User Manual

Revision 1.000
English

PROFINET / EtherNet/IP Slave - Converter

(Order Code: HD67660-A1)

for Website information:
http://www.adfweb.com/?Product=HD67660

for Price information:
http://www.adfweb.com/?Price=HD67660-A1

Benefits and Main Features:

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

For others PROFINET devices, see also the following links:

PROFINET from/to ...

www.adfweb.com?Product=HD67078	(**... M-Bus Master**)
www.adfweb.com?Product=HD67601	(**... Serial**)
www.adfweb.com?Product=HD67602	(**... Modbus Master**)
www.adfweb.com?Product=HD67603	(**... Modbus Slave**)
www.adfweb.com?Product=HD67606	(**... CAN**)
www.adfweb.com?Product=HD67607	(**... CANopen**)
www.adfweb.com?Product=HD67608	(**... DeviceNet Master**)
www.adfweb.com?Product=HD67609	(**... DeviceNet Slave**)
www.adfweb.com?Product=HD67610	(**... J1939**)
www.adfweb.com?Product=HD67611	(**... Modbus TCP Client**)
www.adfweb.com?Product=HD67612	(**... 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

User Manual

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.

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	13/03/2014	Ff	All	First release version

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 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

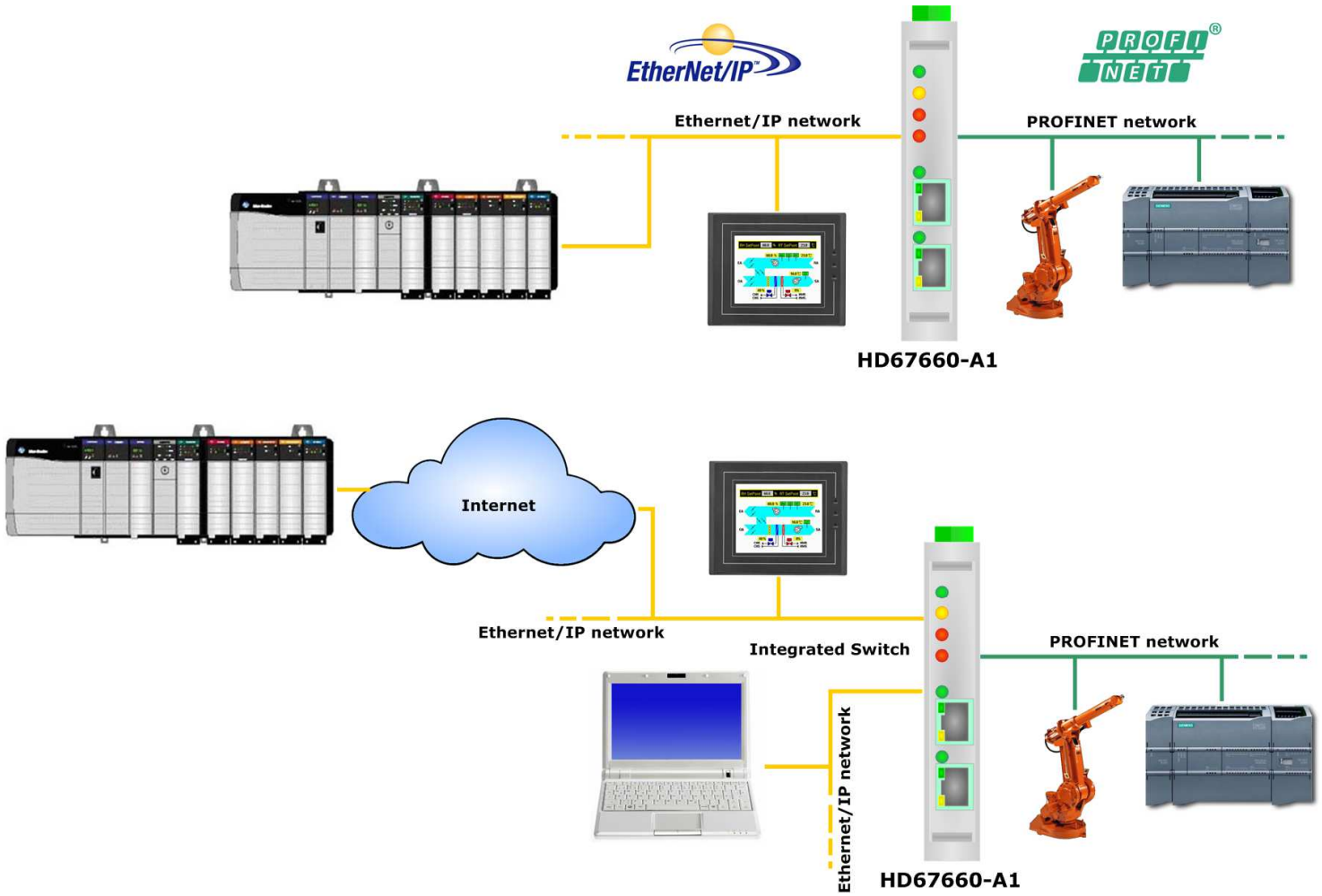
The device is state of the art and is safe. The instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:

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.

EXAMPLE OF CONNECTION:



CONNECTION SCHEME:

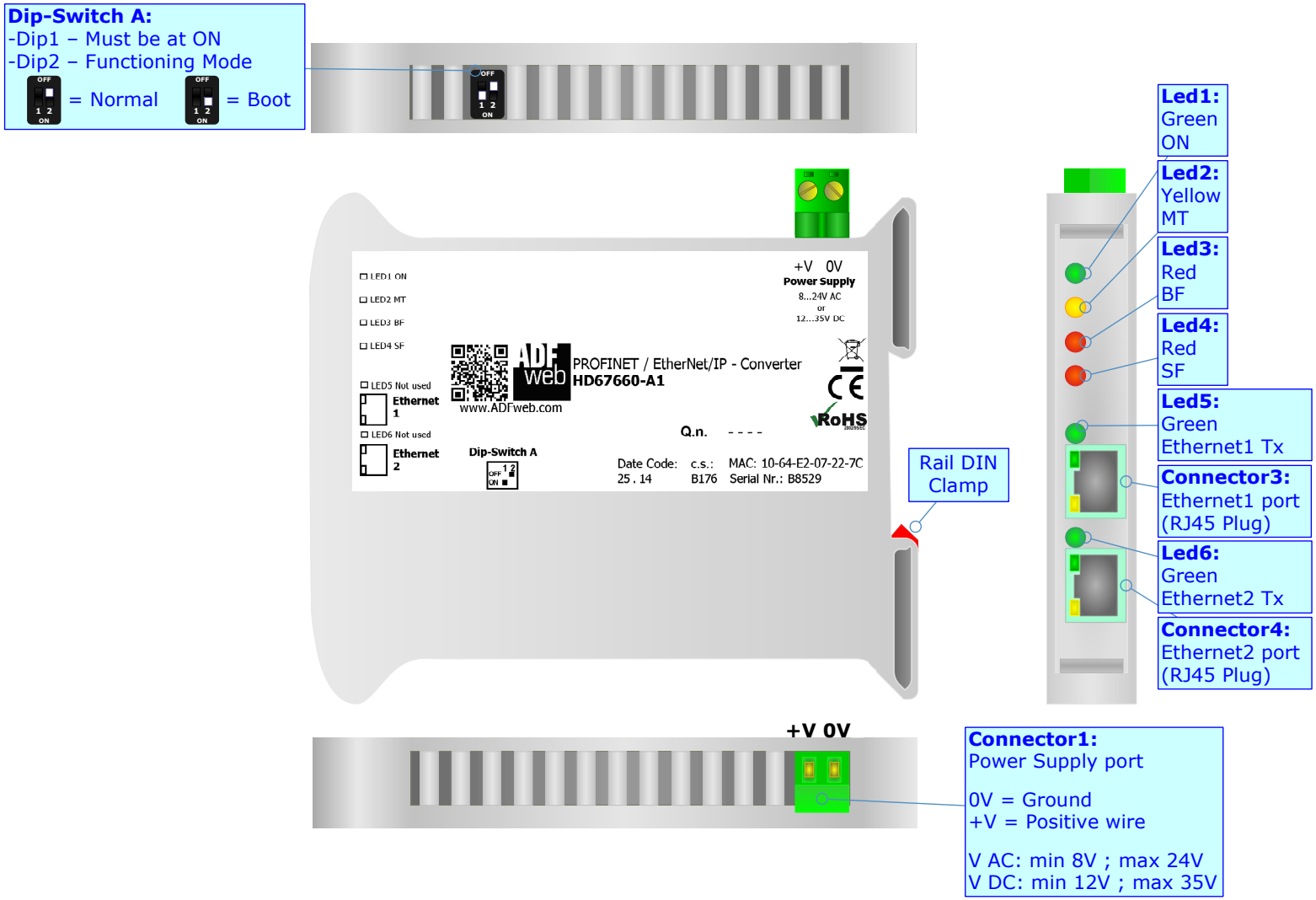


Figure 1: Connection scheme for HD67660-A1

CHARACTERISTICS:

The HD67660-A1 is a PROFINET / EtherNet/IP Converter.

It allows the following characteristics:

- Up to 500 bytes in reading and 500 bytes in writing on EtherNet/IP side;
- Two-directional information between EtherNet/IP and PROFINET;
- 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 SW67660 software on your PC in order to perform the following:

- Define the parameter of the PROFINET;
- Define the parameter of the Ethernet/IP.

POWER SUPPLY:

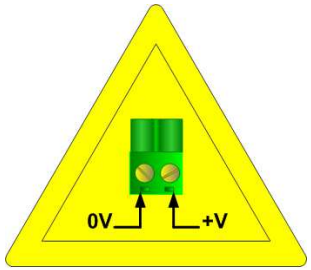
The devices can be powered between a wide range of tensions. For more details see the two tables below.

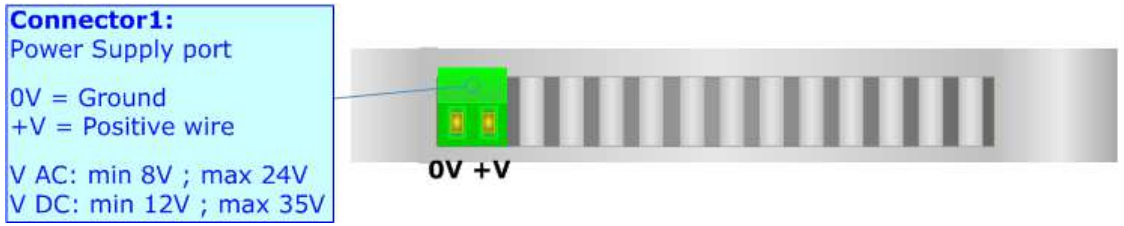
	VAC ~		VDC ⎓	
	Vmin	Vmax	Vmin	Vmax
HD67660-A1	8V	24V	12V	35V

Consumption at 24V DC:

Device	W/VA
HD67660-A1	4

Caution: Not reverse the polarity power





HD67660-A1

FUNCTION MODES:

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

- 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.

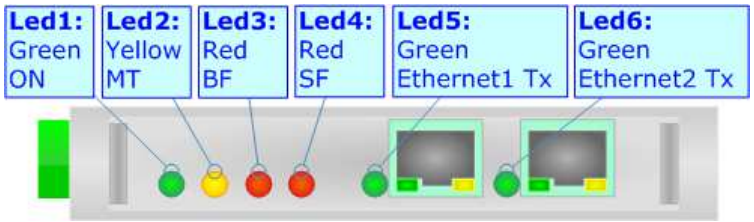
For the operations to follow for the updating (see 'UPDATE DEVICE' section).

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

LEDS:

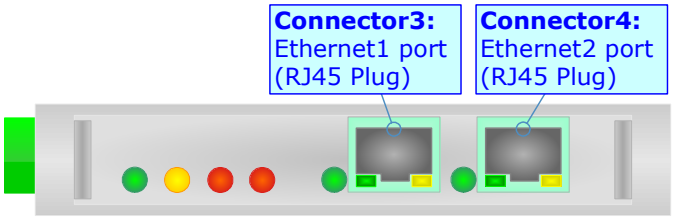
The device has got six LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

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: MT [maintenance display] (yellow)	**ON:** Device not able to communicate with the Master DeviceNet **OFF:** No maintenance are present	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
3: BF [bus fault] (red)	**ON:** The Ethernet connection is defective; the IP address exists several times in the network; the own NameOfStation exists several times in the network; no IP address has been set **Flashing:** At least one configured AR is no longer in the data exchange **OFF:** No errors are present	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
4: SF [group error] (red)	**ON:** At least one AR is not in the data exchange **OFF:** No errors are present	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
5: Ethernet1 Tx (green)	Blinks when is transmitting Ethernet frames	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress
6: Ethernet2 Tx (green)	Blinks when is transmitting Ethernet frames	**Blinks quickly:** Boot state **Blinks very slowly (~0.5Hz):** update in progress



ETHERNET/IP:

The Ethernet connection must be made using Connector3 or Connector4 of HD67660-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.



PROFINET:

The PROFINET connection must be made using Connector3 or Connector4 of HD67660-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 SW67660:

To configure the Converter, use the available software that runs with Windows called SW67660. 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; 32/64bit).

When launching the SW67660, the window below appears (Fig. 2).

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

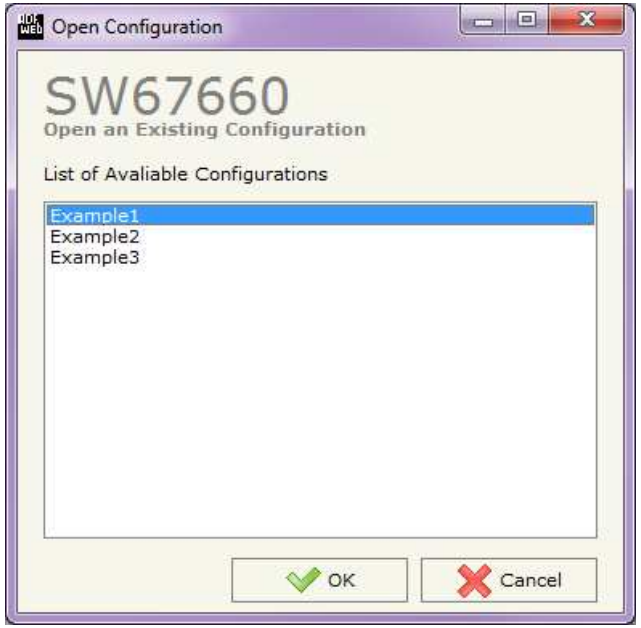
Figure 2: Main window for SW67660

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:

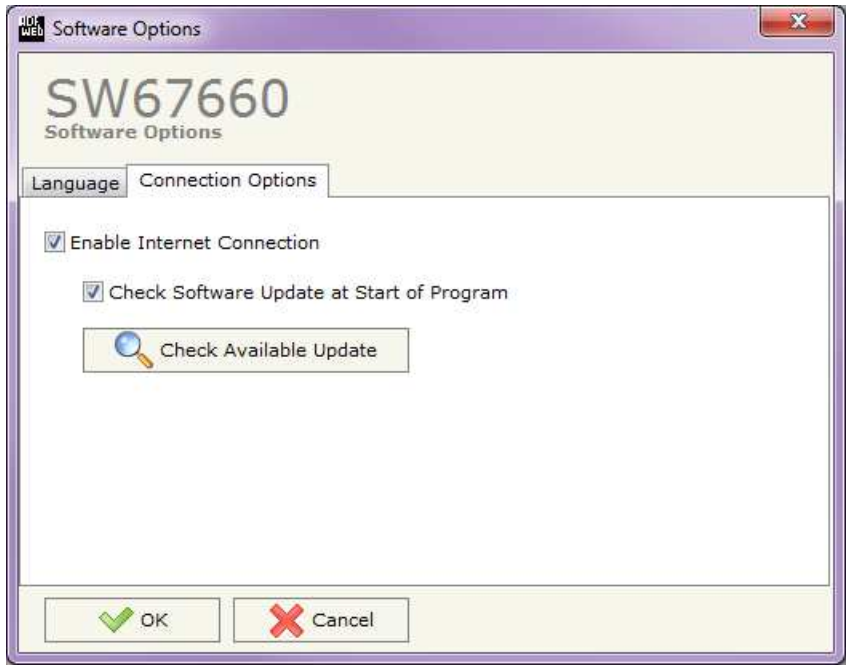
- To clone the configurations of a programmable "PROFINET / EtherNet/IP Slave - Converter" in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient 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 SW67660 check automatically if there are updatings when it is launched.

SET COMMUNICATION:

This section define the fundamental communication parameters of two buses, PROFINET and EtherNet/IP.

By Pressing the "**Set Communication**" button from the main window for SW67660 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The means of the fields for "PROFINET" are:

- In the field "**IP ADDRESS**" insert the IP address that you want to give to the Converter for the PROFINET side;
- In the fields "**SUBNET Mask**" insert the SubNet Mask for the PROFINET side;
- In the fields "**GATEWAY**" insert the default gateway that you want to use for the PROFINET side. 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 port used for PROFINET communication is defined. The port has a fixed value of 34964;
- In the field "**PROFINET Name of Station**" is possible to assign a name to the PROFINET node;
- In the fields "**Number Byte IN**" insert the number of input byte of the slave station;
- In the fields "**Number Byte Out**" insert the number of output byte of the slave station.

The means of the fields for "EtherNet/IP" are:

- In the field "**IP ADDRESS**" insert the IP address that you want to give to the Converter for the EtherNet/IP side;
- In the fields "**SUBNET Mask**" insert the SubNet Mask for the EtherNet/IP side;
- In the fields "**GATEWAY**" insert the default gateway that you want to use for the EtherNet/IP side. 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 port used for EtherNet/IP communication is defined. The port has a fixed value of 44818.

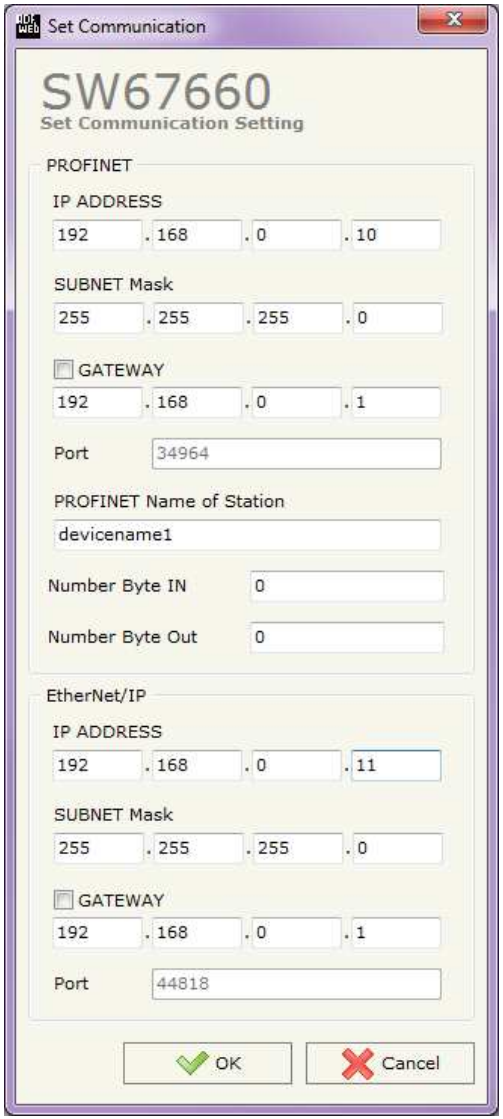


Figure 3: "Set Communication" window

PROFINET XML:

By pressing the "**PROFINET XML**" button it is possible to save the xml file for the PROFINET side.
With this feature you can save the configuration of the converter of the PROFINET side.

Note:
When you import the .xml file on your PROFINET you have to add the main module and all the submodules present in it.

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 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.

Figure 4: "Update device" windows

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.

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

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 HD67660 device.

Note:
When you receive the device, for the first time, you also have to update the Firmware in the HD67660 device.

Warning:
If Fig. 5 appears when you try to do the Update try these points before seeking assistance:

- Try to repeat the operations for the update;
- Try with another PC;
- Try to restart the PC;
- If you are using the program inside a Virtual Machine, try to use it in the main Operating System;
- If you are using Windows Seven or Vista or 8, make sure that you have the administrator privileges;
- Pay attention to the Firewall lock;
- Check the LAN settings.

Figure 5: "Protection" window

In the case of HD67660 you have to use the software "SW67660": www.adfweb.com\download\filefold\SW67660.zip.

MECHANICAL DIMENSIONS:

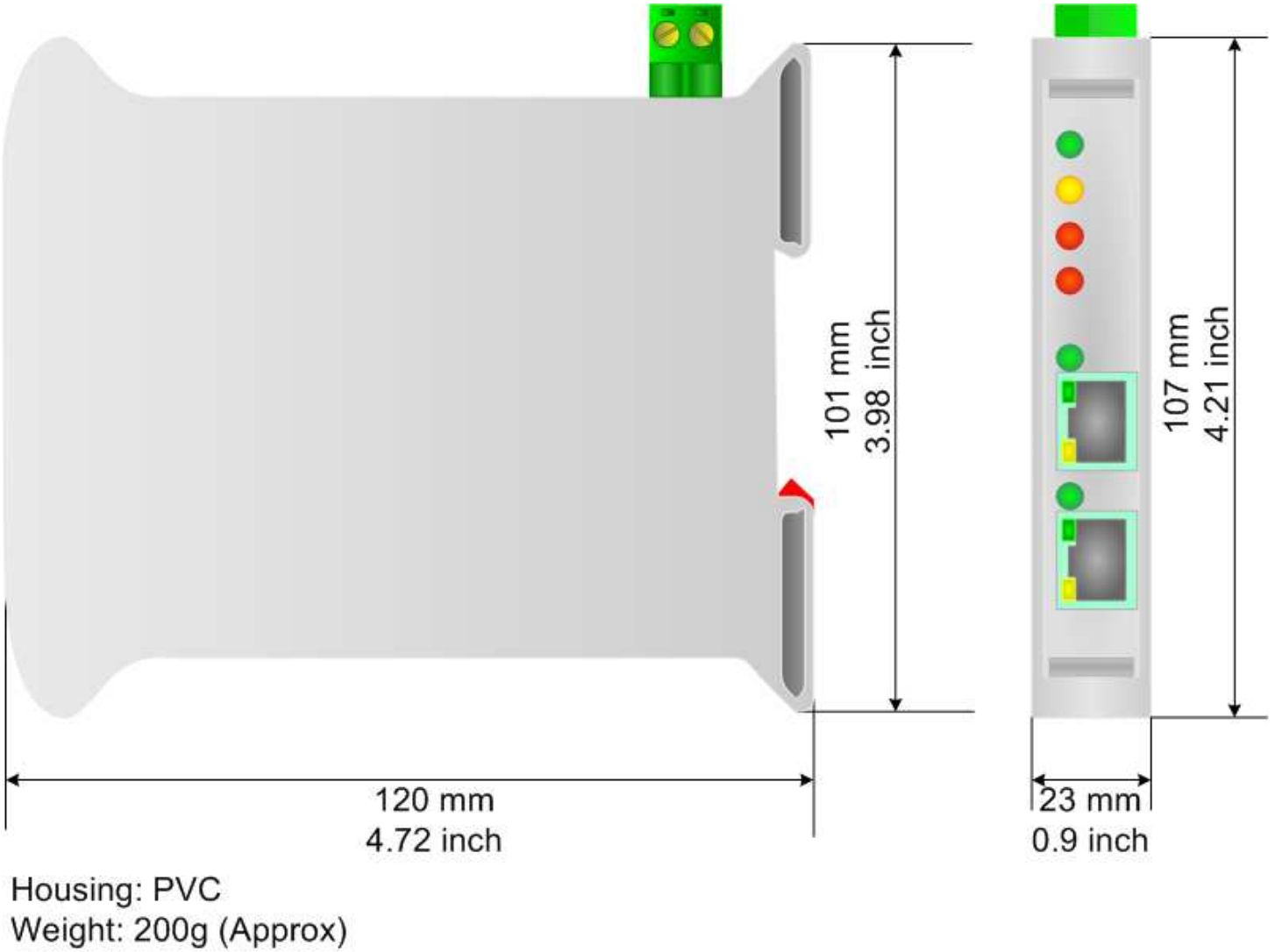


Figure 6: Mechanical dimensions scheme for HD67660-A1

ORDERING INFORMATIONS:

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

HD67660 – A 1

Connectors Type
1: Removable 5mm Screw Terminal

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

Device Family
HD67660: PROFINET / Ethernet/IP Slave - Converter

Order Code: **HD67660-A1** **-** PROFINET / Ethernet/IP Slave - Converter

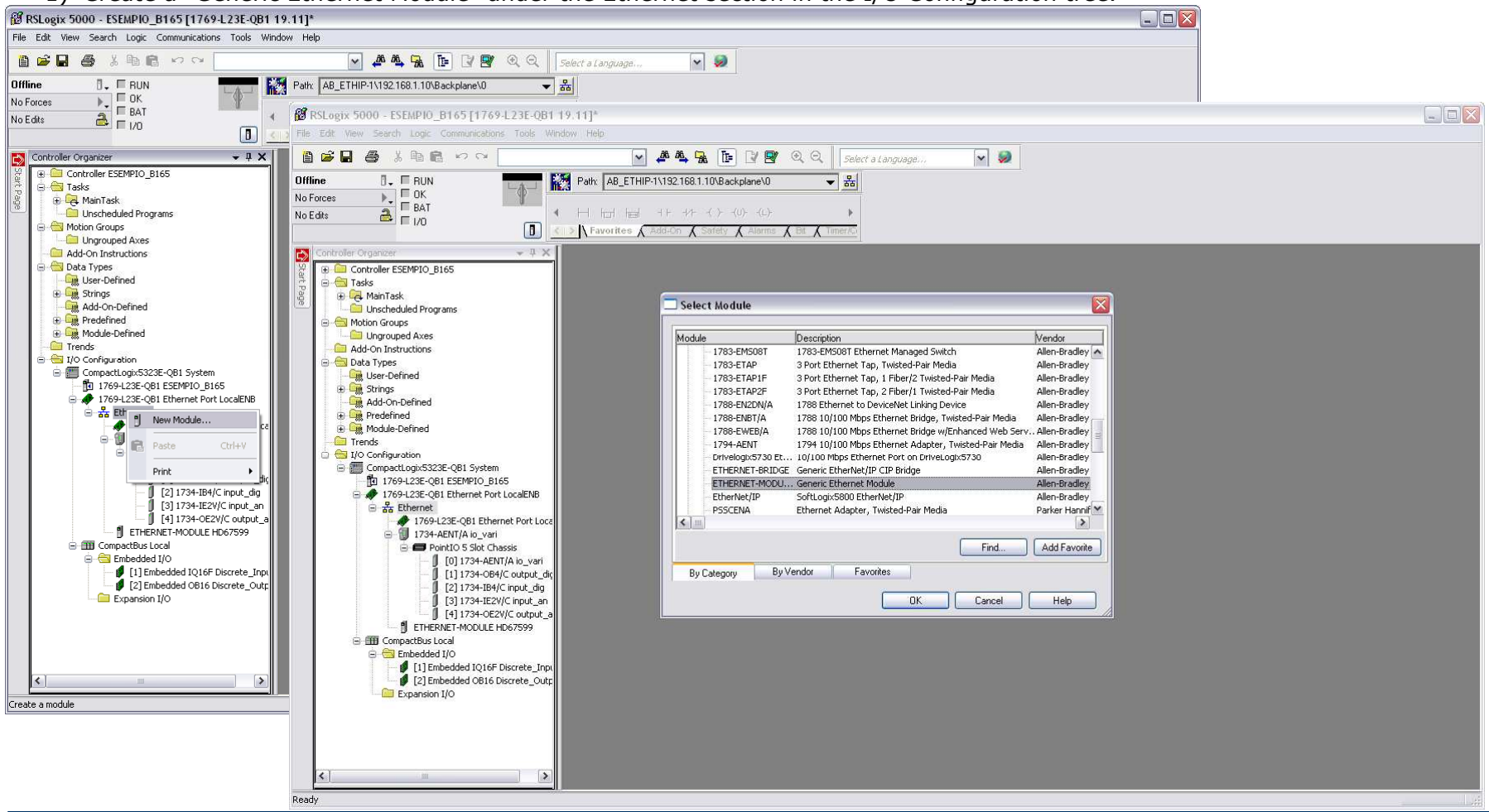
ACCESSORIES:

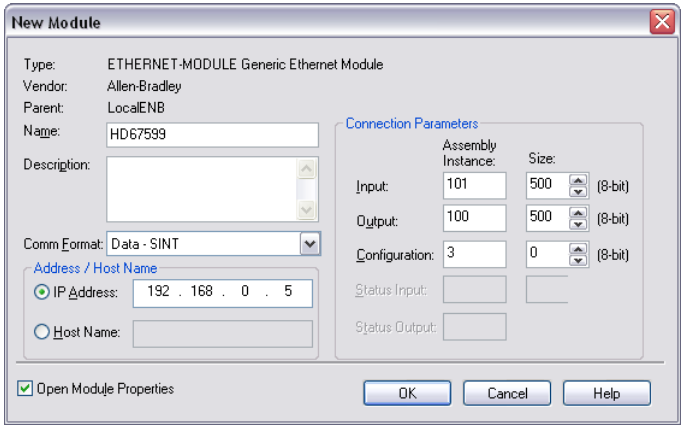
Order Code: **AC34001** **-** Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V AC
Order Code: **AC34002** **-** Rail DIN - Power Supply 110V AC 50/60Hz – 12 V AC

PLC CONFIGURATION (for EtherNet/IP):

The configuration and commissioning of the EtherNet/IP Converter as described on the following pages was accomplished with the help of the "RSLogix 5000" software of Rockwell Automation. In case of using a control system from another supplier please attend to the associated documentation.
These are the steps to follow:

1) Create a "Generic Ethernet Module" under the Ethernet section in the I/O Configuration tree.





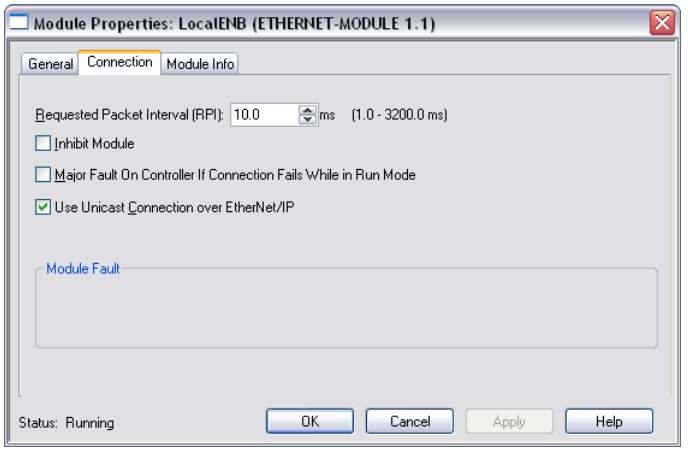
2) Edit the settings of the new Generic Ethernet Module. As shown in the screen shot below, the module was named "HD67660" and the IP-address assigned is 192.168.0.5.

For the Comm Format "Data – SINT" shall be selected as the data type.

The HD67660-A1 can uses up to 244 bytes for input assembly instance 101 and 244 bytes for output assembly instance 100.

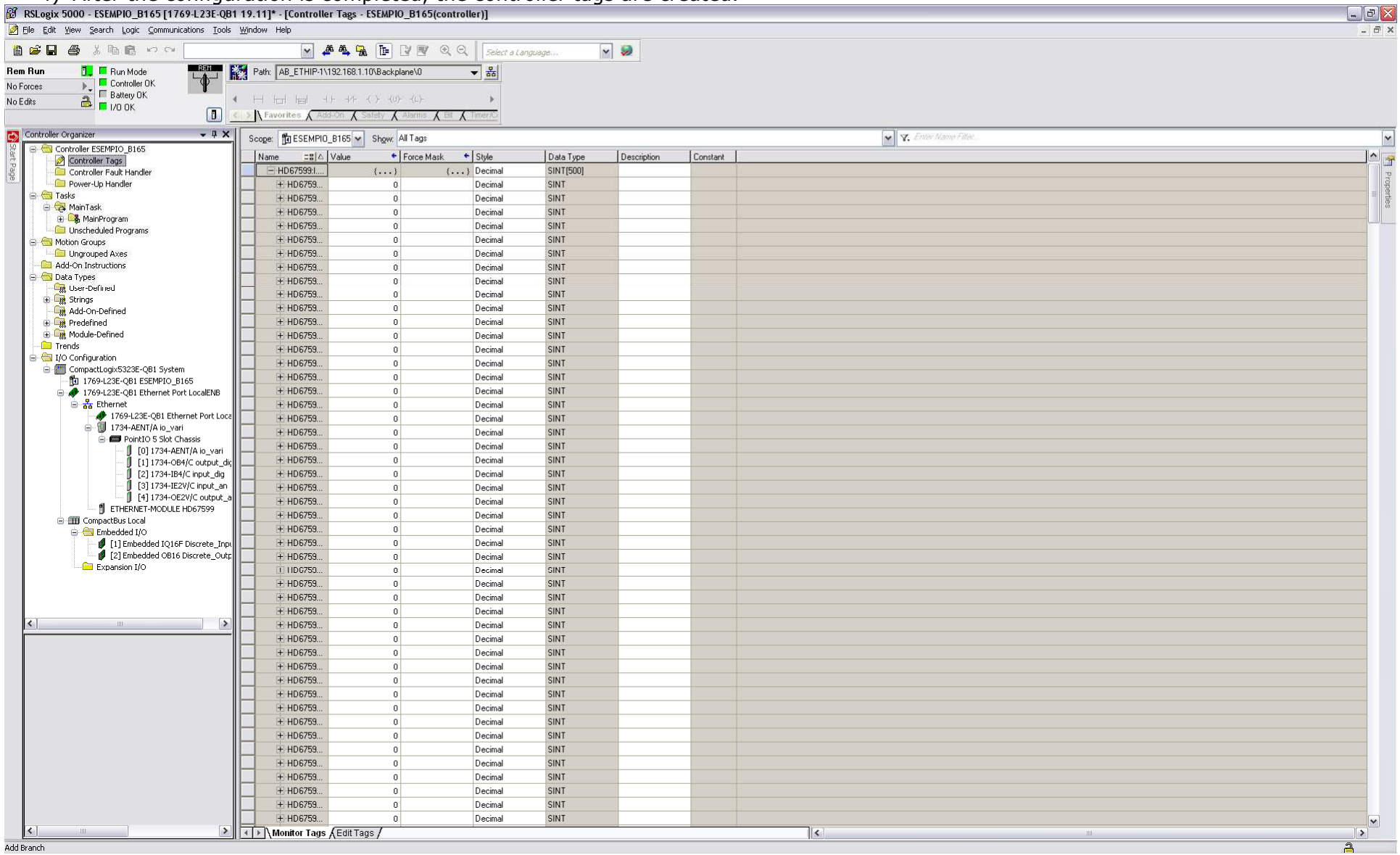
RSLogix 5000 requires a configuration assembly instance. Both modules do not provide a configuration assembly instance. Therefore it is allowed to select an instance of 3 and to set the value to zero.

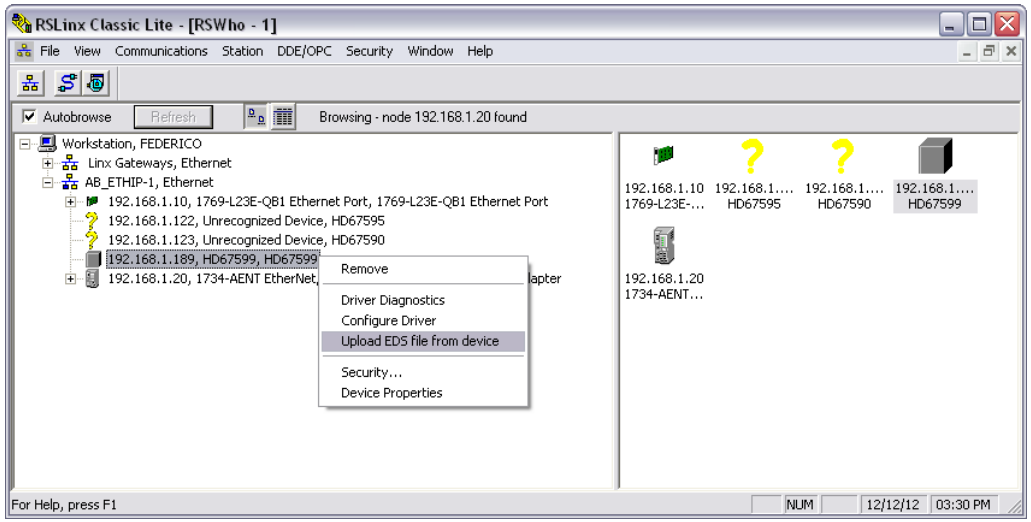
3) The setting of 10msec for the "Requested Packet Interval (RPI)" is adequate but it is possible to change this value as required. A lower value of 2ms shall not be selected.



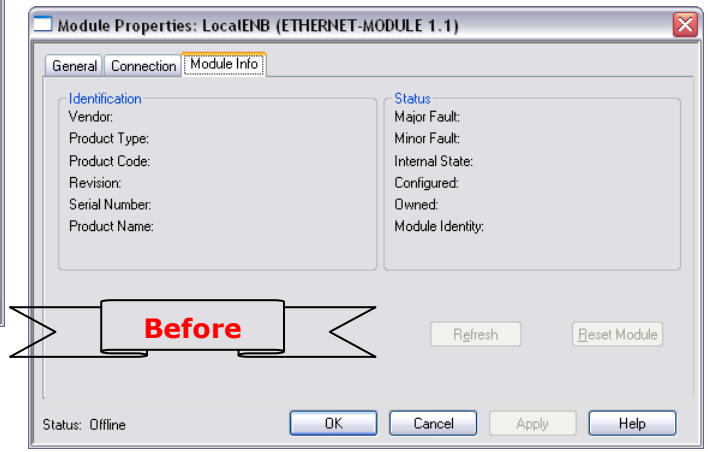
Warning:
The field "Use Unicast Connection over EtherNet/IP" must be checked.

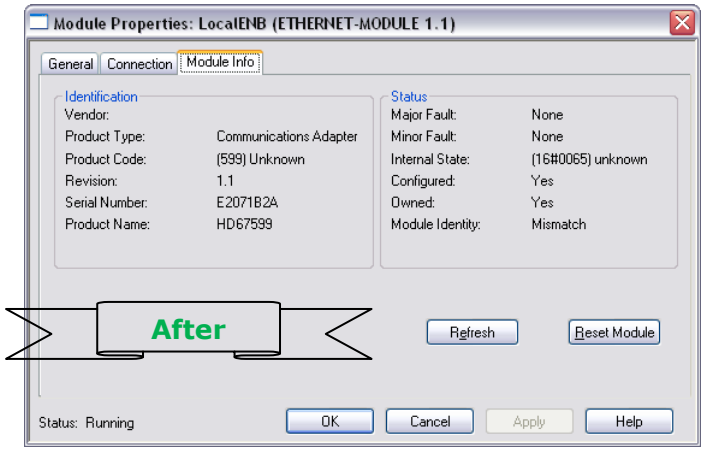
4) After the configuration is completed, the controller tags are created.





5) With "RSLinks Classic Lite", after have done a network scan (RSWho), and finding the EtherNet/IP device, it is possible to load the EDS file for the device in order to have the "Module Info" compiled.

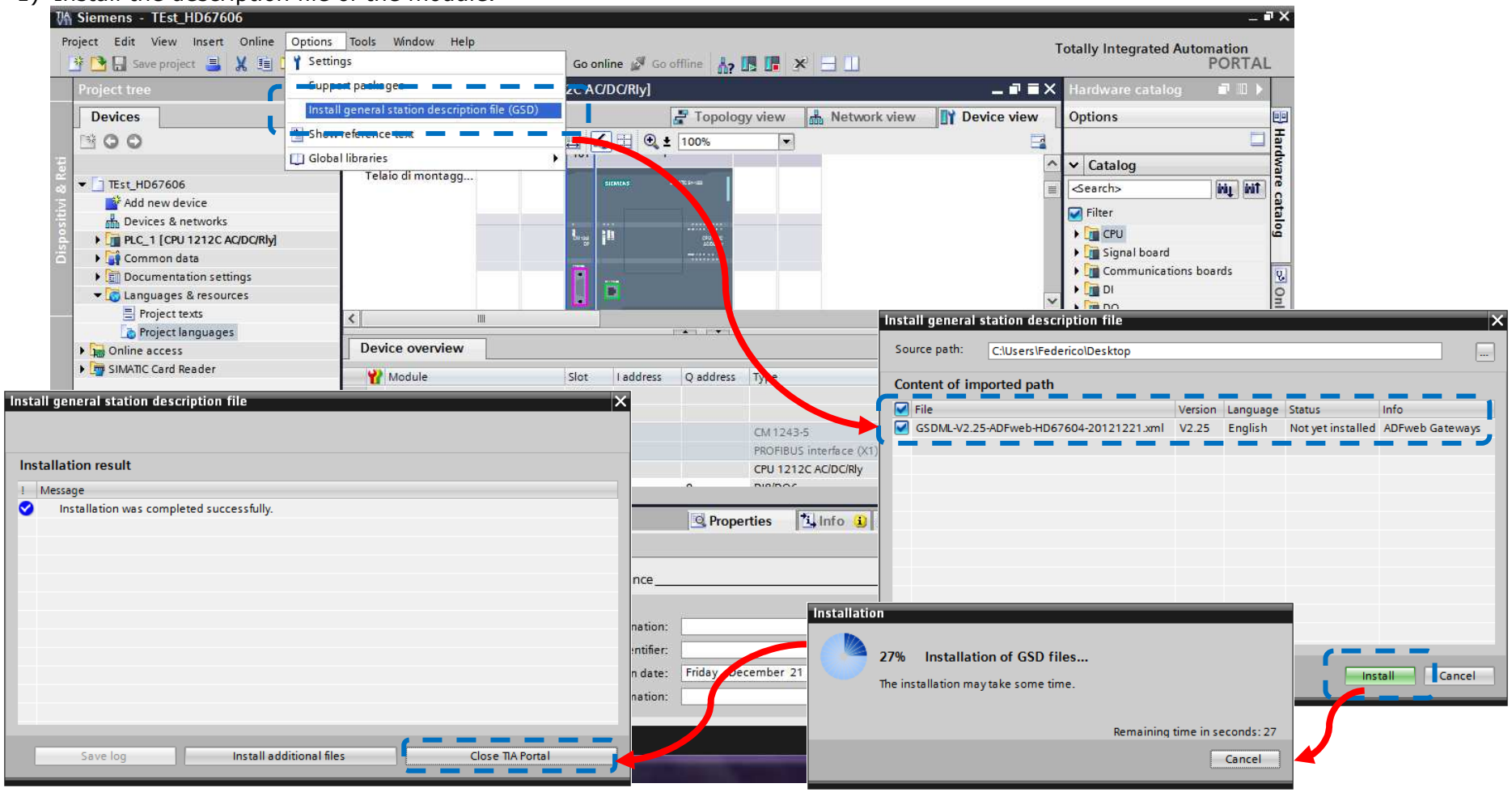




PLC CONFIGURATION (for PROFINET):

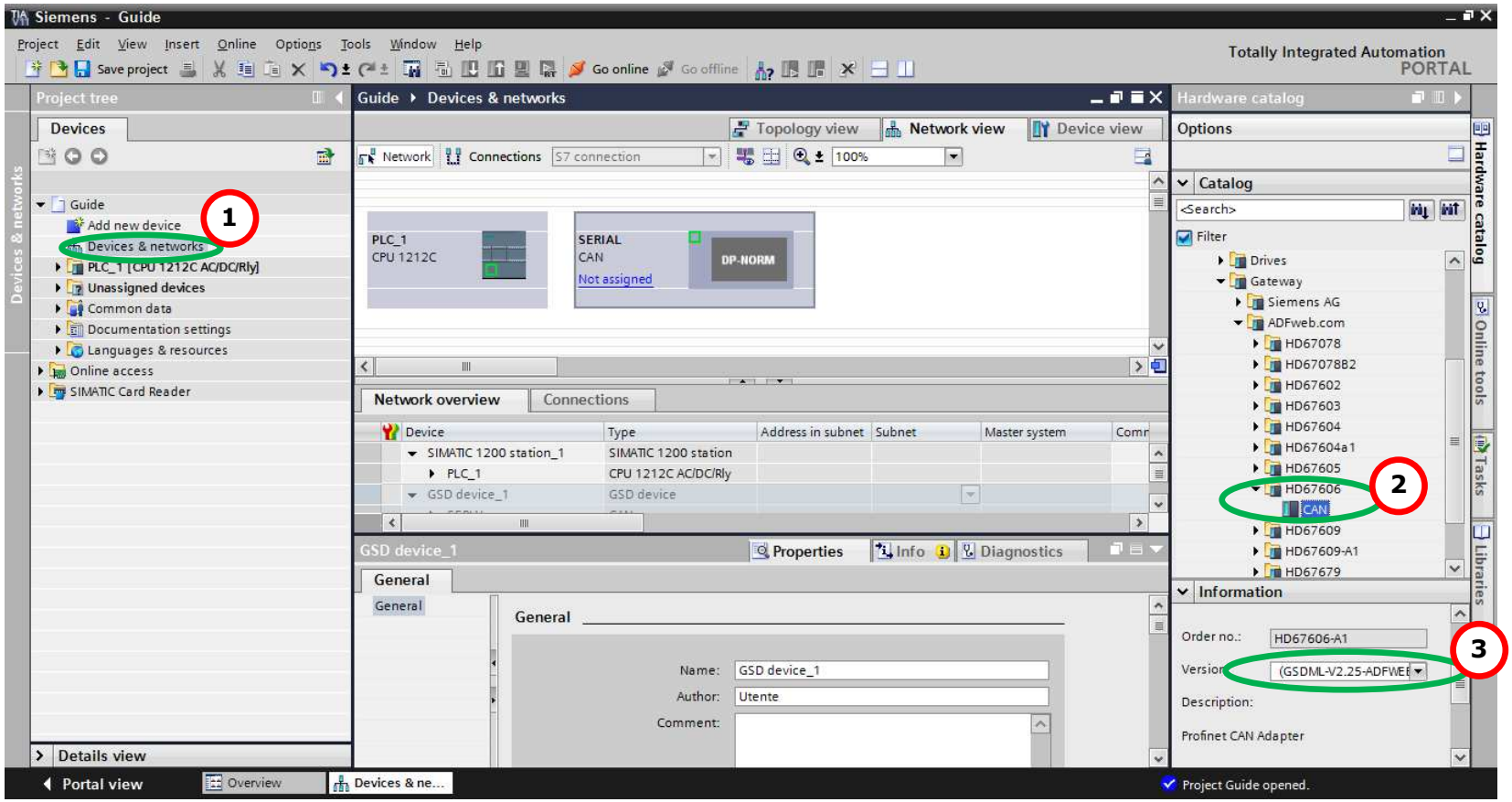
The configuration and commissioning of the PROFINET Converter as described on the following pages was accomplished with the help of the TIA Portal V11-software by Siemens. In the case of using a control system from another supplier, refer to attend to the associated documentation.
These are the steps to follow:

1) Install the description file of the module.

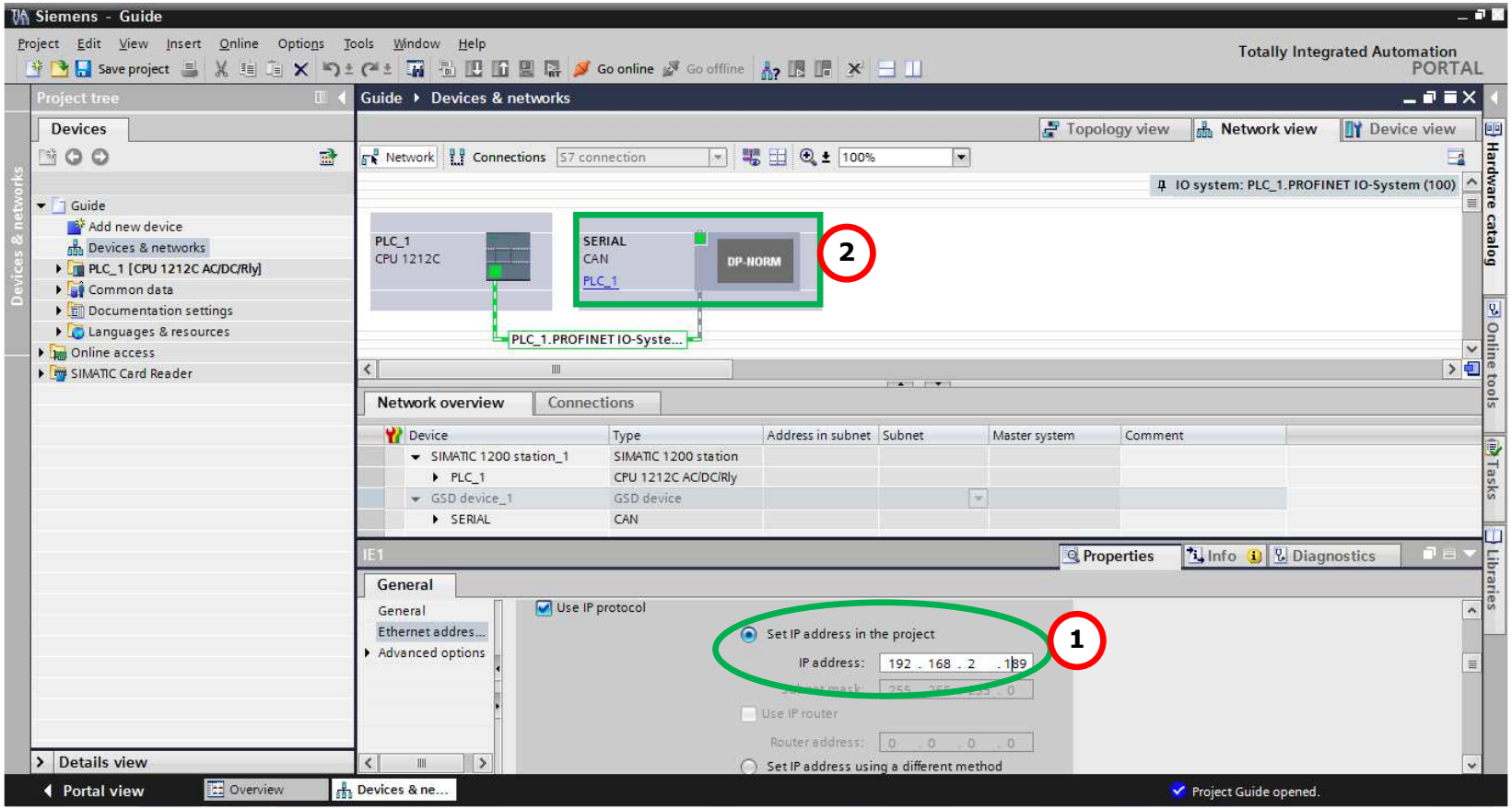


2) Press the "**Devices and networks**" button ***(1)***, from the right drop-down menu, under "Other field devices→PROFINET IO→Gateway→ADFWEB.com→HD67660" double click on "Serial" module ***(2)***.

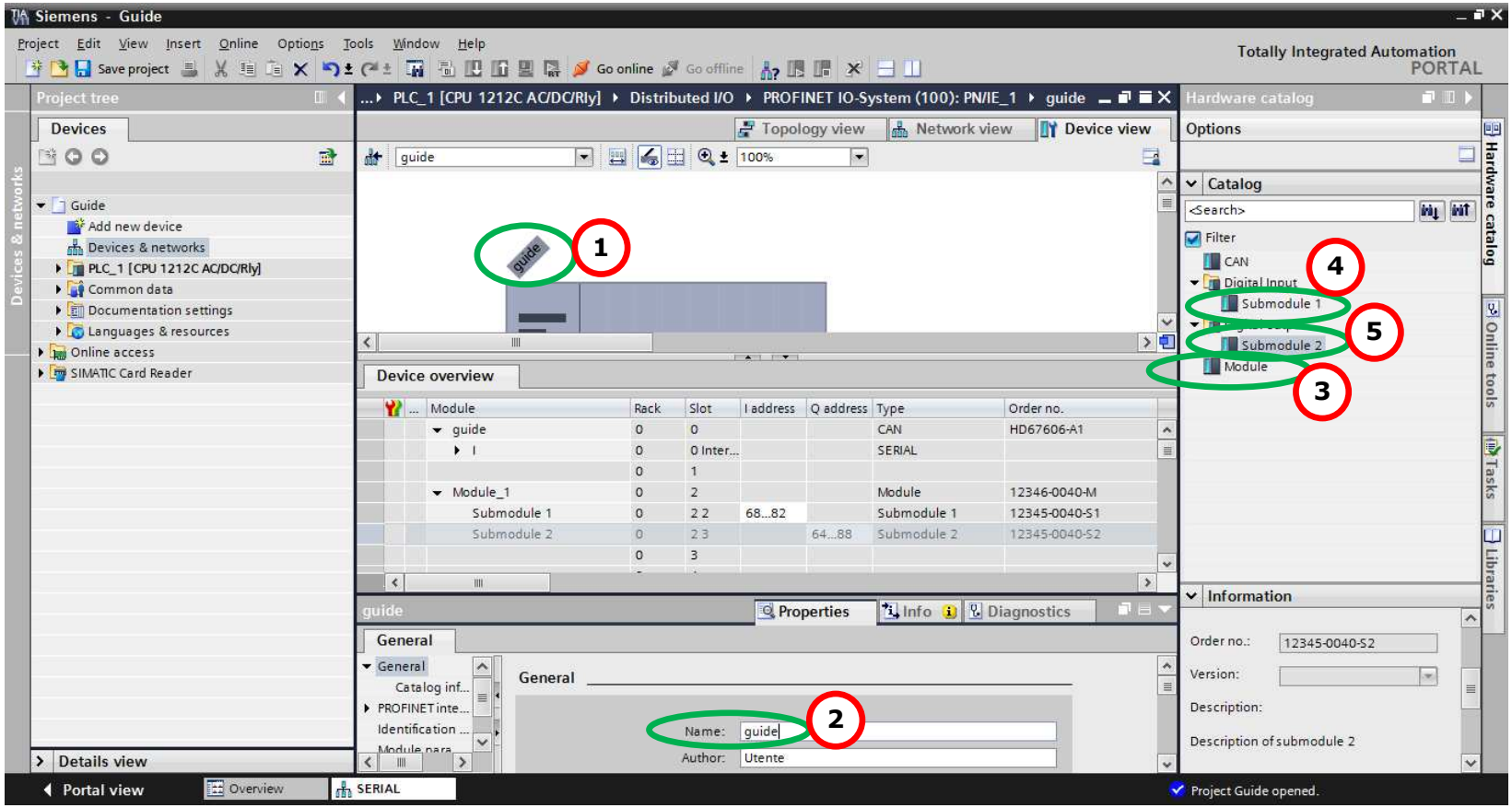
Note:
If you have installed more than one xml file, go to the Information section and in the "Version" field select the correct xml file ***(3)***, before double clicking on "Serial" module



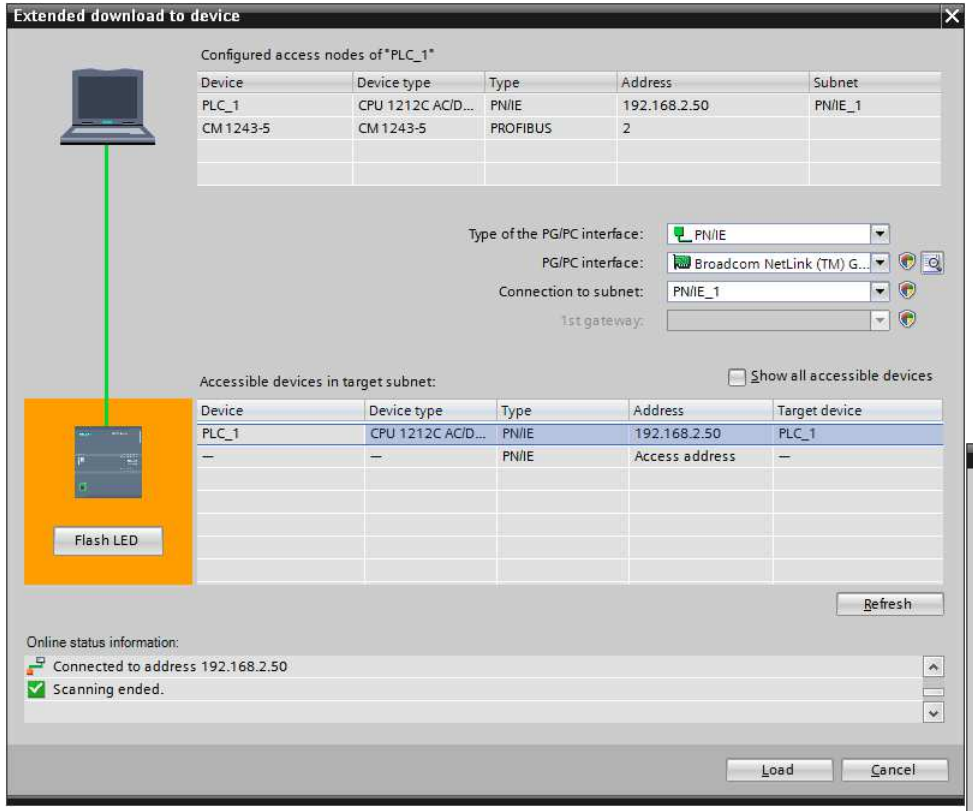
3) Connect the PLC to the HD67660 module by drawing the Ethernet wire between the two Ethernet ports. Then assign the IP Address ***(1)*** defined in the Compositor_SW67660 to the HD67660. Then double click the "Module" ***(2)***.

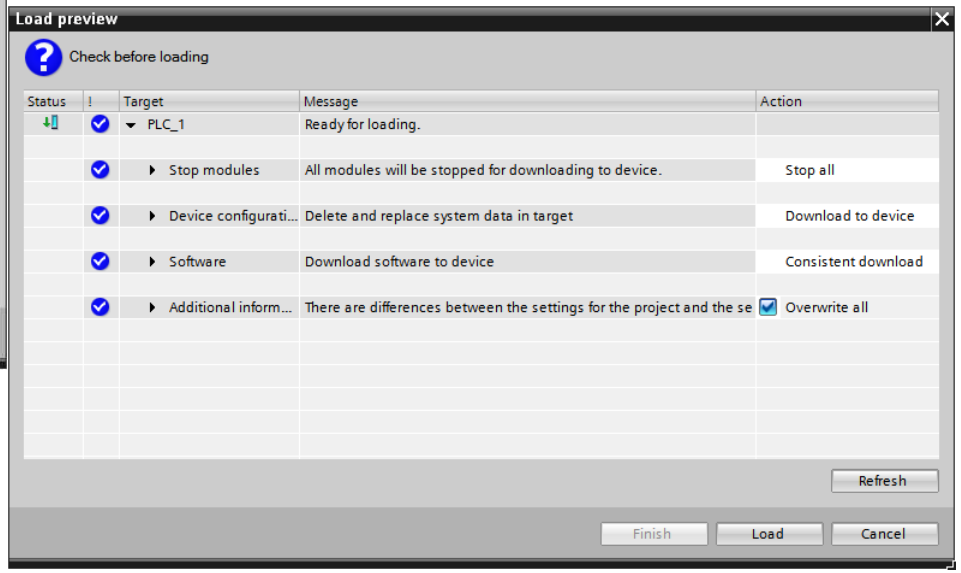


4) Then double click on the "Serial" label ***(1)*** and in the field name change it accordingly to the name defined in the Compositor_SW67660 ***(2)***. Then add the main module "Module" and the sub-modules of "Digital Input" and "Digital Output" by double click on the three items in this order "Module" ***(3)***, "Submodule 1" ***(4)***, "Submodule 2" ***(5)***.



5) Load the configuration into the PLC.





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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 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.

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