

User Manual

Revision 1.000

English

PROFINET / Modbus Master – Converter

(Order Code: HD674-A006)

For Website information:

www.adfweb.com?Product=HD674-A006

For Price information:

www.adfweb.com?Price=HD674-A006

Benefits and Main Features:

- ⊕ Very easy to configure
- ⊕ Wide supply input range
- ⊕ Electrical isolation
- ⊕ Industrial temperature range:
- ⊕ -40°C / 105°C (-40°F / 221°F)



For others Gateways / Bridges:

J1939 to Modbus

See also the following links:

www.adfweb.com?Product=HD67212 (Modbus RTU)

CANopen to Modbus

See also the following links:

www.adfweb.com?Product=HD67001 (Modbus RTU Master)

www.adfweb.com?Product=HD67002 (Modbus RTU Slave)

www.adfweb.com?Product=HD67004 (Modbus TCP Master)

www.adfweb.com?Product=HD67005 (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=HD67014 (Modbus TCP Slave)

www.adfweb.com?Product=HD67015 (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



User Manual

INDEX:

	Page
INDEX	2
UPDATED DOCUMENTATION	2
REVISION LIST	2
WARNING	2
TRADEMARKS	2
SECURITY ALERT	3
EXAMPLES OF CONNECTION	4
CONNECTION SCHEME	5
CHARACTERISTICS	9
CONFIGURATION	9
POWER SUPPLY	10
LEDS	11
RS232	12
RS485	13
ETHERNET	14
USB	14
USE OF COMPOSITOR SW674-A006	15
NEW PROJECT / OPEN PROJECT	16
SOFTWARE OPTIONS	17
SET COMMUNICATION	19
SET ACCESS	20
PROFINET XML	23
UPDATE DEVICE	24
ADVANCED FUNCTIONS	26
ADVANCED COMMANDS	30
MODBUS DIAGNOSTIC OVER PROFINET	36
PLC CONFIGURATION	37
MECHANICAL DIMENSIONS	40
ORDER CODE	44
ACCESSORIES	45
DISCLAIMER	46
OTHER REGULATIONS AND STANDARDS	46
WARRANTIES AND TECHNICAL SUPPORT	47
RETURN POLICY	47

UPDATED DOCUMENTATION:

Dear customer, we thank you for your attention and we remind you that you need to check that the following document is:

- Updated
- Related to the product you own

To obtain the most recently updated document, note the “document code” that appears at the top right-hand corner of each page of this document.

With this “Document Code” go to web page www.adfweb.com/download/ and search for the corresponding code on the page. Click on the proper “Document Code” and download the updates.

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	15/06/2017	Ff	All	First released 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, 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:

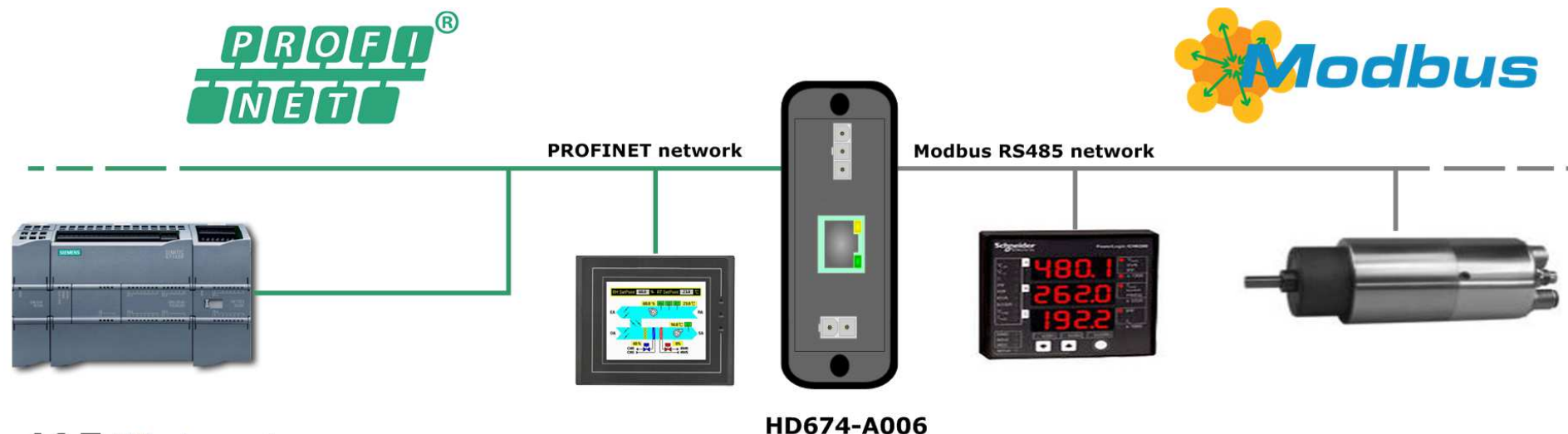


This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

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:



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

HD674-A006

CONNECTION SCHEME:

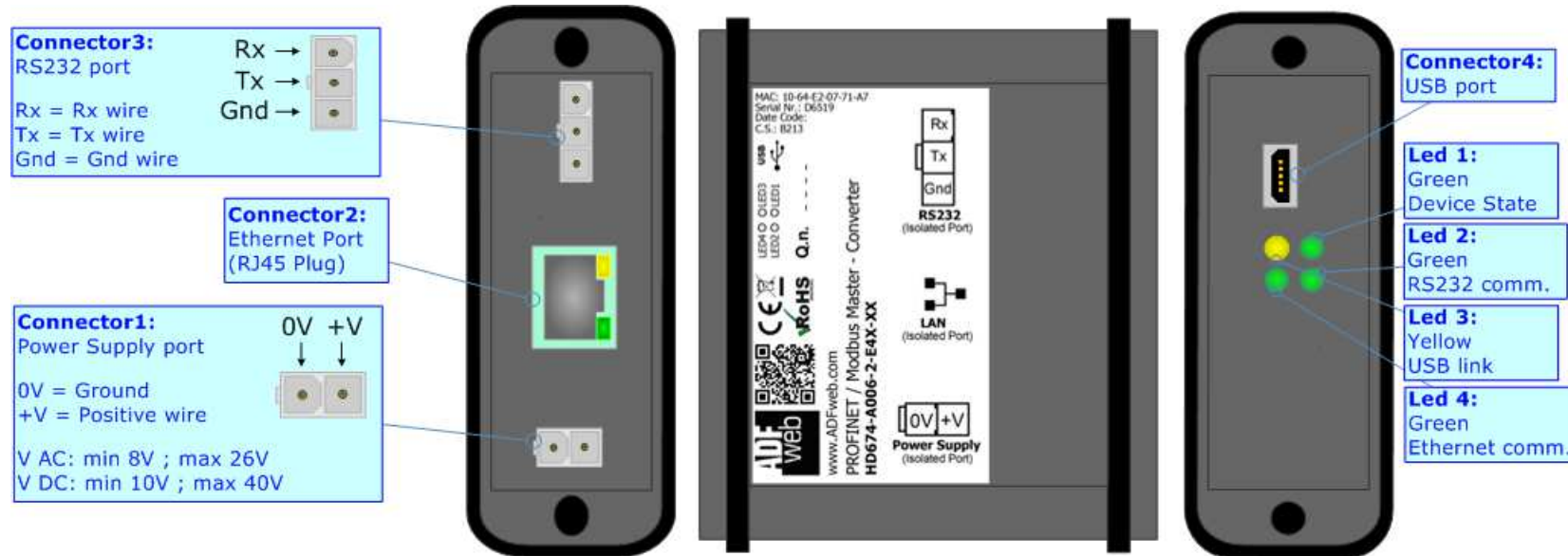


Figure 1a: Connection scheme for HD674-A006-2-E4x-xx

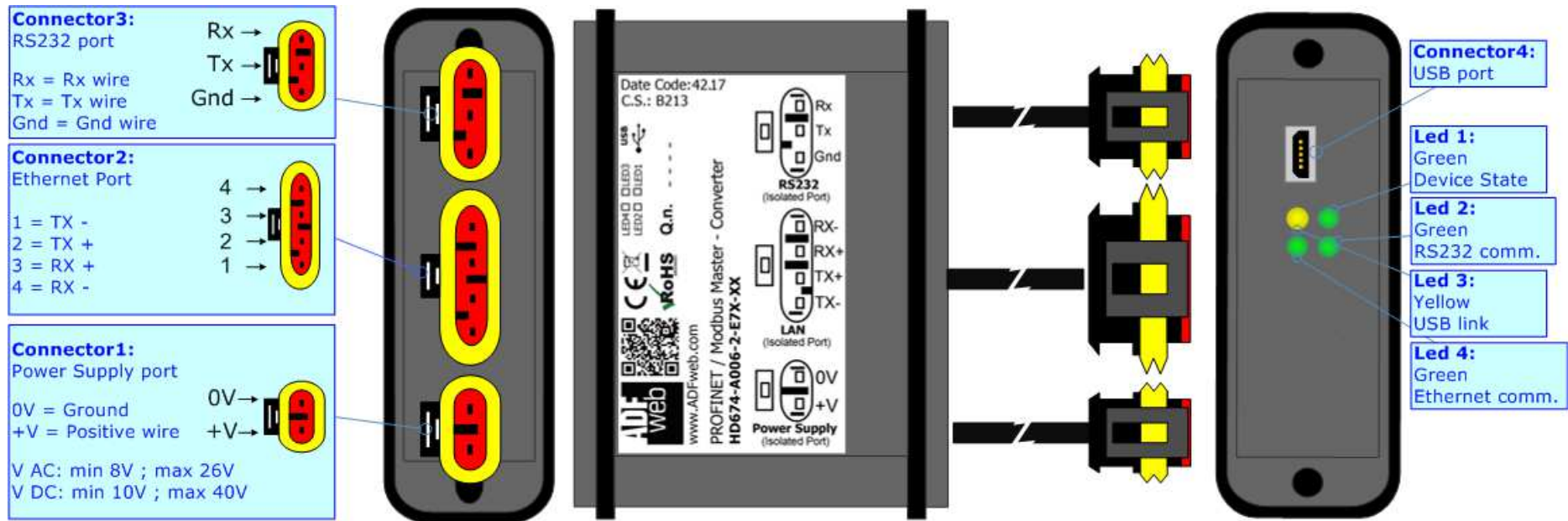


Figure 1b: Connection scheme for HD674-A006-2-E7x-xx



Figure 1c: Connection scheme for HD674-A006-4-E4x-xx

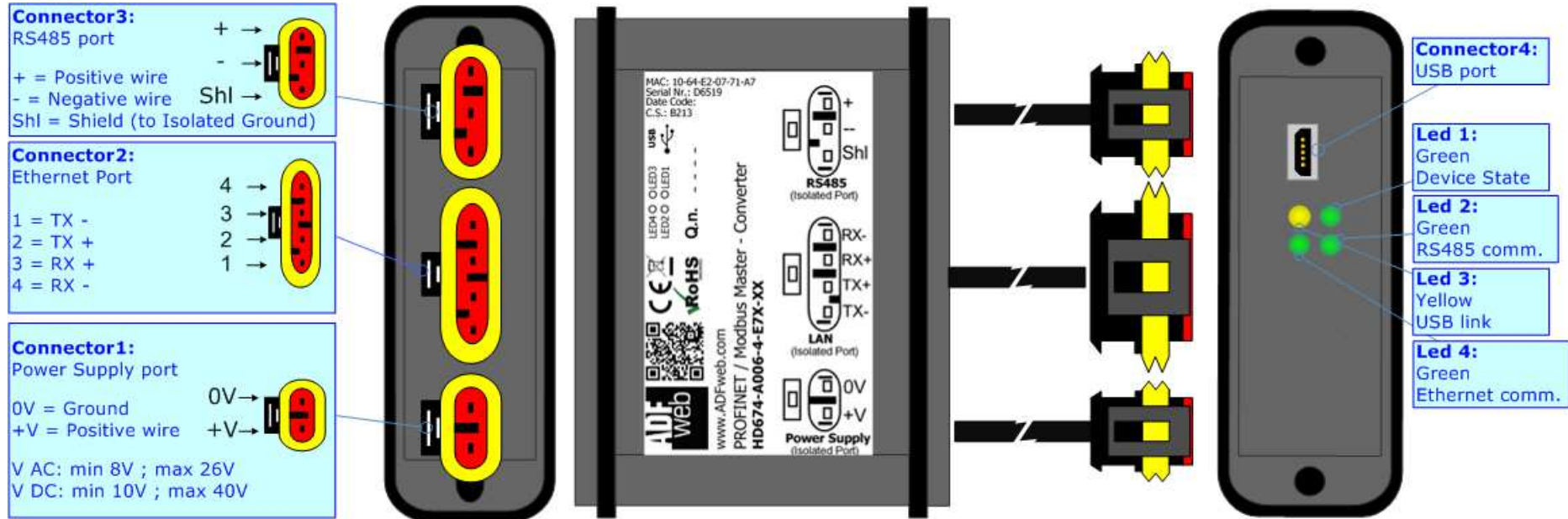


Figure 1d: Connection scheme for HD674-A006-4-E7x-xx

CHARACTERISTICS:

The "**HD674-A006**" series are rugged devices used to interface Modbus devices with PROFINET network.

With its particular enclosure, equipped with four fixing lugs, makes available the mounting of the device in any plane surface (horizontal, vertical, oblique).

It is possible to have the device varnished or totally resined and also in both cases with "Mini-Fit®" connectors or "AMP SuperSeal 1.5" connectors. If is resined, the enclosure, like the "AMP SuperSeal 1.5" connectors, is waterproof.

All the four series have these characteristics:

- Triple 4kV isolation between Power Supply / PROFINET / Modbus;
- Varnished / Resined (optionally);
- Wide power supply input range: 8...26V AC | 10...40V DC;
- Mini-Fit® / AMP SuperSeal 1.5 connectors;
- Metal enclosure with fixing lugs;
- Possibility to use Metal hose clamps for fixing it without using lugs;
- Microprocessor for data control;
- Wide temperature range: -40°C / 105°C (-40°F / 221°F).

CONFIGURATION:

You need Compositor SW674-A006 software on your PC in order to perform the following:

- Define the parameter of PROFINET line;
- Define the parameter of Modbus line;
- Determinate which PROFINET byte transferring on Modbus and vice versa;
- Update the device.

POWER SUPPLY:

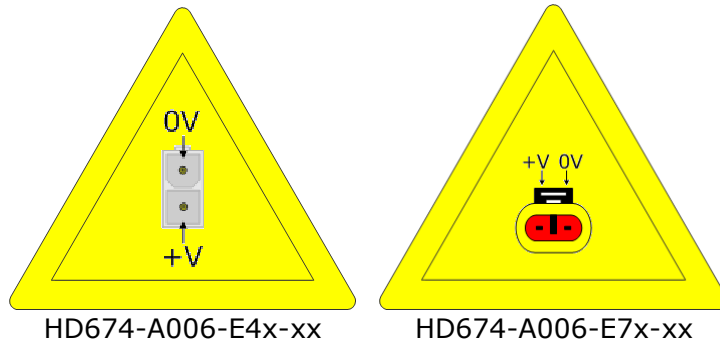
The devices can be powered between a wide range of tensions. For more details see the two tables below.

	VAC		VDC	
	Vmin	Vmax	Vmin	Vmax
HD674-A006-Exx-xx	8V	26V	10V	40V

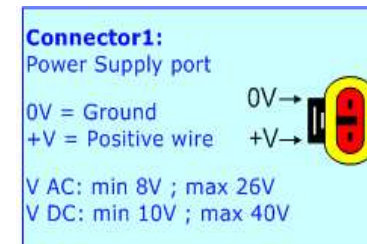
Consumption at 24V DC:

Device	W/VA
HD674-A006-Exx-xx	4

Caution: Not reverse the polarity power



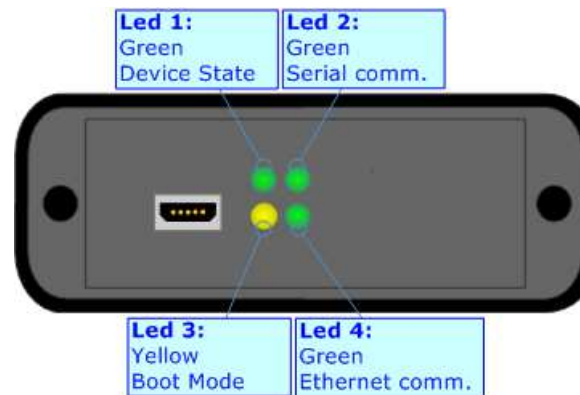
Note: It is possible to use also negative tensions. In this case the polarity must be inverted.



LEDS:

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

LED	Normal Mode	Boot Mode
1: Device state (green)	Blinks slowly (~1Hz)	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress
2: Serial Communication (green)	Blinks when Modbus responses are received	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress
3: USB Link (yellow)	ON: USB cable inserted OFF: USB cable not inserted	ON: USB cable inserted OFF: USB cable not inserted
4: Ethernet communication (green)	Blinks when PROFINET communication is working	Blinks quickly: Boot state Blinks very slowly (~0.5Hz): update in progress



RS232:

The connection of the RS232 in the HD674-A006-2-E4x-xx device must be made with a 3way MiniFit Female connector. The pinout of Male MiniFit connector of the board is at right side of the page.

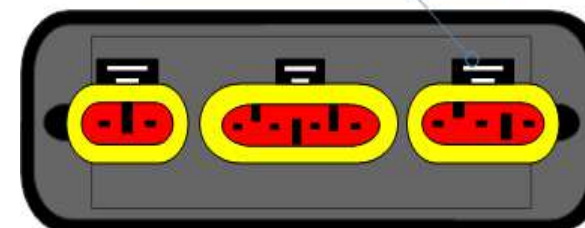
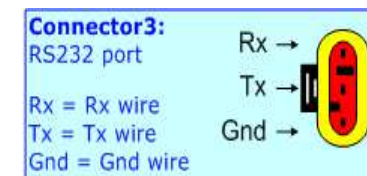
The connection of the RS232 in the HD67-A006-2-E7x-xx device must be made with a AMP SuperSeal 1.5 Male connector. The pinout of Female connector of the board is at right side of the page.

The maximum length of the cable should be 15m.

Link for Mini-Fit® connectors:

http://www.molex.com/molex/products/group?key=minifit_products&channel=products

Link for SuperSeal 1.5 connectors: <http://www.te.com/catalog/cinf/en/c/10876/956>



RS485:

The connection of the RS485 in the HD674-A006-4-E4x-xx device must be made with a 3way MiniFit Female connector. The pinout of Male MiniFit connector of the board is at right side of the page.

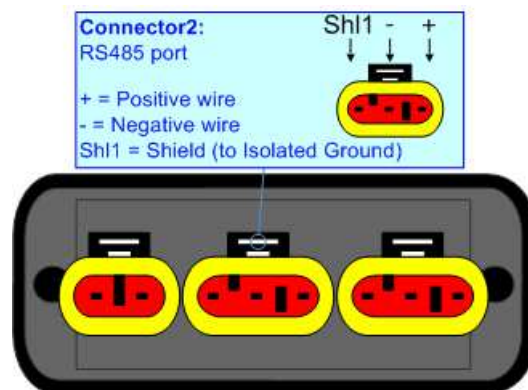
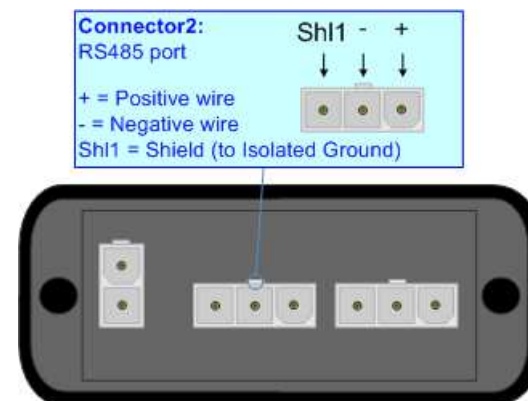
The connection of the RS485 in the HD67-A006-4-E7x-xx device must be made with a AMP SuperSeal 1.5 Male connector. The pinout of Female connector of the board is at right side of the page.

The termination of RS485 line, with a 120Ω resistor, in the HD674-A006-4-Exx-xx is made internally of the device; when the order is performed. If the device have the RS485 terminated the code is the follow: HD674-A006-4-Exx-Yx; otherwise is this other: HD674-A006-4-Exx-Nx.

The maximum length of the cable should be 1200m (4000 feet).

Here some codes of cables:

- Belden: p/n 8132 - 2x 28AWG stranded twisted pairs conductor + foil shield + braid shield;
- Belden p/n 82842 - 2x 24AWG stranded twisted pairs conductor + foil shield + braid shield;
- Tasker: p/n C521 - 1x 24AWG twisted pair conductor + foil shield + braid shield;
- Tasker: p/n C522 - 2x 24AWG twisted pairs conductor + foil shield + braid shield.



Link for Mini-Fit® connectors: http://www.molex.com/molex/products/group?key=minifit_products&channel=products

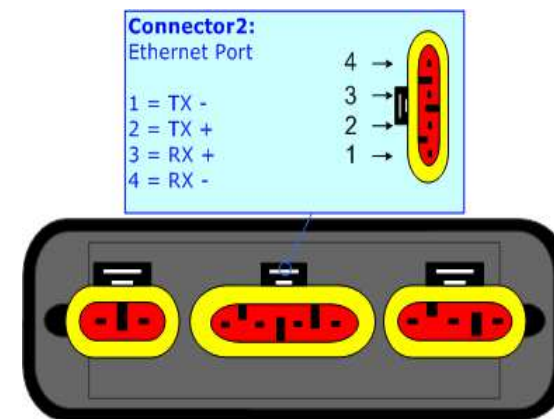
Link for SuperSeal 1.5 connectors: <http://www.te.com/catalog/cinf/en/c/10876/956>

ETHERNET:

The connection of Ethernet in the HD674-A006 device must be made 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.

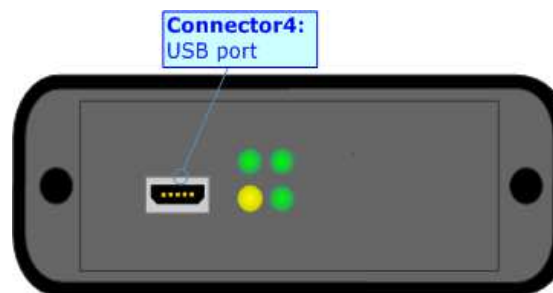
The connection of Ethernet in the HD674-A006-x-E4x-xx device must be made with RJ45 connector.

The connection of the Ethernet in the HD674-A006-x-E7x-xx device must be made with a AMP SuperSeal 1.5 Male connector. The pinout of Female connector of the board is at right side of the page.



USB:

The USB port is used to start the converter in Boot Mode. It is necessary to use a Micro USB type B cable.



USE OF COMPOSITOR SW674-A006:

To configure the Converter, use the available software that runs with Windows called SW674-A006. 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 SW674-A006, the window below appears (Fig. 2).



Note:

It is necessary to have installed .Net Framework 4.

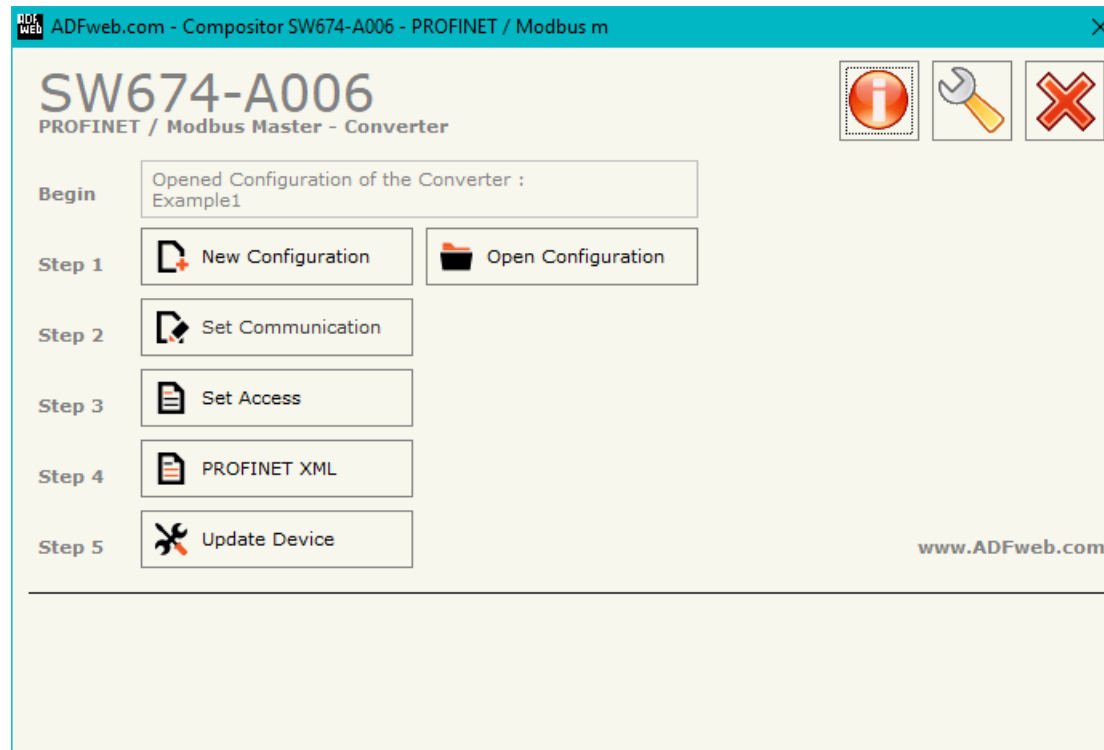
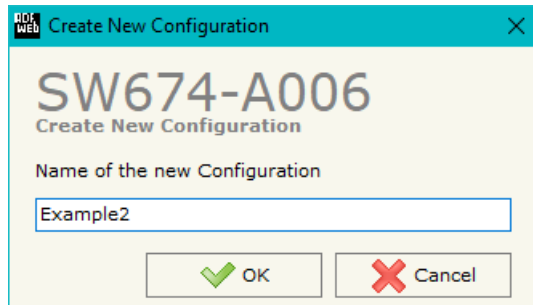


Figure 2: Main window for SW674-A006

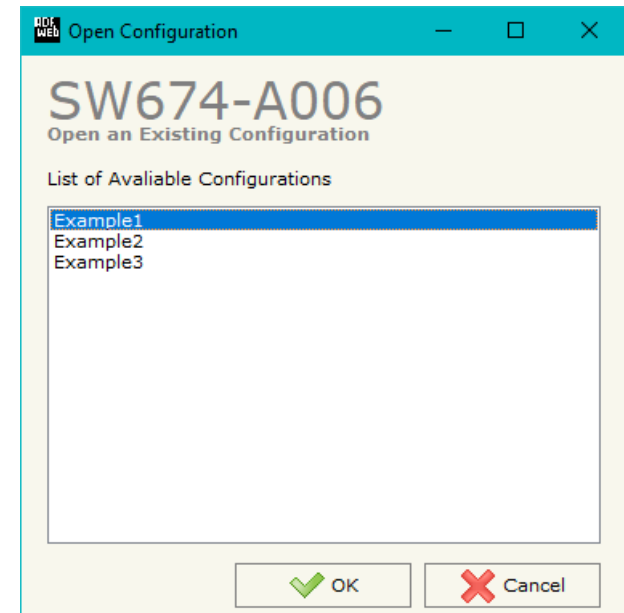
NEW CONFIGURATION / OPEN CONFIGURATION:

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




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

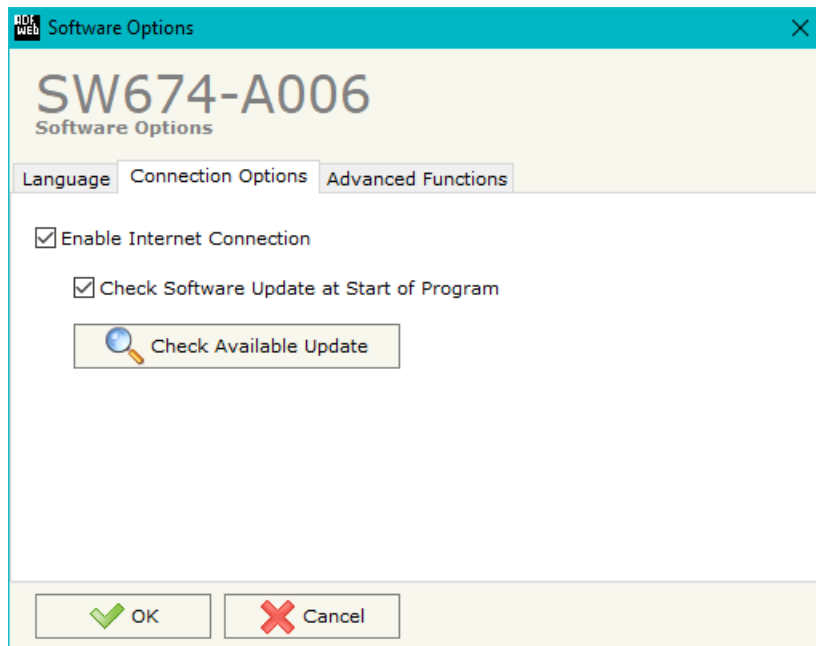
- To clone the configurations of a programmable “PROFINET / Modbus Master - Converter” in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button “**Open Configuration**”.



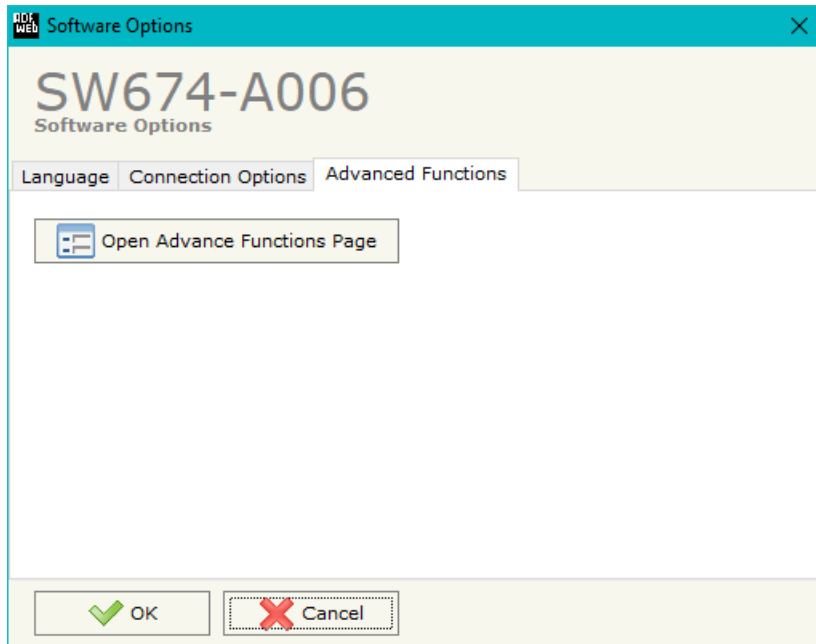
SOFTWARE OPTIONS:

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 SW674-A006 checks automatically if there are updatings when it is launched.



In the section "Advanced Functions", it is possible to send some advanced commands to the converter in order to monitor the Modbus communication and enable/disable the Modbus requests. See page 26 for more info.

SET COMMUNICATION:

This section define the fundamental communication parameters of two buses, Modbus and PROFINET.

By Pressing the **"Set Communication"** button from the main window of SW674-A006 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The meaning of the fields of "PROFINET" are:

- In the field **"IP ADDRESS"** the IP address of the PROFINET side of the converter is defined;
- In the field **"SUBNET Mask"** the SubNet Mask of the PROFINET side of the converter is defined;
- In the field **"GATEWAY"** the default gateway of the network is defined. This feature can be enabled or disabled pressing the Check Box field. This feature is used for going out of the net;
- In the field **"Tunneling Port"** the tunneling port used for transparent communication is defined (see page 28 for more info);
- In the field **"PROFINET Name of Station"** the name to the PROFINET side of the converter is defined;
- In the field **"PROFINET -> Gateway"** the number of byte from the PROFINET to the converter is defined (at maximum it is possible to use 1439 byte);
- In the field **"PROFINET <- Gateway"** the number of byte from the converter to the PROFINET is defined (at maximum it is possible to use 1439 byte);
- In the field **"Diagnostic"** the starting byte of the PROFINET array where saving the diagnostic of Modbus side is defined. It is possible to enable/disable this function using the checkbox. For more informations about the diagnostic, see page 36;
- In the field **"En. Modbus Polls"** the starting byte of PROFINET array used to enable/disable the Modbus requests is defined. Each Modbus request is represented by a bit, '0' means 'Enabled' and '1' means 'Disabled'. The requests are mapped from first Modbus reading request to last Modbus writing request. It is possible to enable/disable this function using the checkbox.

The means of the fields for the "Modbus Master" section are:

- In the field **"Serial"** the serial port to use is defined (RS232 or RS485);
- In the field **"Baudrate"** the baudrate for the serial line is defined;
- In the field **"Parity"** the parity of the serial line is defined;
- In the field **"Stop Bits"** the number of Stop Bits of the serial line is defined;

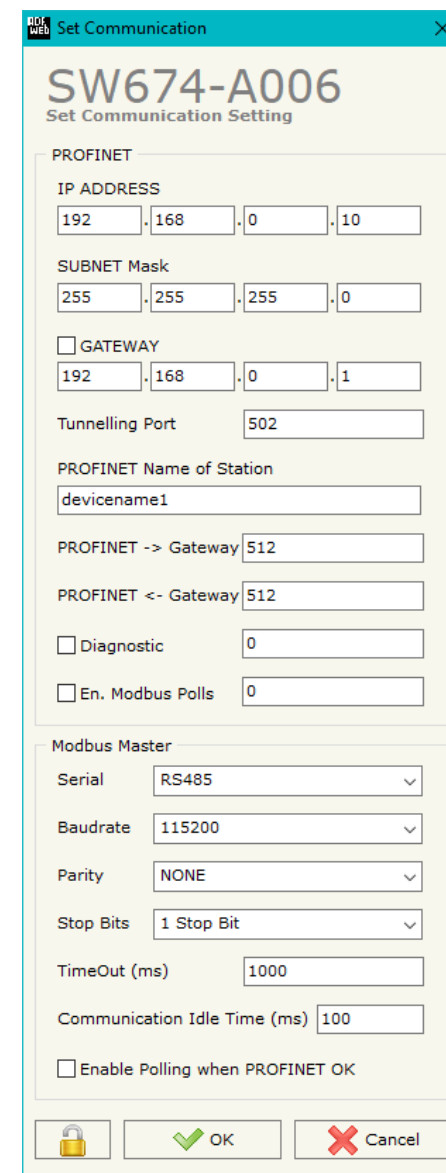


Figure 3: "Set Communication" window

- In the field "**TimeOut (ms)**" the maximum time that the converter attends for the answer from the Slave interrogated is defined;
- In the field "**Communication Idle Time (ms)**" the delay (idle time) between two Modbus requests is defined;
- If the field "**Enable Polling when PROFINET OK**" is checked, the Modbus polling is operative only when PROFINET communication with the Master is running.

SET ACCESS:

By pressing the **"Set Access"** button from the main window for SW674-A006 (Fig. 2) the window "Set Modbus Access" appears.

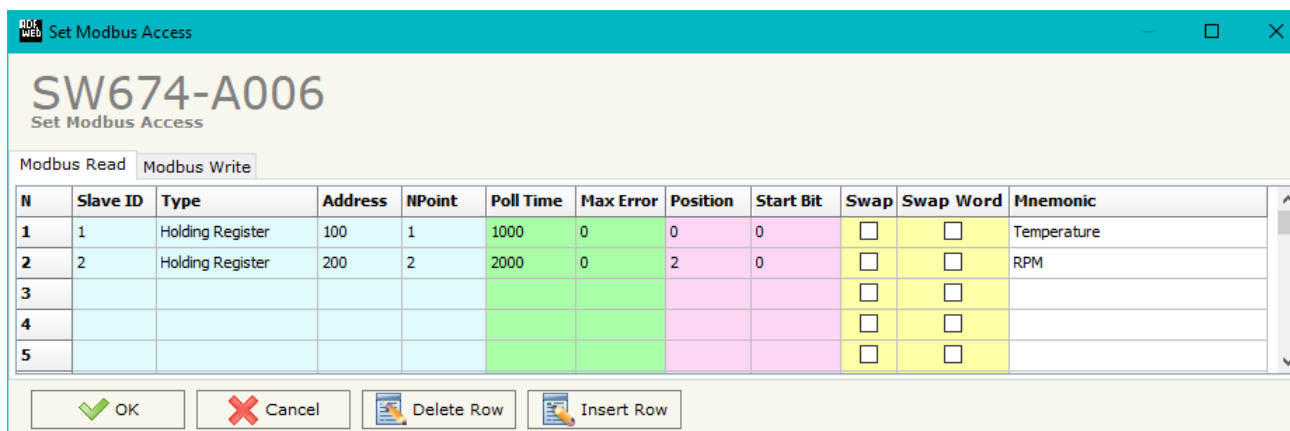
This window is divided in two parts, the "Modbus Read" (Fig. 4a) and the "Modbus Write" (Fig. 4b).

The first part "Modbus Read" is used to read the data from the Modbus slaves and make them available to read from the PROFINET Master. The second part "Modbus Write" is used to write the data that arrives from the PROFINET Master into the Modbus slaves.

MODBUS READ

The means of the fields are:

- ✚ In the field **"Slave ID"** the address of the Modbus device to read is defined;
- ✚ In the field **"Type"** the data type of the register to read is defined. The following options are available:
 - Coil Status;
 - Input Status
 - Holding Register;
 - Input Register.
- ✚ In the field **"Address"** the starting address of the register to read is defined;
- ✚ In the field **"NPoint"** the number of consecutive registers to read is defined;
- ✚ In the field **"Poll Time"** the delay time between two Modbus requests is defined;
- ✚ In the field **"Max Error"** the number of consecutive errors that the converter waits before suspending the poll until the next reboot is defined. If it is set to '0', this function is disabled;
- ✚ In the field **"Position"** the address of the PROFINET array where mapping the information is defined;
- ✚ In the field **"Start Bit"** the bit of the selected byte of the field "Position" where starting to map the data is defined. Valid only for the "Coil Status" and "Input Status" type;
- ✚ If the field **"Swap"** is checked, the bytes' order is exchanged;
- ✚ If the field **"Swap Word"** is checked, the words' order is exchanged;
- ✚ In the field **"Mnemonic"** the description for the request is defined.



N	Slave ID	Type	Address	NPoint	Poll Time	Max Error	Position	Start Bit	Swap	Swap Word	Mnemonic
1	1	Holding Register	100	1	1000	0	0	0	<input type="checkbox"/>	<input type="checkbox"/>	Temperature
2	2	Holding Register	200	2	2000	0	2	0	<input type="checkbox"/>	<input type="checkbox"/>	RPM
3									<input type="checkbox"/>	<input type="checkbox"/>	
4									<input type="checkbox"/>	<input type="checkbox"/>	
5									<input type="checkbox"/>	<input type="checkbox"/>	

Figure 4a: "Set Access → Modbus Read" window

MODBUS WRITE

The means of the fields are:

- In the field "**Slave ID**" the address of the Modbus device to write is defined;
- In the field "**Type**" the data type of the register to write is defined. The following options are available:
 - Coil Status;
 - Holding Register;
- In the field "**Address**" the starting address of the register to write is defined;
- In the field "**NPoint**" the number of consecutive registers to write is defined;
- In the field "**Poll Time**" the delay time between two Modbus requests is defined;
- If the field "**On Change**" is checked, the converter sends the writing request only when the data from PROFINET change the value;
- In the field "**Max Error**" the number of consecutive errors that the converter waits before suspending the poll until the next reboot is defined. If it is set to '0', this function is disabled;
- In the field "**Position**" the address of the PROFINET array where taking the information is defined;
- In the field "**Start Bit**" the bit of the selected byte of the field "Position" where starting to take the data is defined. Valid only for the "Coil Status" type;
- If the field "**Swap**" is checked, the bytes' order is exchanged;
- If the field "**Swap Word**" is checked, the words' order is exchanged;
- In the field "**Mnemonic**" the description for the request is defined.

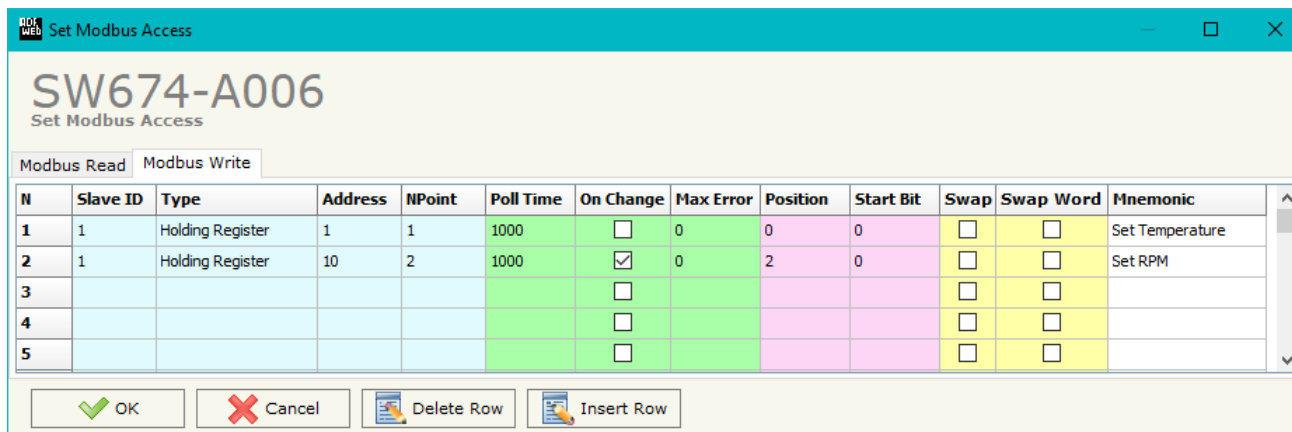


Figure 4b: "Set Access → Modbus Write" window

- Note:**
In order to write the data only "On Change", the "Poll Time" must be set to '0'.
- Note:**
If the field "On change" is checked and the "Poll Time" is different from 0, the converter sends the writing request cyclically and also when the data is changed.

PROFINET XML:

By Pressing the "**PROFINET XML**" button from the main window for SW674-A006 (Fig. 2) it is possible to generate the xml file to be imported into the master PROFINET.

PROFINET XML File Name

SW674-A006
Create the PROFINET XML GSD File

Select the PROFINET XML File Name

Fixed Part	User Part	Fixed Part
GSDML-V2.31-ADFweb-HD674A006	<input type="text" value="example1"/>	-20171012.xml

Figure 5: "Create the PROFINET XML GSD File" 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 necessary.

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

- Connect the USB cable;
- Connect the Ethernet cable;
- Turn ON the converter;
- 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", the updating is done;
- Remove the USB cable.

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 updated.

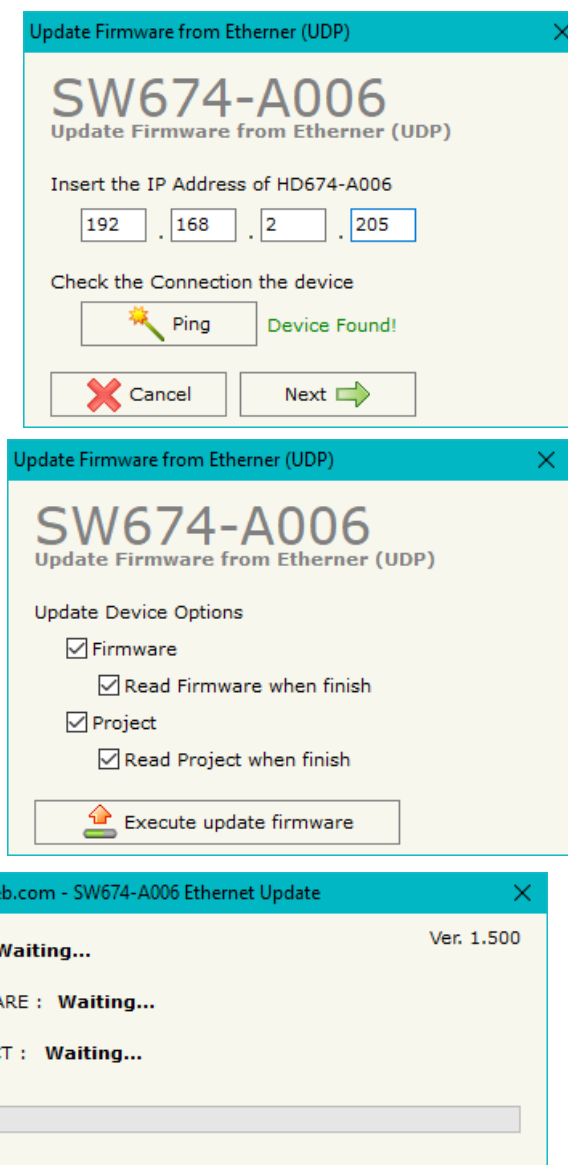


Figure 6: "Update Device" windows



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 HD674-A006 device.



Note:

When you receive the device, for the first time, you also have to update the Firmware in the HD674-A006 device.



Warning:

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

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

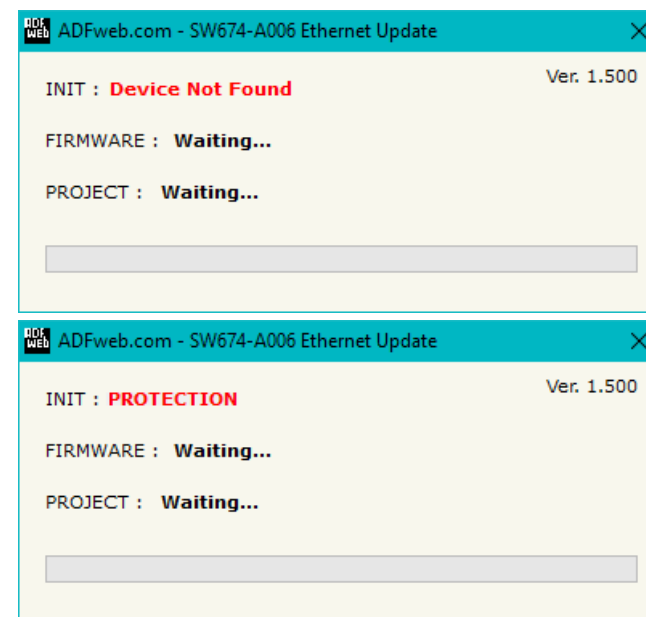


Figure 7: "Protection" window

In the case of HD674-A006 you have to use the software "SW674-A006": www.adfweb.com/download/filefold/SW674-A006.zip.

ADVANCED FUNCTIONS:

In the HD674-A006 are implemented some advanced commands that allow to check the functioning of the converter and send some Modbus commands directly from Ethernet side.

These commands can be sent directly from the SW674-A006 software, using the section "Advanced Functions" under the "Option" window.

ENABLE/DISABLE MODBUS POLLS (B0/B1)

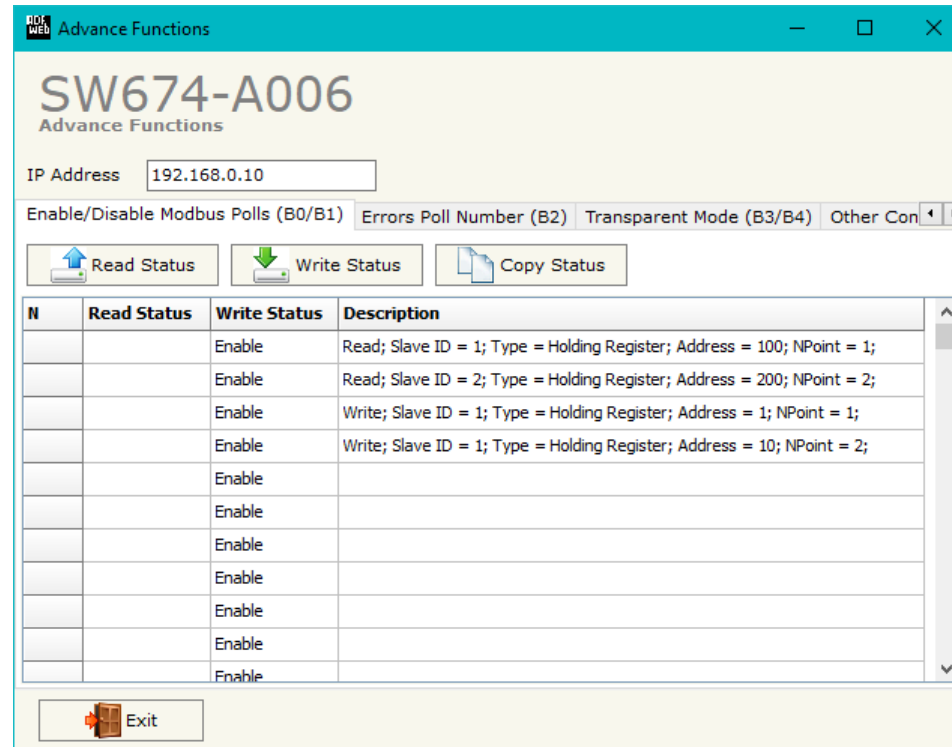


Figure 8: "Advanced Functions → Enable/Disable Modbus Polls" window

These section of the software allows to read the status of the Modbus requests (enabled or disabled) and it allows to change their status without re-programming the converter.

ERROR POLL NUMBER (B2)

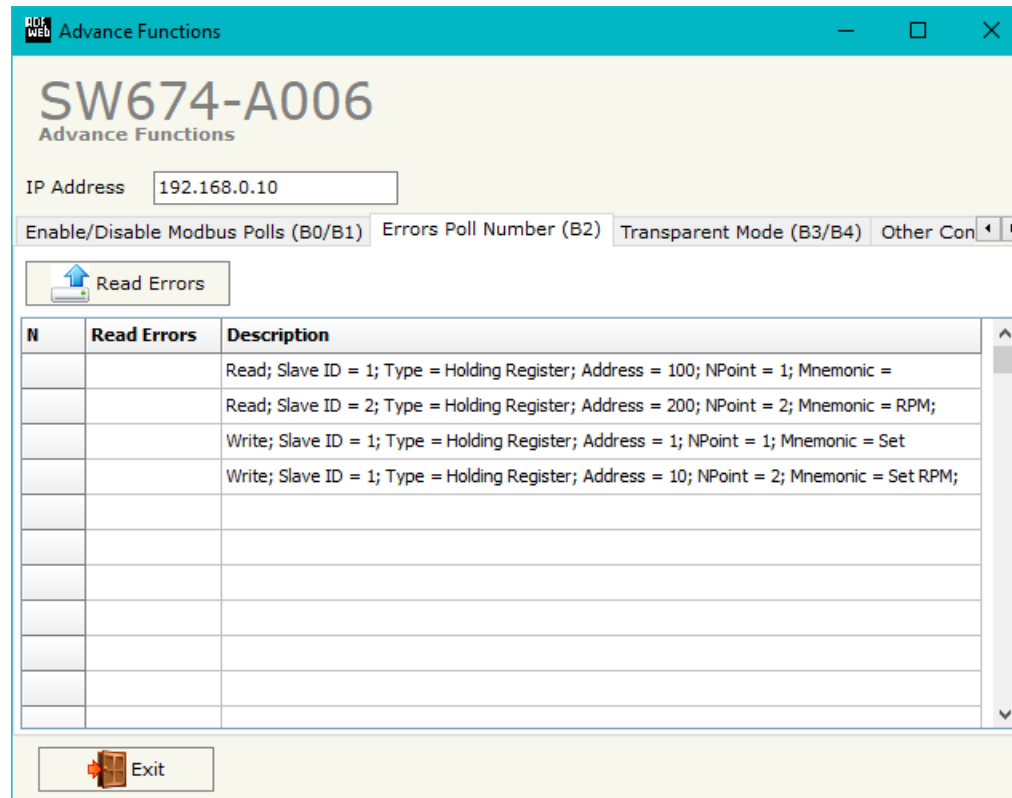


Figure 9: "Advanced Functions→Error Poll Number" window

These section of the software allows to read number of errors received (timeout or exception) for each Modbus request defined.

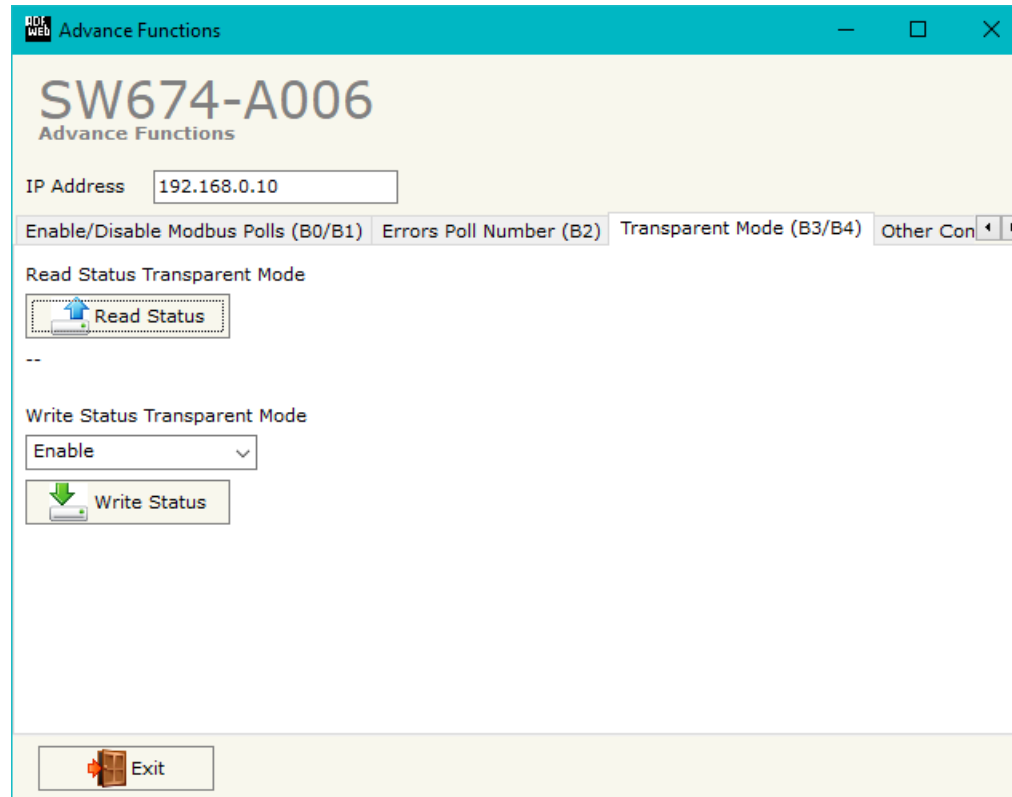
TRANSPARENT MODE (B3/B4)

Figure 10: "Advanced Functions→Transparent Mode" window

This section of the software allows to enable/disable the Transparent Mode of the converter. This Mode is used to send/receive some serial messages directly from UDP messages. The UDP messages will be addressed from/to the Tunneling Port defined in the section "Set Communication" of the SW674-A006.

**Note:**

When the Transparent Mode is enabled, the normal functioning of the converter is stopped until this function is disabled again.

OTHER COMMANDS (B5/B6)

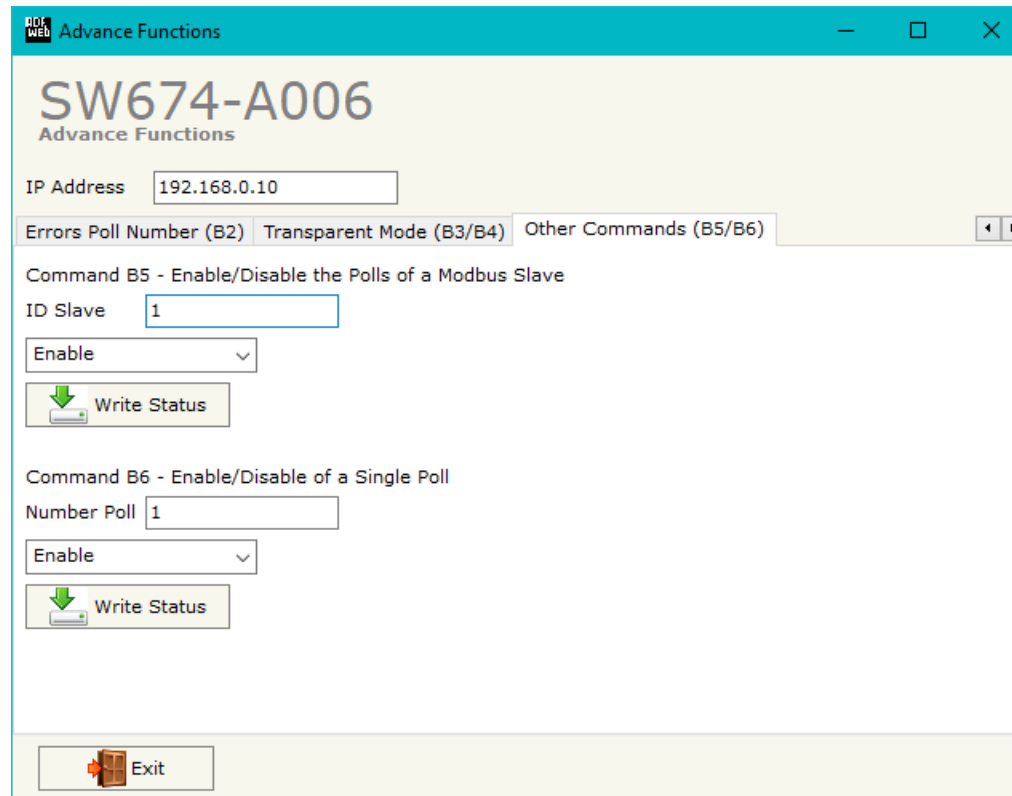


Figure 11: "Advanced Functions→Other Commands" window

These section of the software allows to enable/disable the Modbus polling for a specific slave (ID) and/or a single poll of the Modbus tables defined in the section "Set Access" of the SW674-A006.

ADVANCED COMMANDS:

In the HD674-A006 are implemented some advanced commands that allows to check the functioning of the converter and send some Modbus commands directly from Ethernet side (they are the same commands used in "Advanced Functions" section of SW674-A006). To use them, it is necessary to send UDP messages to the port 5000.

The function of each command and the structure of the UDP messages are described below.

B0 command

This command allows to enable/disable the Modbus polls on Modbus side.

REQ:

Byte 0	B1/bit7	B1/bit6	B1/bit5	B1/bit4	B1/bit3	B1/bit2	B1/bit1	B1/bit0	...	Bn/bitn
0xB0	Poll 0	Poll 1	Poll 2	Pol 3	Poll 4	Poll 5	Poll 6	Poll 7	...	Poll x

1 = Poll disabled

0 = Poll enabled

If the message is received correctly, the same message will be sent back by the converter.



Note:

In the UDP message, after the command's identifier, you have to enable/disable the Modbus reading requests and then the Modbus Writing requests.

Example:

In the section "Set Access" are defined 8 Modbus reading requests ("Modbus Read" table) and 8 Modbus writing requests ("Modbus Write" table). We want to disable the firsts 4 Modbus reading requests and the firsts 4 Modbus writing requests.

Byte 0	Byte 1								Byte 2							
0xB0	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
	Poll0	Poll1	Poll2	Poll3	Poll4	Poll5	Poll6	Poll7	Poll8	Poll9	Poll10	Poll11	Poll12	Poll13	Poll14	Poll15
	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0

B1 command

This command allows to read the status of the enabling/disabling of the Modbus polls.

REQ:

Byte 0
0xB1

RES:

Byte 0	B1/bit0	B1/bit1	B1/bit2	...	Bn/bitn
0xB1	Poll 0	Poll 1	Poll 2	...	Poll x

1 = Poll disabled

0 = Poll enabled



Note:

In the UDP message, after the command's identifier (0xB1), you can read the status of the Modbus Reading requests and then the status of the Modbus writing requests.

Example:

Referring to the previous example, if we read the status of the enabling/disabling, the response from the converter will be:

Byte 0	Byte 1								Byte 2							
0xB0	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
	Poll0	Poll1	Poll2	Poll3	Poll4	Poll5	Poll6	Poll7	Poll8	Poll9	Poll10	Poll11	Poll12	Poll13	Poll14	Poll15
	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0

B2 command

This command allows to see the number of errors for each Modbus poll defined in the section "Set Access".

REQ:

Byte 0
0xB2

RES:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	...
0xB2	Number of errors for Poll 1				Number of errors for Poll 2				...



Note:

In the UDP message, after the command's identifier (0xB2), you can read the number of errors for the Modbus Reading requests and then for the Modbus writing requests defined in the section "Set Access".

Example:

We have defined one Modbus Reading request and one Modbus Writing request in the section "Set Access". We want to know the number of error for each poll, so we use the B2 command

REQ:

Byte 0
0xB2

RES:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Identifier	Number of error for poll 1				Number of error for poll 2			
0xB2	0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x05

In this example, for the Modbus poll 1 (Modbus Reading request) the errors are 0 and for the Modbus poll 2 (Modbus Writing Request) the errors are 5.

B3 command

This command allows to enable the Transparent: it will be possible to send Modbus commands directly from Ethernet side. The converter will become completely transparent.

Byte 0	Byte 1
0xB3	Enabling/disabling of Transparent Mode

0x01 = Poll disabled

0x00 = Poll enabled

If the message is received correctly, the same message will be sent back by the converter.



Note:

When the Transparent Mode is enabled, the Modbus polling will stop on Modbus side.



Note:

The port used for send/receive the frames is defined in the section "Set Communication" step, in the field "Port".

B4 command

This command allows to read the status of the Transparent Mode (enabled/disabled).

REQ:

Byte 0
0xB4

RES:

Byte 0	Byte 1
0xB4	Status

0x01 = Transparent Mode disabled

0x00 = Transparent Mode enabled

B5 command

This command allows to enable/disable the polling to a single Modbus slave.

REQ:

Byte 0	Byte 1	Byte 2
0xB5	Slave ID	0x00/0x01

0x01 = Disable polling for Modbus slave

0x00 = Enable polling for Modbus slave

If the message is received correctly, the same message will be sent back by the converter.

Example:

They are connected 3 Modbus slaves (Modbus IDs 1, 2, 3) to the converter and we want to stop the polling to the slave with ID = 2.

The message to send to the converter will be:

Byte 0	Byte 1	Byte 2
0xB5	0x02	0x01

B6 command

This command allows to enable/disable a single poll on Modbus side.

REQ:

Byte 0	Byte 1	Byte 2
0xB6	Poll No	0x00/0x01

0x01 = Disable poll

0x00 = Enable poll

If the message is received correctly, the same message will be sent back by the converter.

Example:

In the section "Set Access" are defined 3 Modbus reading requests and 3 Modbus writing requests.

We want to disable the first Modbus writing request (4th poll).

The message to send to the converter will be:

Byte 0	Byte 1	Byte 2
0xB6	0x04	0x01

MODBUS DIAGNOSTIC OVER PROFINET:

It is possible to save the Modbus Diagnostic on PROFINET array using the field "Diagnostic" of the section "Set Communication". In this case, the status of each Modbus request defined in the section "Set Access" is saved starting from the byte of the PROFINET array defined in the section "Set Communication".

Each bit will represent the status of a Modbus request:

- ➔ If for a request the converter receives a correct response, the status bit is put to '0';
- ➔ If for a request the converter receives a wrong response or it doesn't receive any response, the status bit is put to '1'.

Example:

In the section "Set Access" are defined 8 Modbus reading requests ("Modbus Read" table) and 8 Modbus writing requests ("Modbus Write" table). The Modbus reading requests are working and the Modbus writing request are not working.

The status bits of the Modbus Diagnostic on PROFINET will be:

Byte x								Byte x+1							
bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

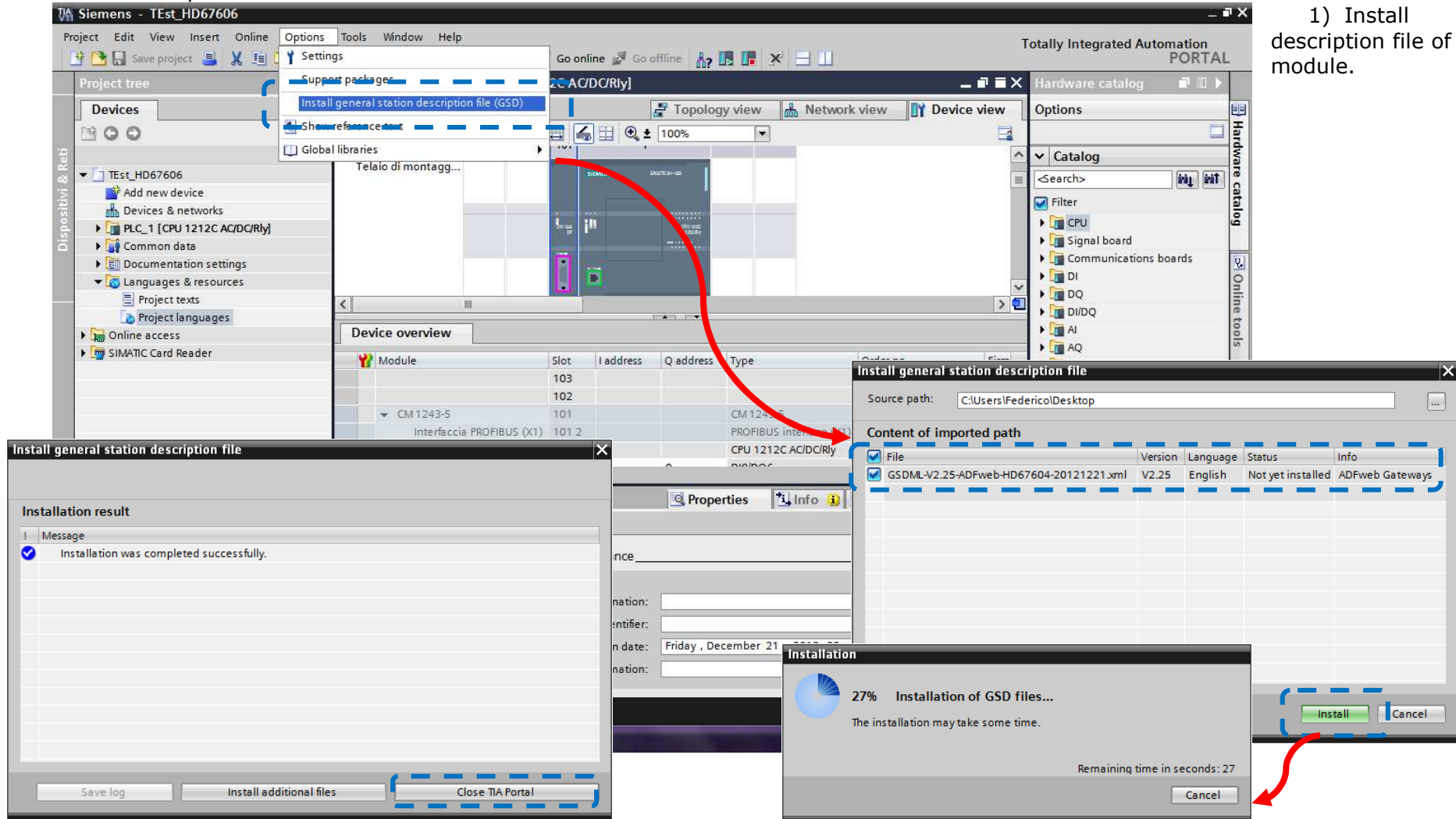
where 'x' is the starting byte of the PROFINET array where the Modbus diagnostic is saved.

PLC CONFIGURATION:

The configuration and commissioning of the PROFINET Converter as described on the following pages was accomplished with the help of the TIA Portal V12-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) Import the module in the network; connect the device to the PLC network and edit the parameters of IP, station name etc.

Network overview

Device	Type	Address in subnet	Subnet	Master system	Comment
<ul style="list-style-type: none"> ▼ SIMATIC 1200 station_1 ▶ PLC_1 	SIMATIC 1200 station CPU 1212C AC/DC/Rly				
<ul style="list-style-type: none"> ▼ GSD device_1 ▶ SERIAL 	GSD device CAN				

Properties - IE1

General

Use IP protocol

Set IP address in the project

IP address: 192 . 168 . 2 . 139

Subnet mask: 255 . 255 . 255 . 0

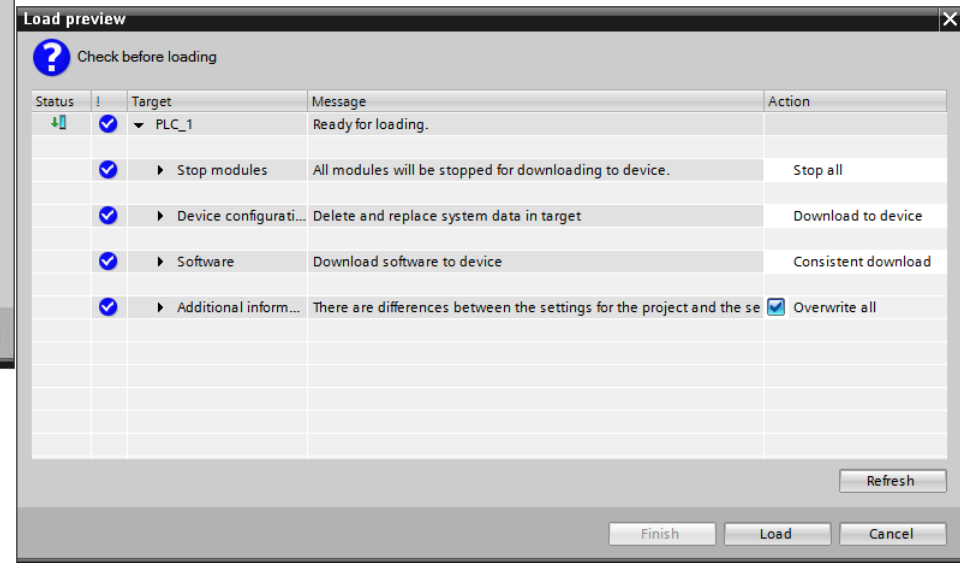
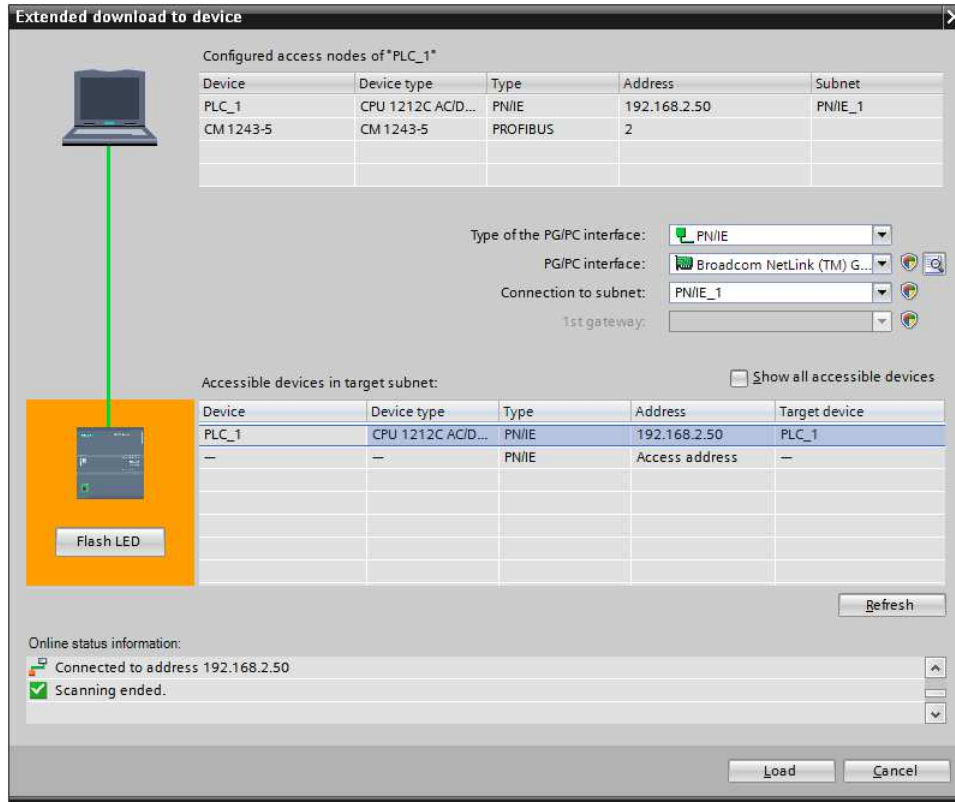
Use IP router

Router address: 0 . 0 . 0 . 0

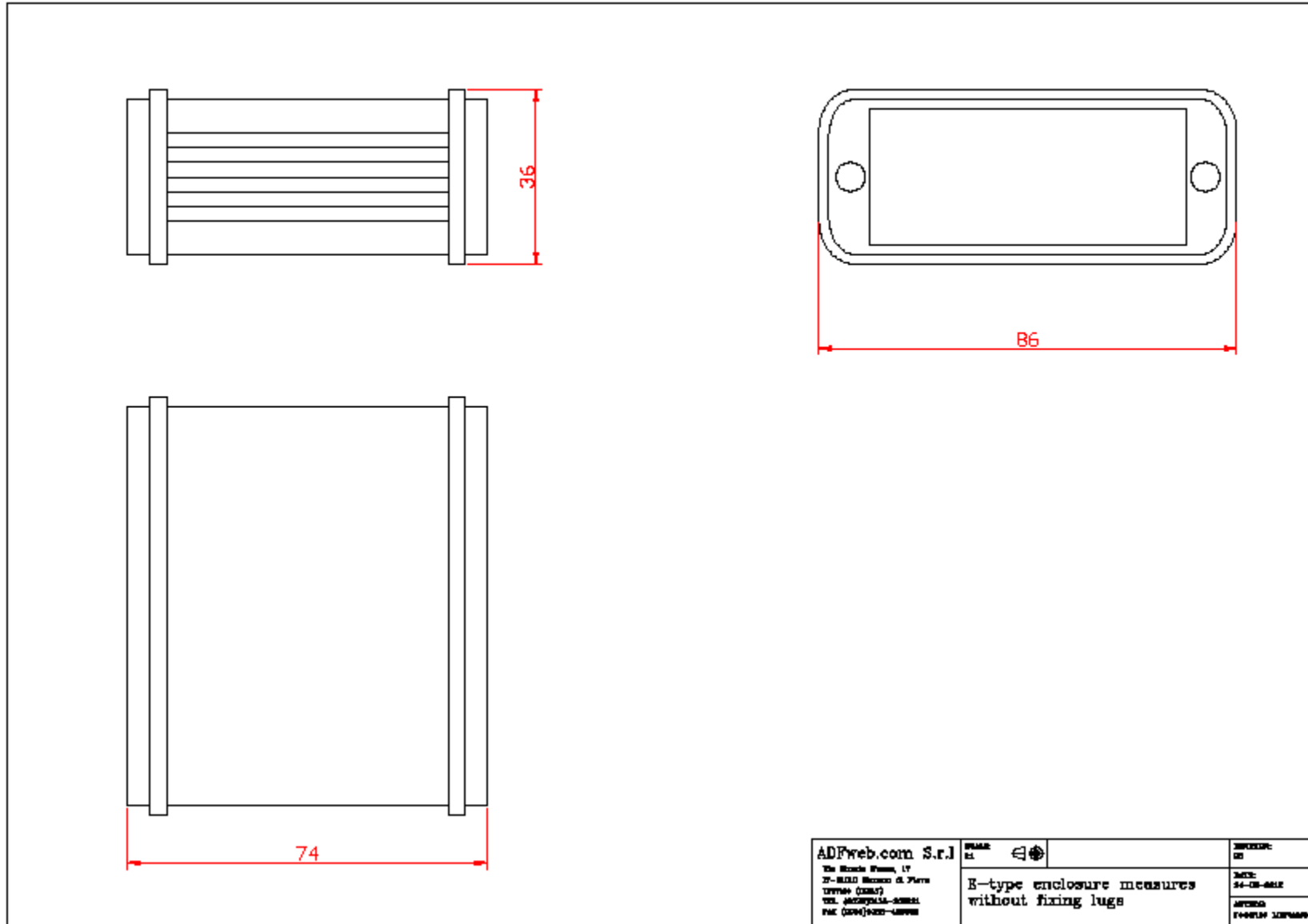
Set IP address using a different method

Project Guide opened.

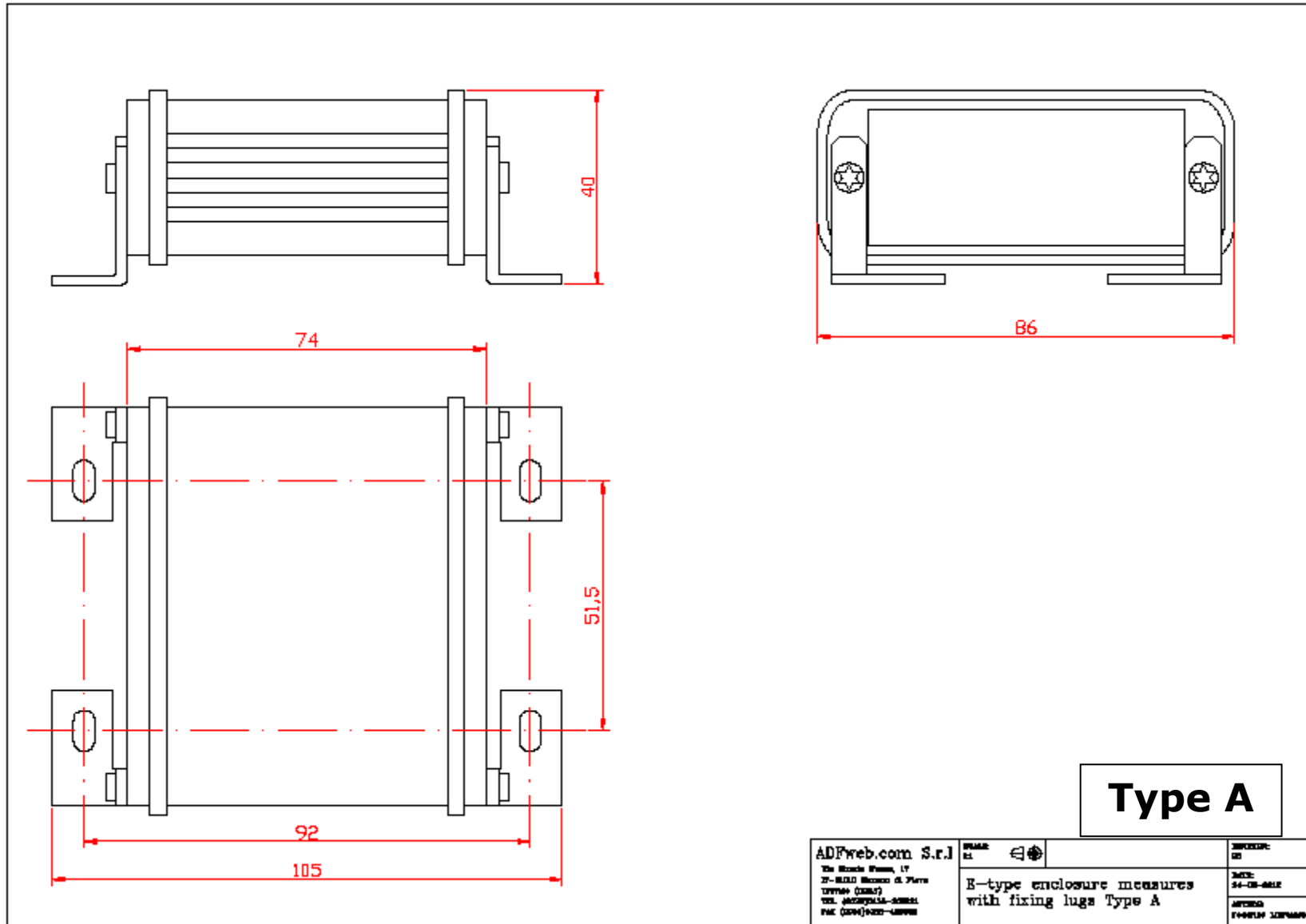
3) Load the configuration into the PLC.

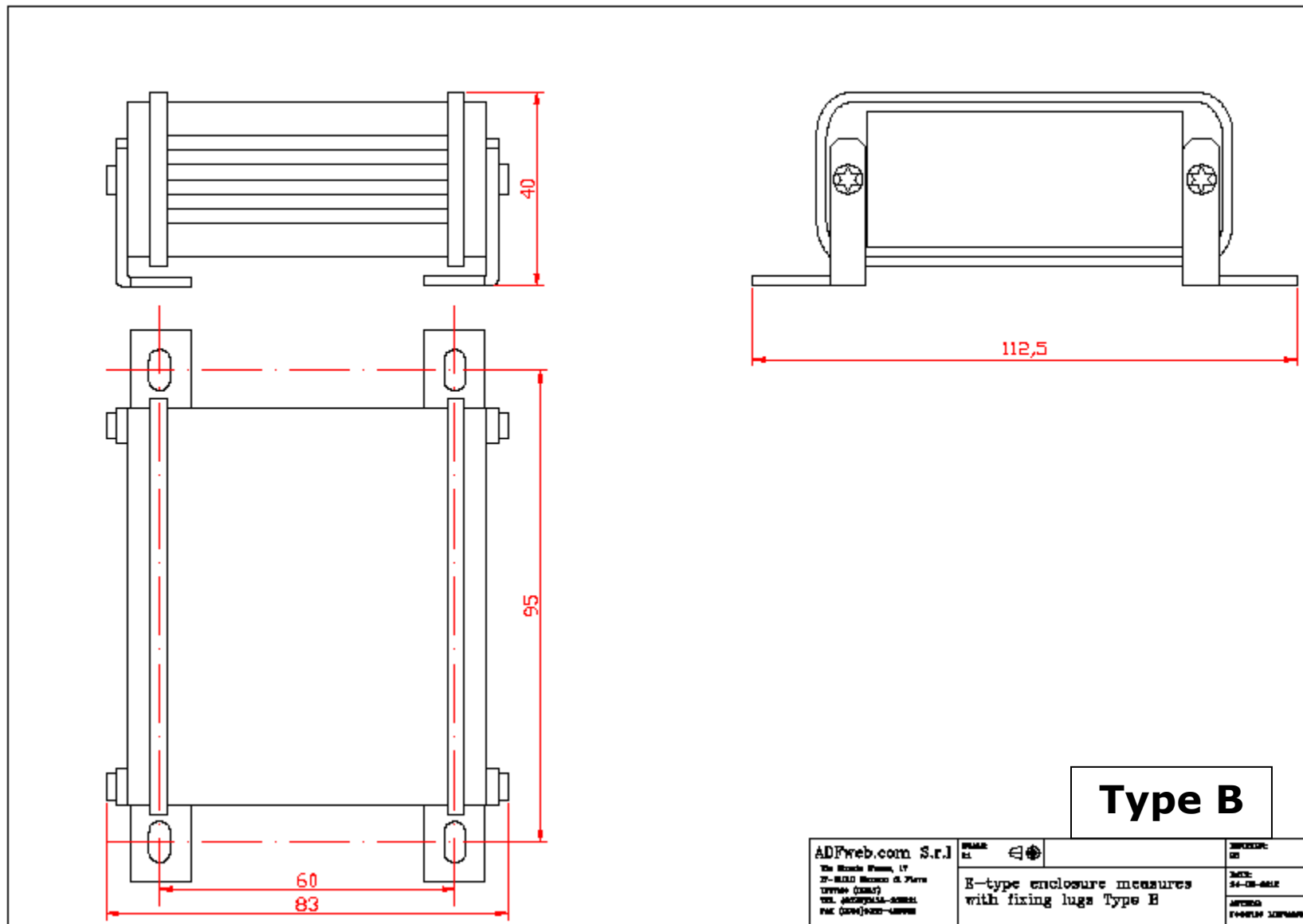


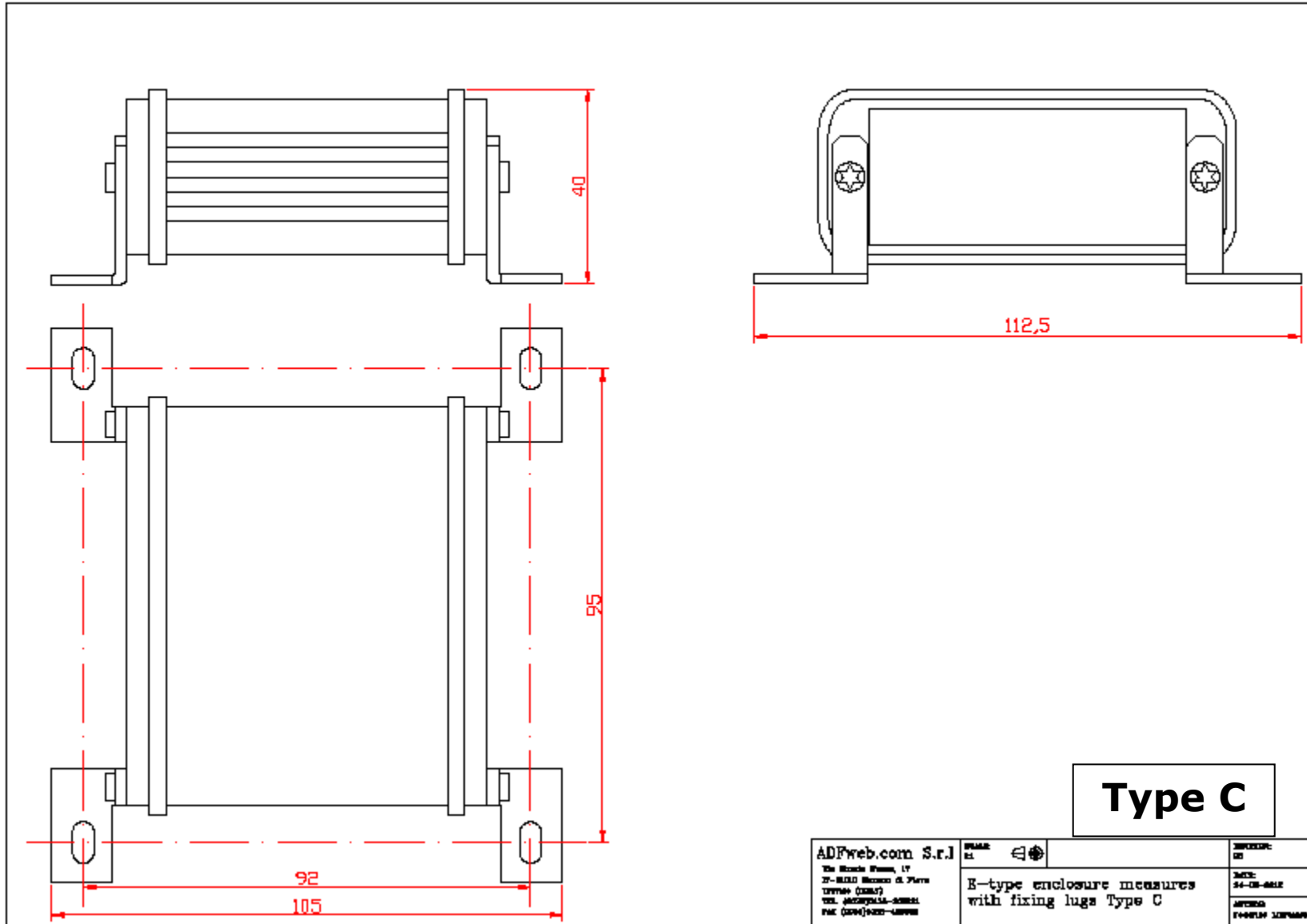
MECHANICAL DIMENSIONS:



<p>ADFweb.com S.r.l. Via Sesto Piano, 17 37-03010 Sesto di Piave TREVISO (TV) 31047 TEL. 0423/20151-20152 FAX 0423/20153-20154</p>	<p>FRAME E1</p>	<p>E-type enclosure measures without fixing lugs</p>	<p>ENCLOSURE E1</p> <p>DATE: 24-08-2016</p> <p>APPROVED F+0423/20151-20152</p>
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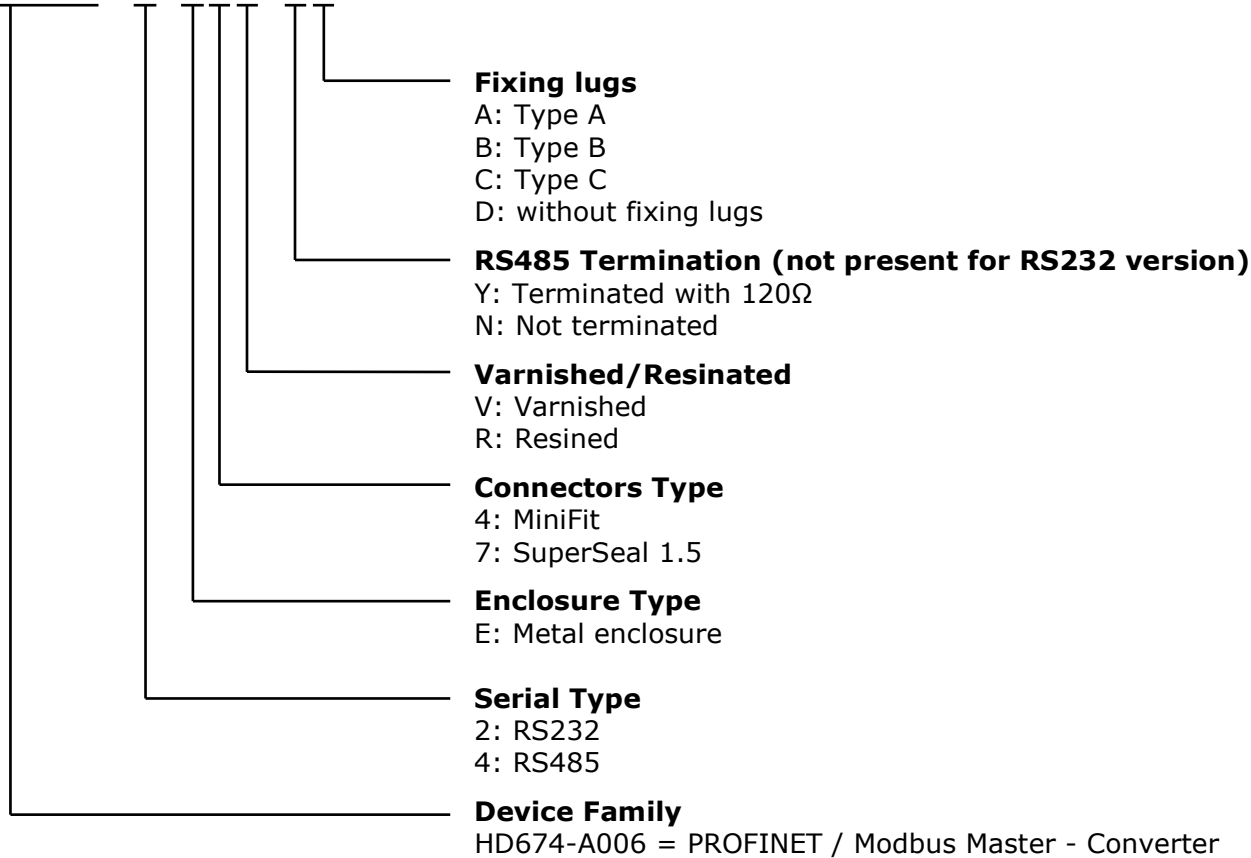




ORDERING INFORMATIONS:

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

HD674-A006 - x - E y z - s f



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
- Order Code: **AC67402** - Cable Super Seal 1.5 MALE 2-pole - 1.0 Meter
- Order Code: **AC67402-3** - Cable Super Seal 1.5 MALE 2-pole - 3.0 Meters
- Order Code: **AC67403** - Cable Super Seal 1.5 MALE 3-pole - 1.0 Meter
- Order Code: **AC67403-3** - Cable Super Seal 1.5 MALE 3-pole - 3.0 Meters
- Order Code: **AC67404** - Cable Super Seal 1.5 MALE 4-pole - 1.0 Meter
- Order Code: **AC67404-3** - Cable Super Seal 1.5 MALE 4-pole - 3.0 Meters
- Order Code: **AC67410** - Accessory Automotive Devices - Support for rail DIN

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OTHER REGULATIONS AND STANDARDS:**WEEE INFORMATION**

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

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

RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE

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

CE MARKING

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

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.



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