCTION MODES:*HD67575-A1 WITH C.S. B153*

The device has got two functions mode depending of the position of the Dip2 of 'Dip-Switch A':

- The first, with Dip2 in Off position (factory setting), is used for the normal working of the device.
- The second, with Dip2 in On position, is used for upload the Project/Firmware.

*HD67575-A1 WITH C.S. B150*

The device has got two functions mode:

- The first, Normal Mode, is used for the normal working of the device.
- The second, Boot Mode, is used for upload the Project.

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

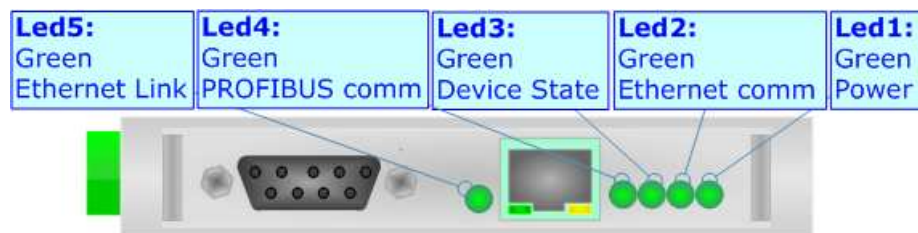
According to the functioning mode, the LEDs will have specifics functions (see 'LEDS' section).

LEDS:

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

HD67575-A1 WITH C.S. B153

LED	Normal Mode	Boot Mode
1: Power (green)	ON: Powered OFF: Not powered	ON: Powered OFF: Not powered
2: Ethernet comm (green)	Blinks quickly when receive Ethernet commands	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress
3: Device State (green)	Blinks slowly (~1Hz)	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress
4: PROFIBUS comm (green)	Blinks quickly when there is PROFIBUS communication	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



HD67575-A1 WITH C.S. B150

LED	Normal Mode	Boot Mode
1: Ethernet comm (green)	Blinks quickly when receive Ethernet commands	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress
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3: PROFIBUS comm (green)	Blinks quickly when there is PROFIBUS communication	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress
4: Power (green)	ON: Powered OFF: Not powered	ON: Powered OFF: Not powered
5: Ethernet Link (green)	ON: Ethernet cable connected OFF: Ethernet cable disconnected	ON: Ethernet cable connected OFF: Ethernet cable disconnected

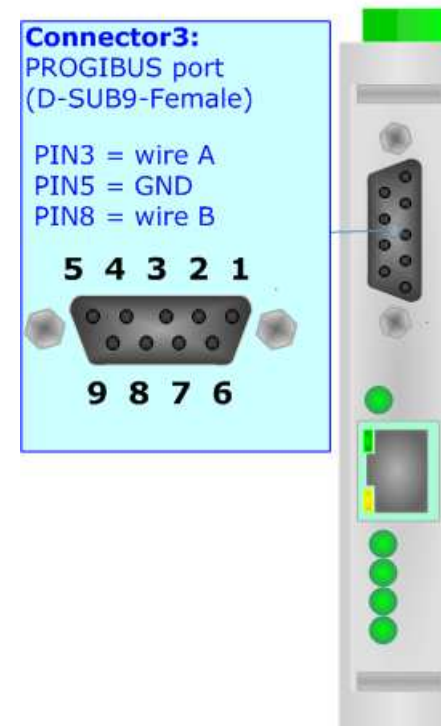


PROFIBUS:

The PROFIBUS uses a 9-pin D-SUB connector. The pin assignment is defined like in the right 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 Connector3 of HD67575-A1 with at least a Category 5E cable. The maximum length of the cable should not exceed 100m. The cable has to conform to the T568 norms relative to connections in cat.5 up to 100 Mbps. To connect the device to an Hub/Switch is recommended the use of a straight cable, to connect the device to a PC/PLC/other is recommended the use of a cross cable.



USE OF COMPOSITOR SW67575:

To configure the Gateway, use the available software that runs with Windows, called SW67575. 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 (MS 2000, XP, Vista, Seven).

When launching the SW67575 the right window appears (Fig. 2).

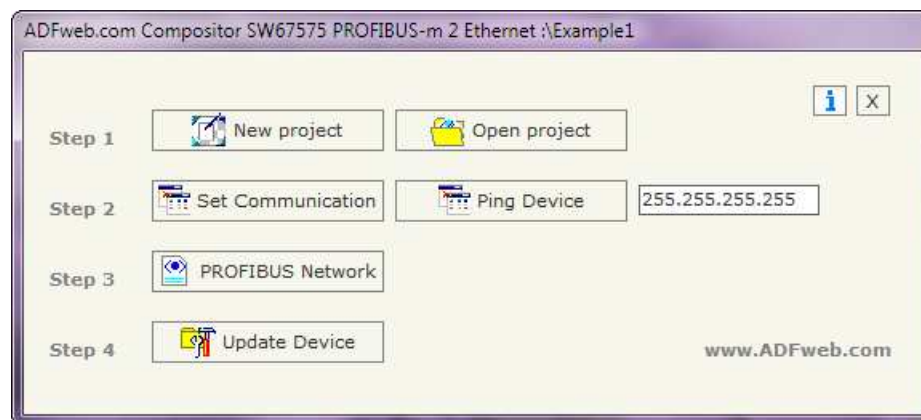


Figure 2: Main window for SW67575

NEW PROJECT / OPEN PROJECT:

The “**New Project**” button creates the folder which contains the entire device configuration.



A device configuration can also be imported or exported:

- To clone the configurations of a Programmable “Ethernet Server from/to PROFIBUS Master” Gateway 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 Project**”.

SET COMMUNICATION:

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

By pressing the **"Set Communication"** button from the main window for SW67575 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The window is divided in two sections, one for the PROFIBUS and the other for the Ethernet.

The means of the fields for "PROFIBUS" are:

- In the field **"ID Dev."** the address of the PROFIBUS side is defined;
- In the field **"Baud rate"** the baud rate for the PROFIBUS side is defined;

The means of the fields for "Ethernet" are:

- In the field **"IP ADDRESS"** insert the IP address;
- In the field **"SUBNET Mask"** insert the SubNet Mask;
- If the **"GATEWAY"** field is checked it is possible to insert, in the field under, the IP Address for going out to the net;
- In the field **"Port"** insert the number of the port.

The screenshot shows a dialog box titled "SET COMMUNICATION". It contains two main sections: "PROFIBUS" and "Ethernet".
In the "PROFIBUS" section, there is a field "ID Dev." with the value "1" and a "Baud rate" dropdown menu set to "6.0M".
In the "Ethernet" section, there is a field "IP ADDRESS" with the value "192.168.0.59", a "SUBNET Mask" field with the value "255.255.255.0", a checked "GATEWAY" checkbox, a field for the gateway IP address with the value "192.168.0.1", and a "Port" field with the value "10001".
At the bottom of the dialog box are two buttons: "OK" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 3: "Set Communication" window

PROFIBUS NETWORK:

By pressing the "**PROFIBUS Network**" button from the main window for SW67575 (Fig. 2) the window "PROFIBUS Network" (Fig. 4) appears.

In this section you can add/modify/remove the GSD files of the PROFIBUS slaves.

When you select the slave, by double click or by the "**Modify Slave PROFIBUS**" button, the window "PROFIBUS Device" (Fig. 5) appears:

- In the section "**ID Slave PROFIBUS**" you must write the PROFIBUS address of your slave.
- In the section "**Available modules**" there are all the modules you can select for this slave, to add a modules you can select it and click on the "**hands**" or with a double click on the module;



Figure 4: "PROFIBUS Network" window

- If the field "**Use modules configuration readed from device**" is checked the HD67575-A1 uses the configuration inside the slave device and not the one loaded with the .gsd file.

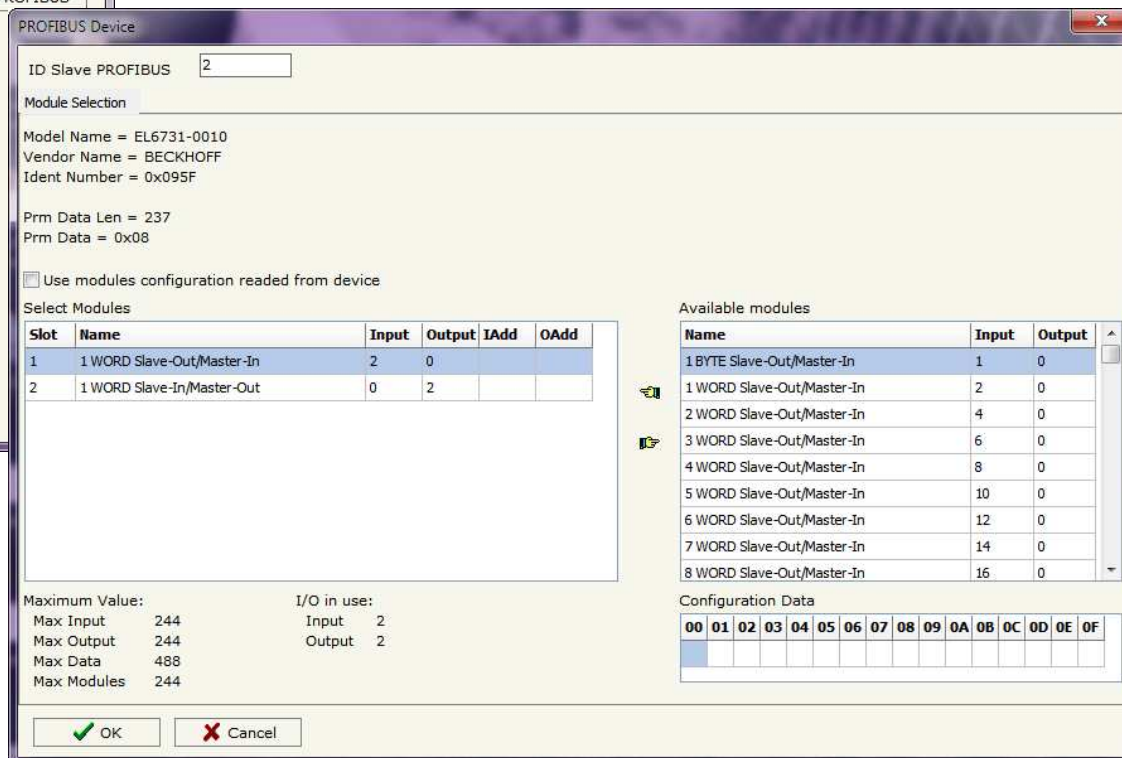


Figure 5: "PROFIBUS Device" window

UPDATE DEVICE:

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

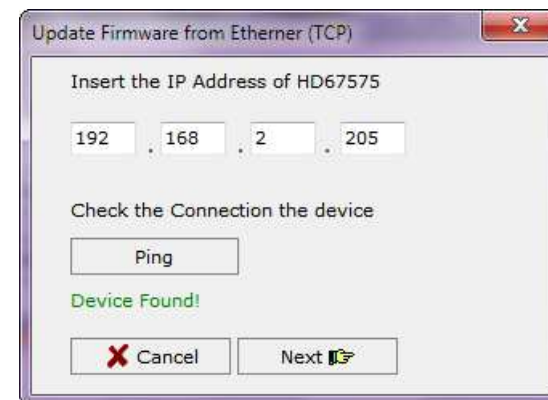
If you don't know the actual IP address of the device you have to use this procedure:

HD67575-A1 WITH C.S. B153

- Turn off the Device;
- Put Dip2 of 'Dip-Switch A' at ON position;
- Insert the IP "**192.168.2.205**";
- Turn on the device;
- 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" turn off the Device;
- Put Dip2 of 'Dip-Switch A' at OFF position;
- Turn on the device.

HD67575-A1 WITH C.S. B150

- Turn off the Device;
- Disconnect the Ethernet cable;
- Insert the IP "**192.168.2.205**";
- Turn on the device;
- Connect the Ethernet cable;
- 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.



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 Gateway;
- 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.

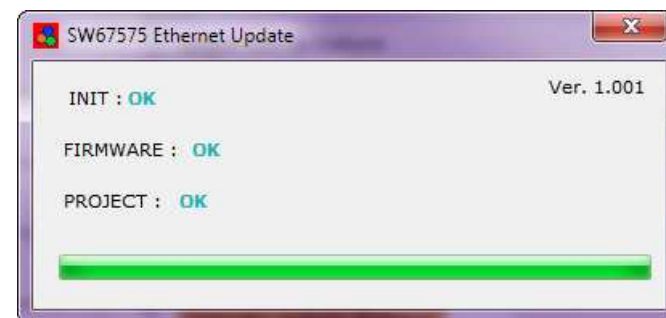


Figure 6: "Update Device" windows

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



Note:

When you install a new version of the software it is better if the first time you do the update of the Firmware in the HD67575-A1 device.



Warning:

If the Fig. 7 appears when you try to do the Update before require assistance try these points:

- Try to repeat the operations for the updating;
- Try with another PC;
- Try to restart the PC;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows Seven or Vista, make sure that you have the administrator privileges;
- Take attention at Firewall lock;
- Check the LAN settings.



Figure 7: "Protection" window



In the case of HD67575-A1 you have to use the software "SW67575": www.adfweb.com/download/filefold/SW67575.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 SW67575 Compositor.

STANDARD MODE:

The request include the following byte:

Byte Number	Description
1	Address PROFIBUS Slave
2	Starting Address Write
3	Number of Byte to Write (n)
$4 \div (4+n-1)$	Data Write

n=Number of Byte to Write

If the "Number of Byte to Write (n)" has got the value 0x00 there are no data to write.

The response includes the following byte:

Byte Number	Description	Abbreviation
1	Address PROFIBUS Master	/
2	Address PROFIBUS Slave	/
3	Writing state	/
4	Slave informations	/
5	Data length (read)	DLR
$6 \div (DLR + 5)$	Data read	/
DLR + 6	Configuration length (programmed)	CLP
$(DLR + 7) \div (DLR + CLP + 6)$	Configuration programmed	/
DLR + CLP + 7	Fixed at 0	/
DLR + CLP + 8	Fixed at 0	/

The "Writing state" (Byte 3) can have these values:

- 0x00: Writing not required;
- 0x01: No error;
- 0x02: Slave does not exist, or does not respond in time or is not connected to line;
- 0x03: Writing not possible because the start byte is too big;
- 0x04: Writing cannot be made because the length is too high;
- 0x05: The data sent are insufficient for writing.

The "Slave informations" (Byte 4) gives informations about the slave interrogated. Every bit has a meaning:

- Bit0: Configuration corresponds;
- Bit1: Parameters OK;
- Bit2: Configuration OK;
- Bit3: Data OK.

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
------	------	------	------	------	------	------	------

If all is correct, you have to read 0x0F.

Example1: Request to get data from address PROFIBUS 21, without writing nothing.

Request: 15 00 00

Response:

03	15	00	0F	BA	27	28	45	65	71	00	00	00	00	00	00	00	00	00	00	6B	04	00	00	1A	00	00	00	00	00	A1	11	00	00	00	00	00		
00	00	6B	04	00	00	1A	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00				
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	27	28	45	65	71	00	00	00	00	
00	00	00	6B	04	00	00	1A	00	00	00	00	00	A1	11	00	00	00	00	00	00	00	00	6B	04	00	00	1A	00	00	00	00	00	00	00	00	00		
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00		
00	00	00	00	00	00	00	00	00	00	00	00	00	36	10	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	11	13	11	11	13	13	11	13	13
11	13	13	10	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	11	13	11	11	13	13	11	13	13	11	13	13	11	13	13	00	00		

Example2: Request to get data from address PROFIBUS 20, without writing nothing.

Request: 14 00 00

[illegible]

Example3: Request to get data from address PROFIBUS 21 and writing of 5 bytes. In this case the Byte3 gives "No Error" response for writing.

Request: 14 01 05 01 02 03 04 05

[illegible]

Example4: Request to get data from address PROFIBUS 21 and writing of 5 bytes (but only four bytes are written in the request). In this case the Byte3 gives an error response for writing.

Request: 14 01 05 01 02 03 04

[illegible]

EXTENDED MODE:

The Extended Protocol is enabled by adding a +0x80 to Byte Number 1.

The request include the following byte:

Byte Number	Description
1	Address PROFIBUS Slave
2	Starting Address Write
3	Number of Byte to Write (n)
$4 \div (4+n-1)$	Data Write

n=Number of Byte to Write

If the "Number of Byte to Write (n)" has got the value 0x00 there are no data to write.

The response includes the following byte:

Byte Number	Description	Abbreviation
1	Address PROFIBUS Master	/
2	Address PROFIBUS Slave	/
3	Writing state	/
4	Slave informations	/
5	Data length (read)	DLR
$6 \div (DLR + 5)$	Data read	/
DLR + 6	Configuration length (programmed)	CLP
$(DLR + 7) \div (DLR + CLP + 6)$	Configuration programmed	/
DLR + CLP + 7	Data length (write)	DLW
$(DLR + CLP + 8) \div (DLR + CLP + DLW + 7)$	Data write	/
DLR + CLP + DLW + 8	Configuration length (of device)	CLD
$(DLR + CLP + DLW + 9) \div (DLR + CLP + DLW + CLD + 8)$	Configuration of device	/
DLR + CLP + DLW + CLD + 9	Fixed at 0	/

The "Writing state" (Byte 3) can have these values:

- 0x00: Writing not required;
- 0x01: No error;
- 0x02: Slave does not exist, or does not respond in time or is not connected to line;
- 0x03: Writing not possible because the start byte is too big;
- 0x04: Writing cannot be made because the length is too high;
- 0x05: The data sent are insufficient for writing.

The "Slave informations" (Byte 4) gives informations about the slave interrogated. Every bit has a meaning:

- Bit0: Configuration corresponds;
- Bit1: Parameters OK;
- Bit2: Configuration OK;
- Bit3: Data OK.

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
------	------	------	------	------	------	------	------

If all is correct, you have to read 0x0F.

Example5: Request to get data from address PROFIBUS 21, without writing nothing, Extended Mode.

Request: 95 00 00

[illegible]

MECHANICAL DIMENSIONS:

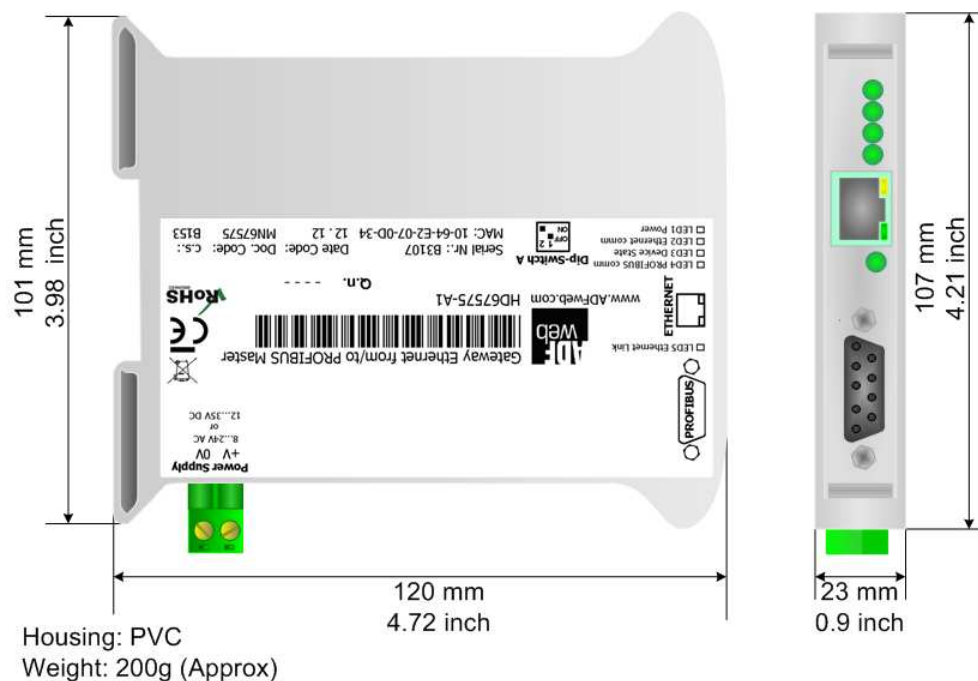


Figure 8: Mechanical dimensions scheme

ORDER CODE:

Order Code: **HD67575-A1** - Gateway - Ethernet TCP/IP / UDP Server from/to PROFIBUS Master

ACCESSORIES:

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

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

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:

- 1) 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.
- 2) 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.

PRODUCTS AND RELATED DOCUMENTS:

Part	Description	URL
HD67181	CAN bus Repeater	www.adfweb.com?product=HD67181
HD67316	CAN bus Analyzer	www.adfweb.com?product=HD67316