USER MANUAL

I/O ZE-P SERIES
WITH PROTOCOL
PROFINET IO

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ORIGINAL INSTRUCTIONS

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Document revisions

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13/04/2023	1	Aggiornati tempo di aggiornamento Sostituiti alcuni screenshot della configurazione passo-passo	MM
17/04/2023	2	Aggiunta la versione in lingua inglese	MM
25/03/2024	3	Aggiunto prodotto ZE-SG3-P, riscritto e riadattato il manuale	MM
19/06/2024	4	ZE-SG3: Aggiunto capitolo sulla calibrazione della cella da Webserver/Profinet	MM
20/11/2024	5	ZE-SG3-: Aggiunte modifiche per firmware >= rev 1005	MM
09/10/2025	6	Aggiunto capitolo “Pagina setup webserver”	AC

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1. INTRODUCTION

ATTENTION!

This user manual extends the information from the installation manual to the configuration of the device. Use the installation manual for more information.

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2. ZE-P SERIES DEVICES

The ZE-P series I/O devices support the Profinet IO protocol

2.1. INFORMATION ABOUT THE PROFINET IO PROTOCOL

Type of protocol: Class A Device, Cyclic Real-time (RT) and Acyclic Data

The device has been tested using the following PLCs:
SIEMENS S7 1200 firmware revision 4.3 (Tia Portal 16)
CODESYS Runtime 3.5 (Codesys 3.5)

2.2. ZE-2AI-P / ZE-4DI-2AI-2DO-P

The device allowa the use of 2 analog channels that can be individually configured in Voltage or Current.

CODE	*ETHERNET PORTS*
ZE-2AI-P	1 10/100 Mbit PORT
ZE-4DI-2AI-2DO-P	1 10/100 Mbit PORT

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2.2.1. ANALOG INPUT UPDATE TIME

The sampling time is a parameter that can be modified from the hardware configuration of the Profinet IO Master and is unique for both channels.
The range of possible values varies from 10 ms to 300 ms in steps of 1 ms.
Considering that there are 2 channels in total, the measurement update time of a single channel is double the set sampling time.
Depending on the sampling time set, the measurement update times detected (with 2ms Profinet update time) are shown in the following table:

SAMPLING TIME CONFIGURATION FOR CHANNEL 1 AND 2	REAL PROFINET REFRESH TIME PER CHANNEL
10ms	About 60 ms
20ms	About 80 ms
40ms	About 120 ms

2.2.2. RESOLUTION AND MEASUREMENT STABILITY OF THE ANALOG INPUTS

The resolution of the analog digital converter (ADC) depends on the set sampling time, in particular:
If the sampling time of the channel is < 150 ms the ADC is set with a resolution of 12 bits
If the sampling time of the channel is >= 150 ms the ADC is set with a resolution of 16 bits
In addition to the resolution of the measurement, it should be noted that the greater the sampling time, the lower the stability of the measurement.

2.3. ZE-SG3-P

The device allows the use of an analogue channel for strain gauge load cells and 2 digital channels that can be individually configured for input or output.

CODE	***ETHERNET PORTS***
ZE-SG3-P	1 10/100 Mbit PORT

The measurement is carried out with the 4 or 6 wire technique.
The device is equipped with a new noise filter specifically developed to obtain a rapid response time.

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2.3.1. LOAD CELL CONNECTION

It is possible to connect the converter to the load cell in 4- or 6-wire mode.
6-wire measurement is preferable for measurement accuracy.
The load cell power supply is provided directly by the device.

2.3.2. 4- OR 6-WIRE LOAD CELL CONNECTION

A load cell can have a four-wire or six-wire cable. In addition to having the +/- excitation and +/- signal lines a six-wire cable also has the +/- sense lines. It is a common misconception to think that the only difference between 4- or 6-wire load cells is the possibility of the latter to measure the actual voltage at the load cell. A load cell is compensated to work within specifications in a certain temperature range (usually -10 - +40°C). Since the cable resistance depends on the temperature, the response of the cable to temperature changes must be eliminated. The 4-wire cable is part of the load cell temperature compensation system. The 4-wire load cell is calibrated and compensated with a certain amount of cable connected. For this reason, never cut the cable of a 4-wire load cell. The cable of a 6-wire cell, on the other hand, is not part of the load cell temperature compensation system. The sense lines are connected to the ZE-SG3-P sense terminals, to measure and adjust the actual voltage of the load cell. The advantage of using this "active" system is the possibility of cutting (or extending) the 6-wire load cell cable to any length. It must be considered that a 6-wire load cell will not reach the performance declared in the specifications if the sense lines are not used.

2.3.3. CHECKING THE LOAD CELL OPERATION

Before starting the configuration of the device it is necessary to verify the correctness of the wiring and the integrity of the load cell.

2.3.3.1. CHECKING CABLES WITH A DIGITAL MULTIMETER

First you need to check with the load cell manual that there are about 5V DC between the +Excitation and –Excitation cables. If the cell has 6 wires check that the same voltage is also measured between +Sense and –Sense.
Now leave the cell at rest (without the tare) and check that the voltage between the +Signal and –Signal cables is around 0 V.
Now unbalance the cell by applying a compression force, checking that the voltage between the +Signal and –Signal cables increases until it reaches the full scale (if possible) where the measurement will be approximately:

5* (cell sensitivity) mV.

For example, if the declared cell sensitivity is 2 mV/V, 5 * 2 = 10 mV must be obtained.

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In the case of bipolar measurement only (compression/traction) it is necessary to completely unbalance the cell even in traction, in this case the same value must be measured between the +Signal and –Signal cables but with the negative sign:

-5* (cell sensitivity) mV.

2.3.4. CONNECTION OF MORE LOAD CELLS IN PARALLEL

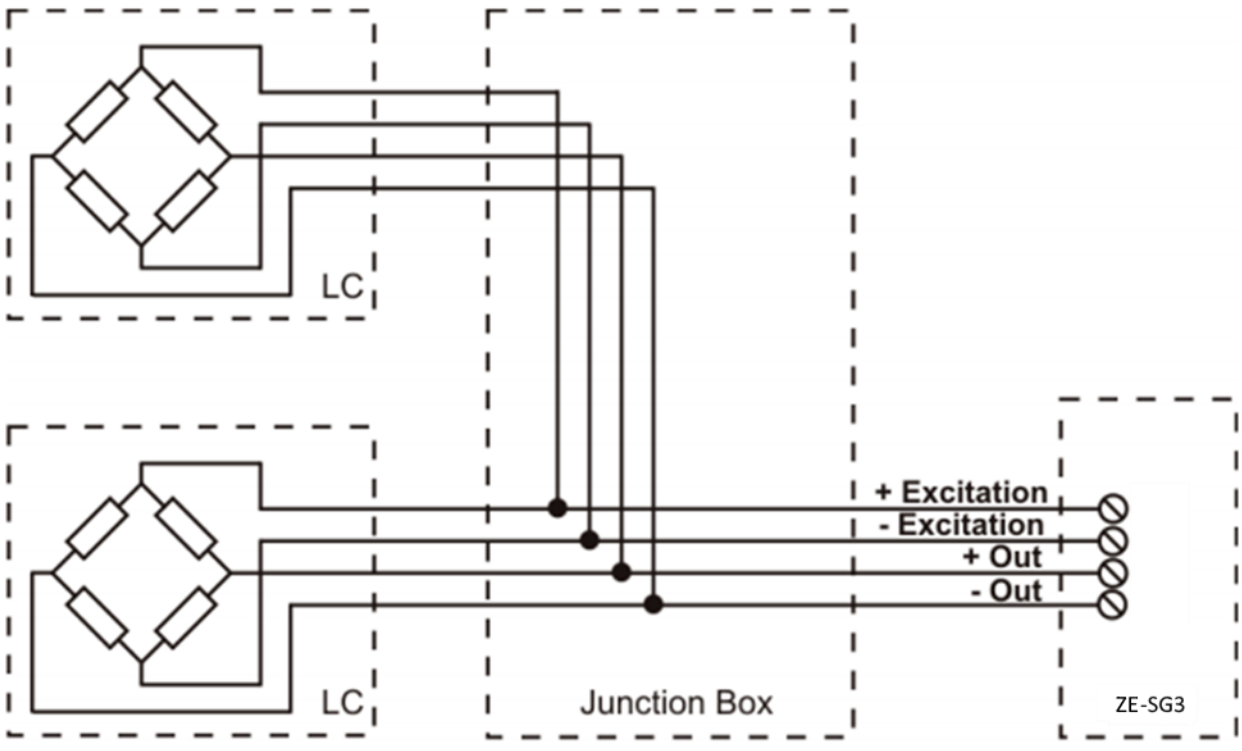
It is possible to connect up to a maximum of 8 load cells (and in any case without ever falling below the minimum 87 Ohms).

It is therefore possible to connect:

NUMBER OF LOAD CELLS IN PARALLEL	
IMPEDANCE OF THE STATED LOAD CELL [Ohm]	*MAXIMUM NUMBER OF CONNECTABLE CELLS IN PARALLEL*
350	4
1000	8

For the connection of 4 load cells Seneca recommends using the SG-EQ4 product.

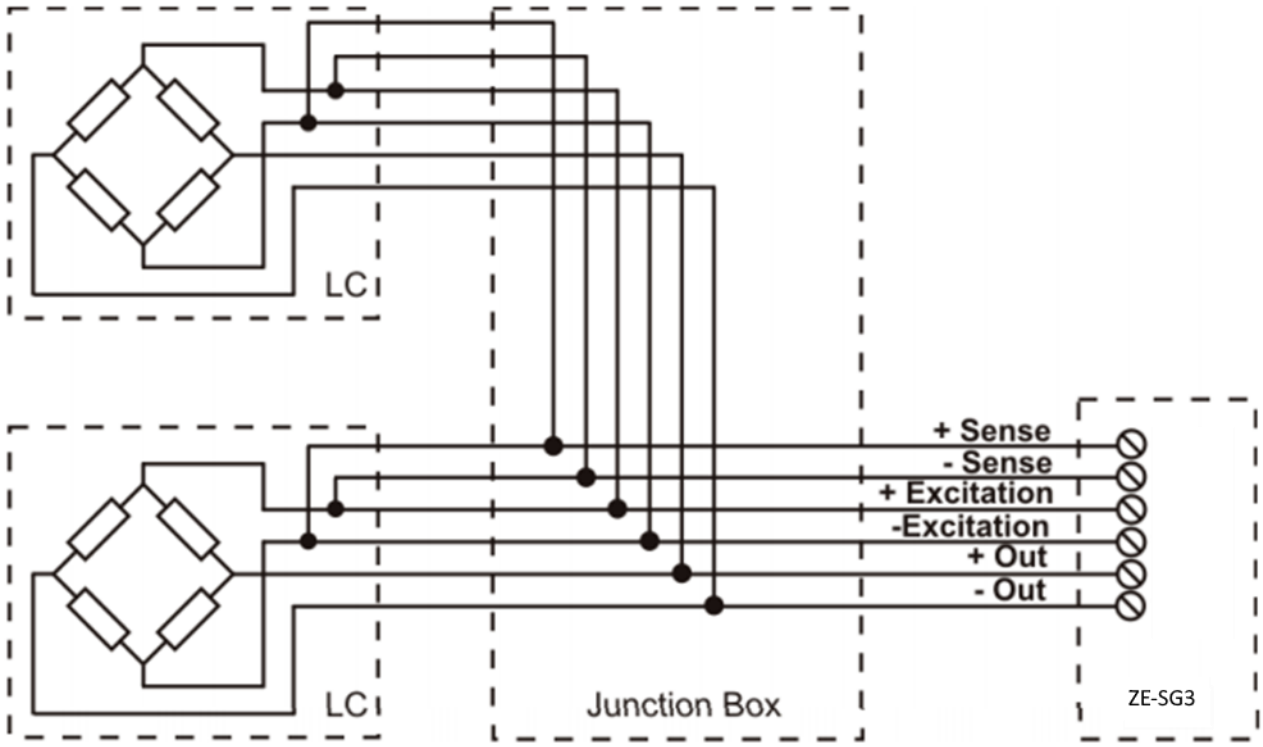
To connect 2 or more 4-wire cells in parallel with the SG-EQ4 junction box, use the following diagram:



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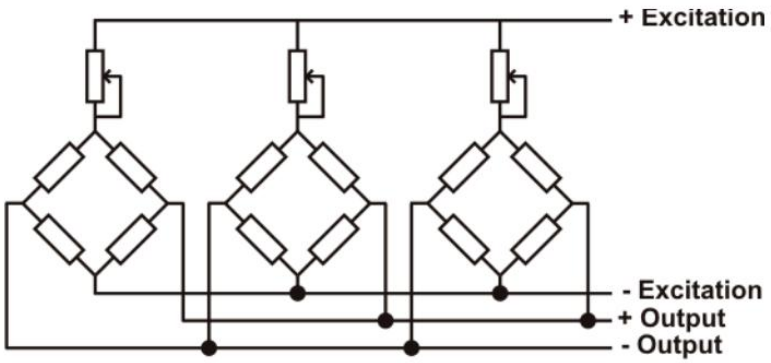
To connect 2 or more 6-wire cells in parallel with the SG-EQ4 junction box use the following diagram:



For more details, refer to the SG-EQ4 Junction Box accessory manual.

2.3.5. TRIMMING 4-WIRE LOAD CELLS

The figure below shows a diagram of three trimmed load cells.



A variable resistor, independent of the temperature, or a typically 20 Ω potentiometer is inserted in the +Excitation cable of each load cell. There are two ways to trim the load cells. The first method is to adjust the potentiometers by trial, shifting the calibration weights from one corner to another. All the potentiometers must be adjusted so as to set the maximum sensitivity for each cell, turning them all completely clockwise. Then, once

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the angle with the lowest output is located, act on the trimmers of the other cells until obtaining the same minimum output value. This method can be very long, especially for large scales where the use of test weights on the corners is not very practical. In these cases the second, more suitable method is to "pre-trim" the potentiometers using a precision voltmeter (at least 4 1/2 digits). You can use the following procedure:

1) Determine the exact mV/V ratio of each load cell, shown in the calibration certificate of the cell itself.
2) Determine the exact excitation voltage provided by the indicator/meter (for example Z-SG), measuring this voltage with the voltmeter (for example 10.05 V).
3) Multiply the lowest mV/V value found (point 1) by the excitation voltage (point 2).
4) Divide the trimming factor calculated in point 3 by the mV/V value of the other load cells.
5) Measure and adjust the excitation voltage of the other three load cells using the respective potentiometer. Check the results and make a final adjustment by moving a test load from corner to corner.

2.3.6. PS BUTTON1

The PS1 button is positioned next to the SW2 dip switch. If pressed for a few seconds it allows you to acquire the Tare (the same function is possible from the command register and digital input).

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3. DIP SWITCH

ATTENTION!

THE DIP SWITCH SETTINGS ARE READ ONLY AT THE START. AT EACH CHANGE, IT IS NECESSARY TO RESTART.

3.1. MEANING OF THE DIP SWITCHES FOR THE ZE-2AI-P/ZE-4DI-2AI-2DO-P MODEL

DIP1	*DIP2*	*MEANING*
OFF	OFF	Normal operation: The device loads the configuration from the flash.
ON	ON	Resets the device to its factory configuration: With IP address 192.168.90.101
OFF	ON	Disables access to the Web server
ON	OFF	Reserved

ATTENTION!

TO INCREASE THE SECURITY OF THE DEVICE DISABLE THE WEBSERVER VIA THE DIP SWITCHES

3.2. MEANING OF THE DIP SWITCHES FOR THE ZE-SG3-P MODEL

SW1 dip switches 1 to 8 are not used and must always be set to the “OFF” state.

ATTENTION!

THE DEVICES ARE SUPPLIED WITHOUT AN IP ADDRESS (0.0.0.0).

MORE DEVICES CAN THEREFORE BE INSERTED INTO THE SAME PROFINET NETWORK AND IDENTIFIED THROUGH SCAN OF THE PROFINET NETWORK ITSELF

TO SET AN IP ADDRESS (FOR EXAMPLE TO ACCESS THE WEBSERVER OR TO CONNECT TO THE SENECA DISCOVERY DEVICE TOOL) USE THE PROFINET CONFIGURATION ENVIRONMENT OR FORCE THE ADDRESS 192.168.90.101 WITH THE APPROPRIATE DIP SWITCH

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The meaning of SW2 dip-switches is as follows:
DIP 3 and DIP 4 must always be set to OFF and their function is RESERVED.
As regards DIP1 and DIP2, refer to the following table:

DIP1	*DIP2*	*MEANING*
OFF	OFF	Normal operation: The device loads the configuration from the flash.
ON	ON	Resets the device to its factory configuration: (With IP address 0.0.0.0) In this case the STS LED will start flashing to indicate that the device does not have a configured IP address.
OFF	ON	Disables access to the Web server
ON	OFF	Forces the device IP address to the standard value of SENECA Ethernet products: 192.168.90.101

ATTENTION!

TO INCREASE THE SECURITY OF THE DEVICE DISABLE THE WEBSERVER VIA THE DIP SWITCHES

4. WEB SERVER

ATTENTION!

BEFORE ACCESSING THE WEB SERBER, DISCONNECT THE DEVICE FROM THE PROFINET NETWORK

ATTENTION!

SOME MODELS ARE SUPPLIED WITHOUT AN IP ADDRESS (0.0.0.0).
TO SET AN IP ADDRESS (FOR EXAMPLE TO ACCESS THE WEBSERVER OR TO CONNECT TO THE SENECA DISCOVERY DEVICE TOOL) USE THE PROFINET CONFIGURATION ENVIRONMENT OR FORCE THE ADDRESS 192.168.90.101 WITH THE APPROPRIATE DIP SWITCH

The main purpose of the web server is to:

-Configure the Profinet name of the device without using an external development environment (Tia Portal, Codesys…)
-Allow the device firmware update

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4.1. ACCESS TO THE WEB SERVER

Access to the web server takes place using a web browser and entering the IP address of the device.

On first access the user name and password will be requested.
The default values are:

User Name: admin
Password: admin

ATTENTION!

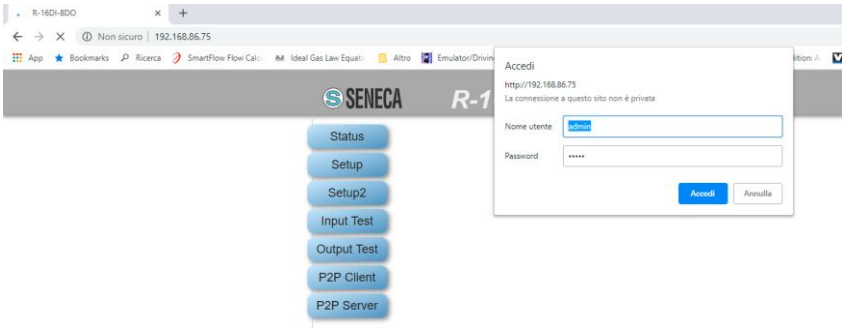
DEPENDING ON THE DEVICE MODEL AND THE FIRMWARE INSTALLED IN THE DEVICE, IT MAY BE NECESSARY TO ACTIVATE THE DIP SWITCHES TO USE THE WEBSERVER

ATTENTION!

UPON FIRST USE THE IP ADDRESS OF THE DEVICE IS NOT SET (0.0.0.0), IN THIS SITUATION IT WILL NOT BE POSSIBLE TO ACCESS THE WEBSERVER

ATTENTION!

AFTER THE FIRST ACCESS CHANGE USER NAME AND PASSWORD IN ORDER TO PREVENT ACCESS TO THE DEVICE TO UNAUTHORIZED PEOPLE.



ATTENTION!

IF THE PARAMETERS TO ACCESS THE WEB SERVER HAVE BEEN LOST, IT IS NECESSARY TO RESET THE FACTORY-SET CONFIGURATION

ATTENTION!

AVOID INSERTING SPECIAL CHARACTERS IN THE PROFINET NAME OF THE DEVICE

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4.2. WEBSERVER SETUP PAGE

The "Setup" page on the webserver allows the following parameters to be changed:
Note: The parameters (PROFINET DEVICE NAME, STATIC IP ADDRESS, STATIC IP MASK, STATIC GATEWAY ADDRESS), can be changed by the PROFINET controller or by engineering tools (e.g. Siemens TIA Portal).

"PROFINET DEVICE NAME": This parameter is used to assign or change the device name within the PROFINET network, which is required for identification and configuration by the controller.

"STATIC IP ADDRESS": Allows the modification of the static IP address associated with the network interface of the device.

"STATIC IP MASK": Allows the change of the subnet mask associated with the network interface of the device.

"STATIC GATEWAY ADDRESS": Allows you to assign or change the static IP address of the default gateway used by the device.

"MODBUS SERVER TCP/IP PORT": Not used.

"PROFINET MAX DELAY IDENTIFICATION (ms)": Allows the modification of the maximum (random) delay time, expressed in milliseconds, that the device can wait before responding to identification requests in the PROFINET network. This parameter was introduced to increase device compatibility with Siemens S7-1500 PLCs.

"MODBUS SERVER TCP/IP TIMEOUT [ms]": Not used.

"PORT X RS485 BAUDRATE": Not used.

"PORT X RS485 PARITY": Not used.

"PORT X RS485 STOP BITS": Not used.

"PORT X RS485 TIMEOUT [ms]: Not used.

"PORT X RS485 MODBUS ADDRESS": Not used.

"WEB SERVER PORT": Allows changing the TCP communication port number on which the device's built-in web server listens for HTTP requests.

"WEB SERVER AUTHENTICATION USER NAME": Allows you to change the user name required to authenticate and access the device's secure web interface.

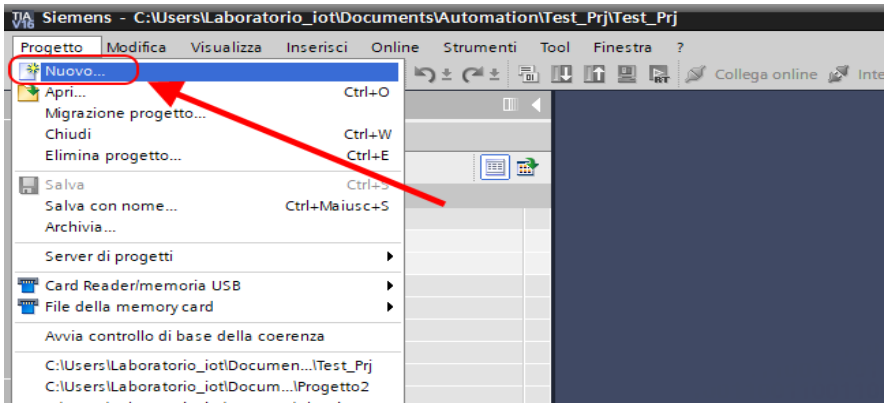
"WEB SERVER AUTHENTICATION USER PASSWORD": Allows changing the password required to authenticate and access the device's secure web interface.

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5. EXAMPLE PROJECT WITH SIEMENS PLC (TIA PORTAL V16)

Creating a new project:

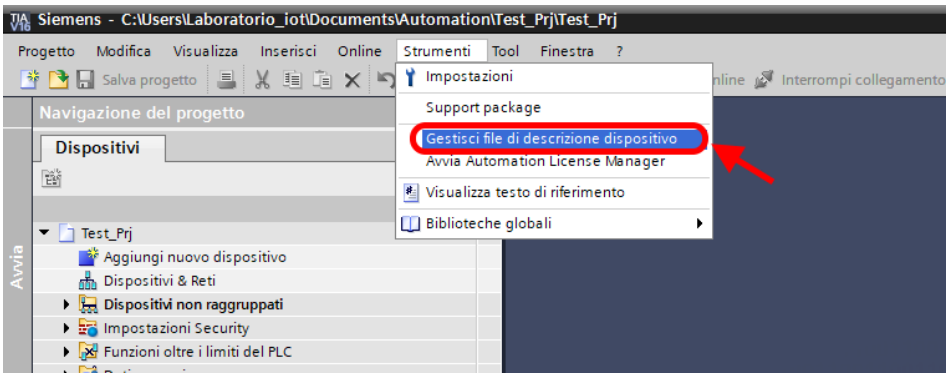


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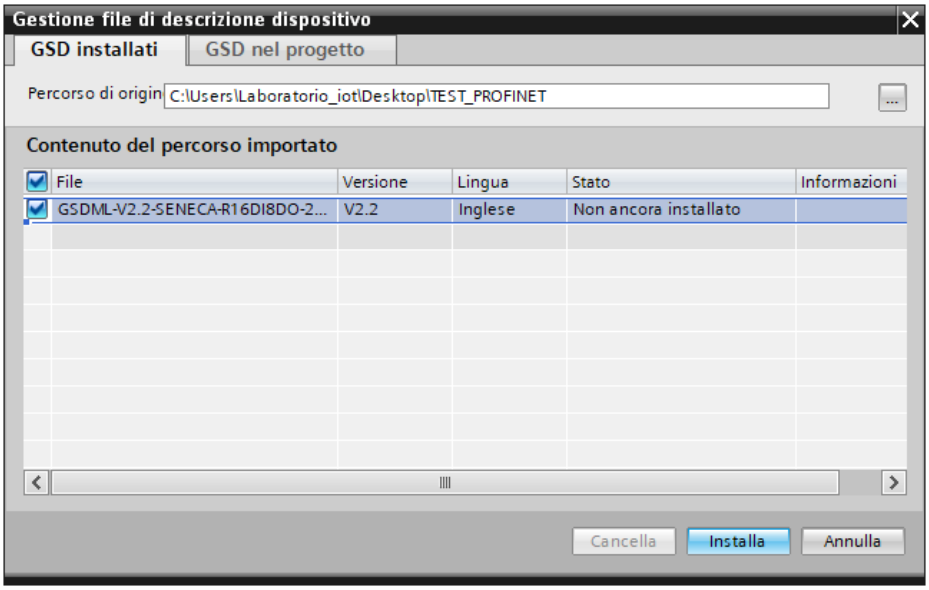
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4.3. INSTALLING THE GSDML FILE

Install the GSDML file of the Seneca product (it is possible to obtain the file on the web page of the device on the www.seneca.it site):



Point to the directory where the file is and press OK, then the list of GSD files in the folder will appear:



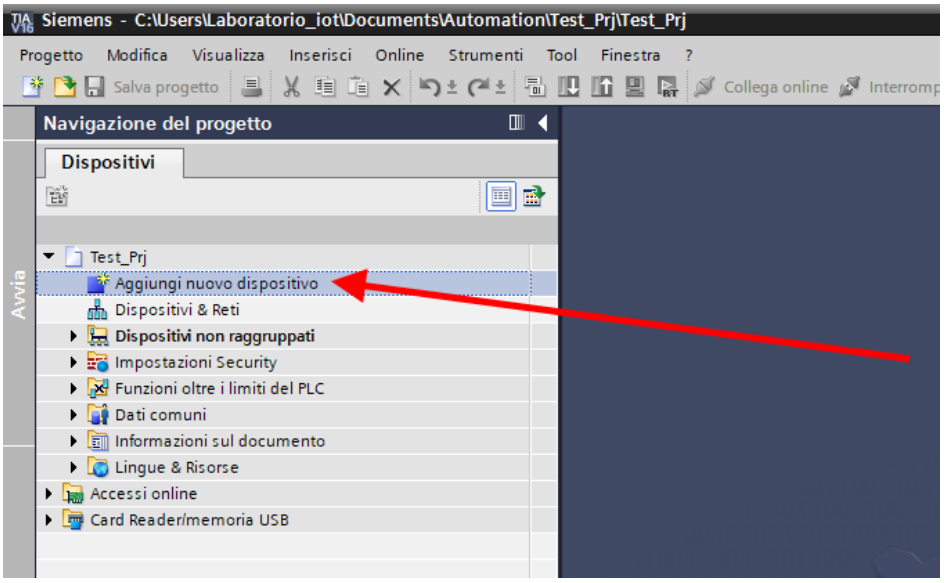
Click on "install".

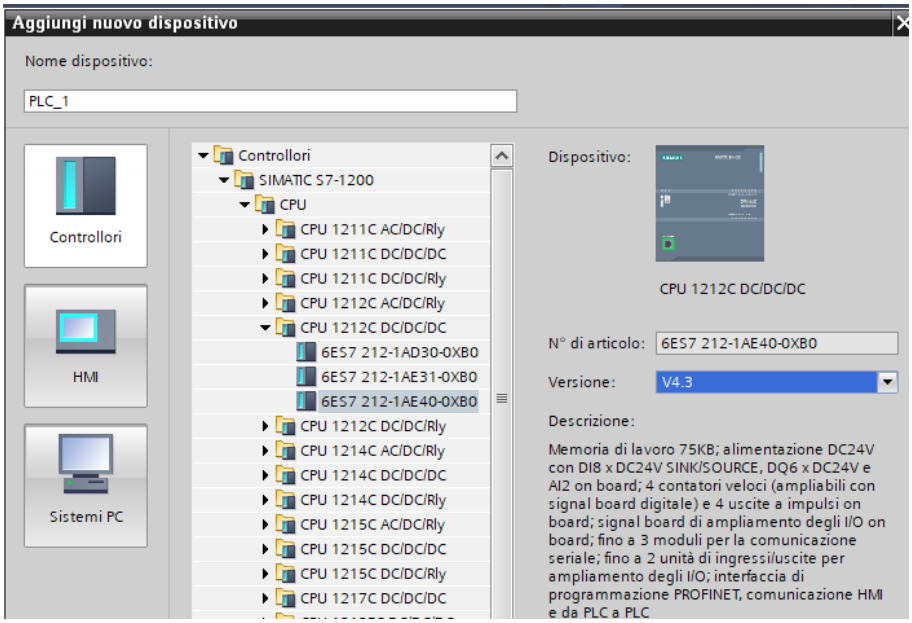
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4.4. INSERTION OF THE SIEMENS PLC IN THE PROJECT

Now insert the Siemens PLC (in our example a SIEMATIC S7 1200), click on "Add new device ...":

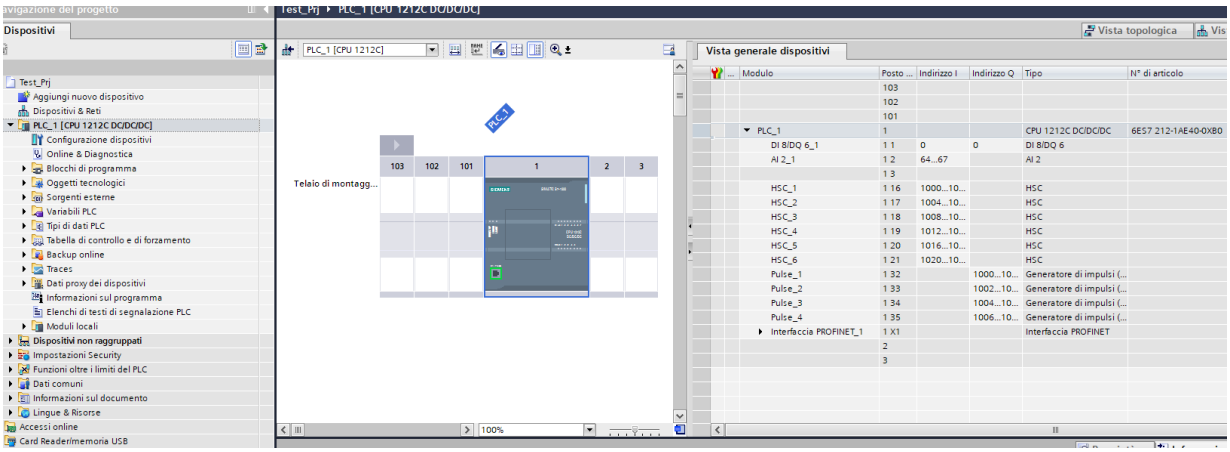




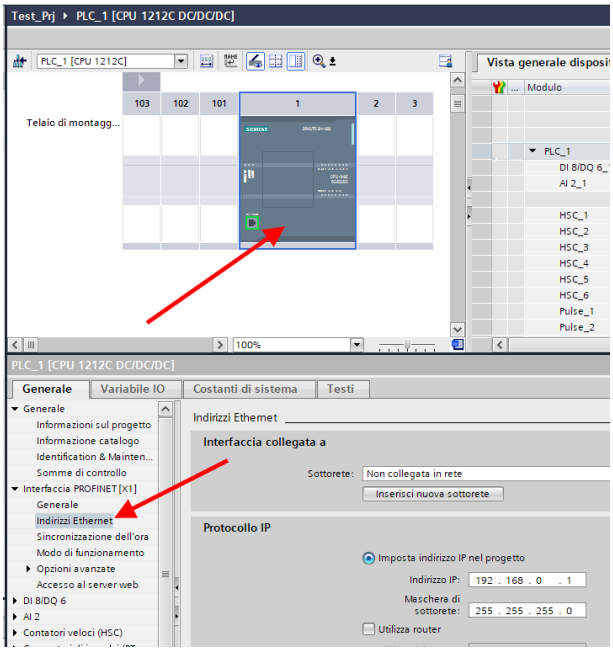
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Confirm and the PLC will be added to the rack:



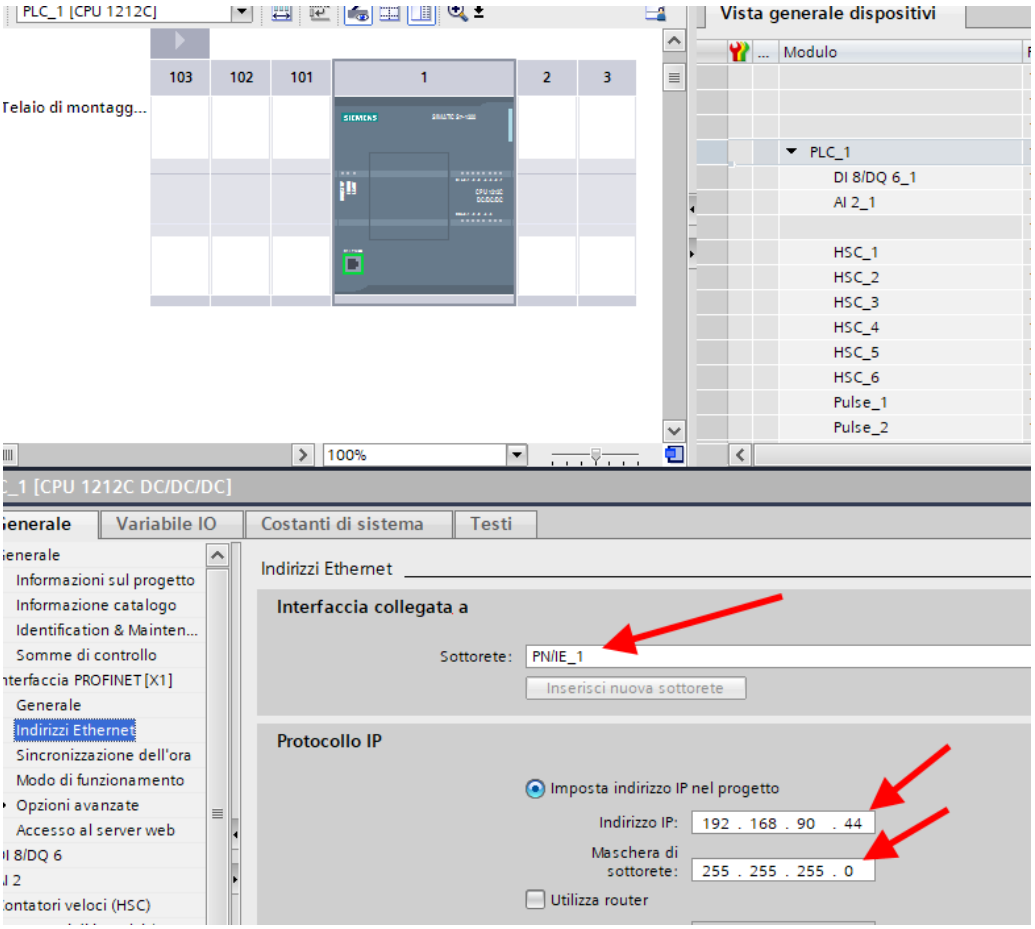
Now click on the PLC and select Profinet interface -> Ethernet addresses



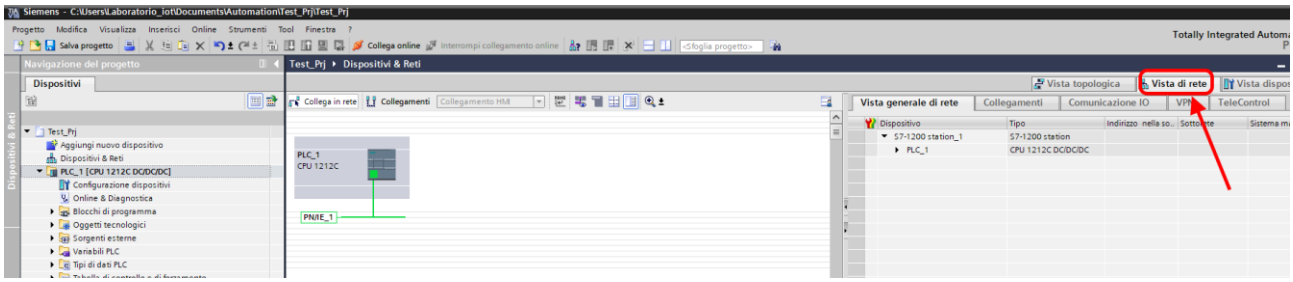
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Set the IP you want (in this case 192.168.90.44) and the PLC subnet:



Move on to the network view:

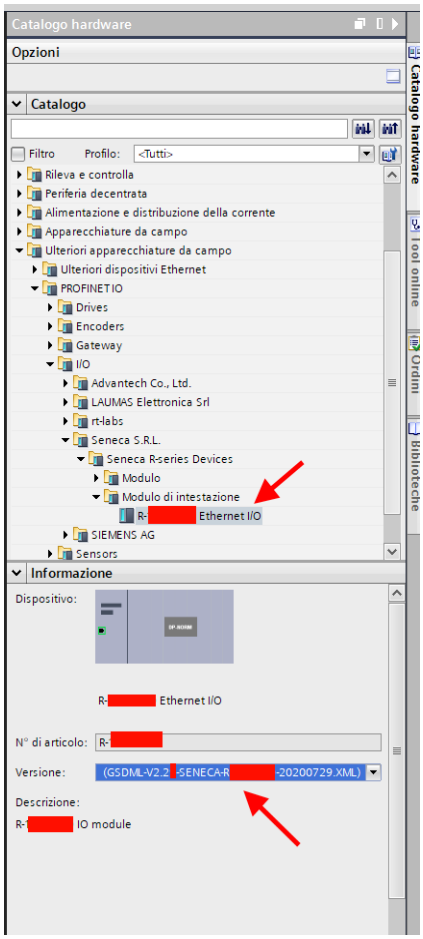


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4.5. INSERTION OF THE PROFINET SENECA IO

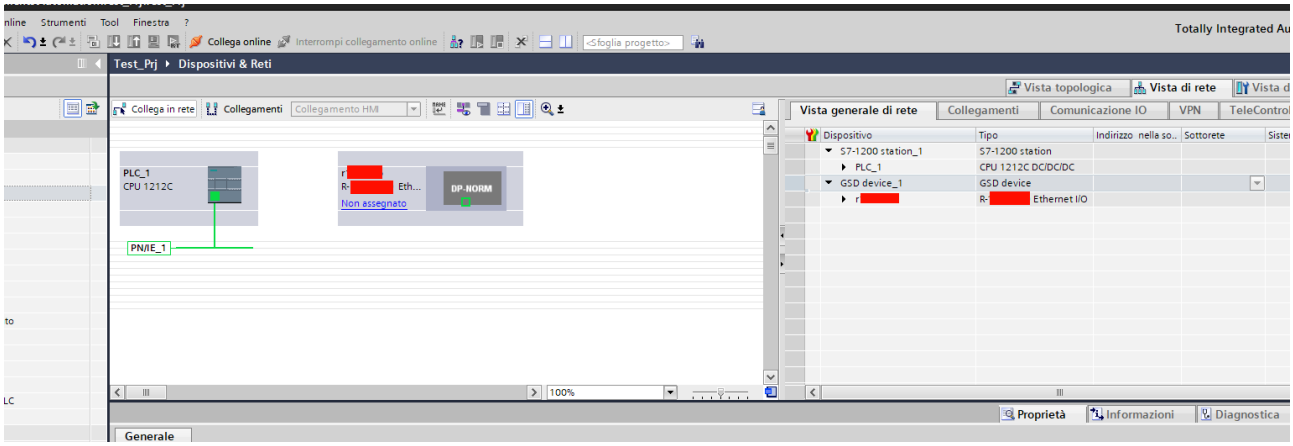
On the right, select "Hardware Catalogue" and then under "Additional Field Device" -> PROFINET IO -> I/O -> Seneca R-Series-> Header module (in the example an R-16DI-8DO device is shown):



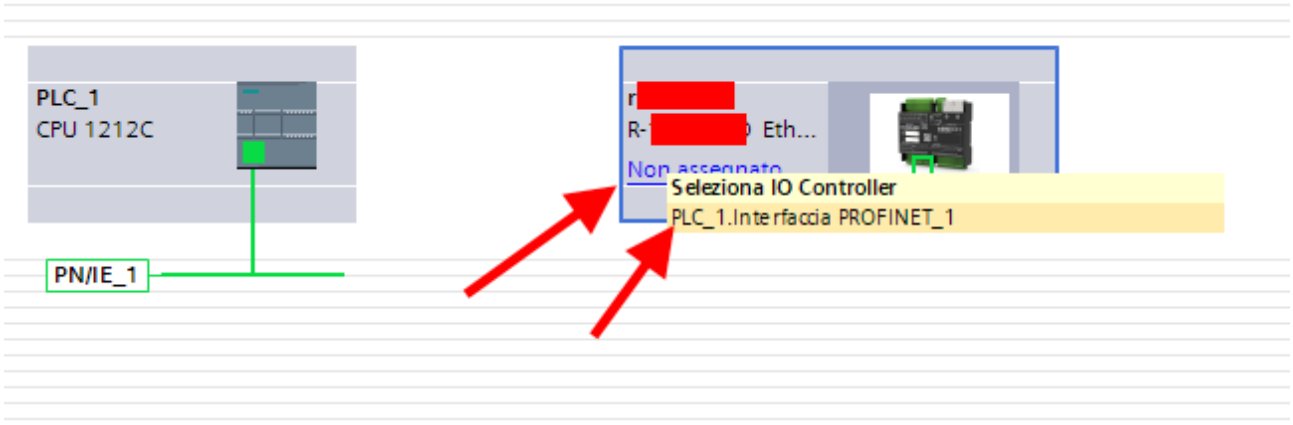
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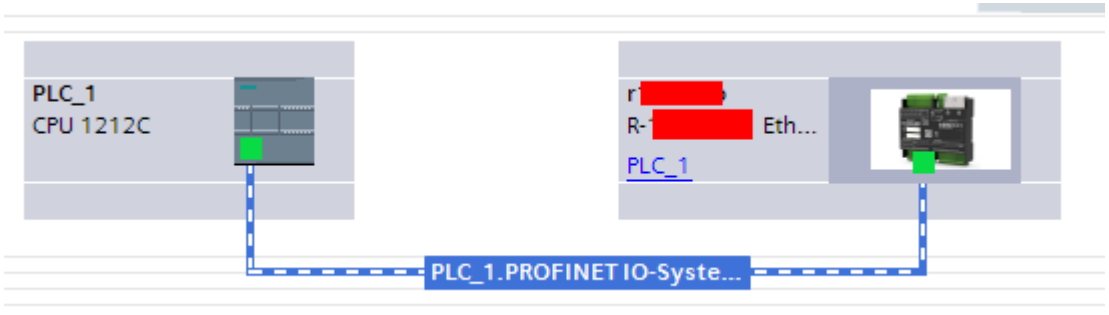
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Drag the device to the network view:



Now associate it to the PLC by clicking with the left mouse on "Not assigned" and then select the PLC:

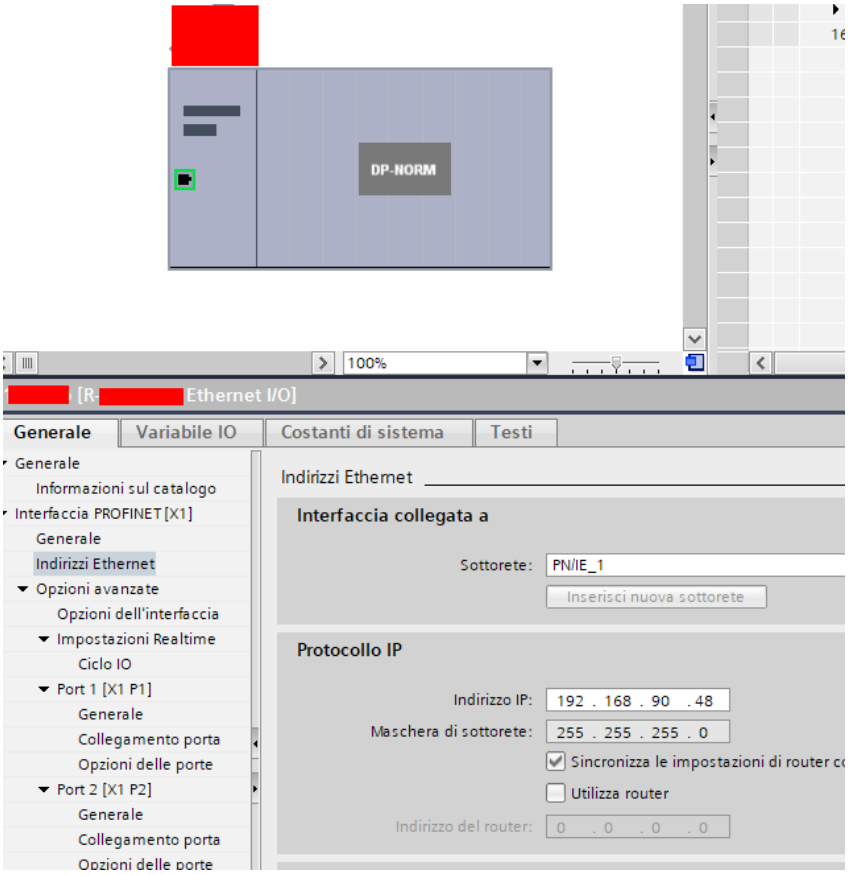




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Click twice on the Seneca device and configure the IP address here too (for example 192.168.90.48):



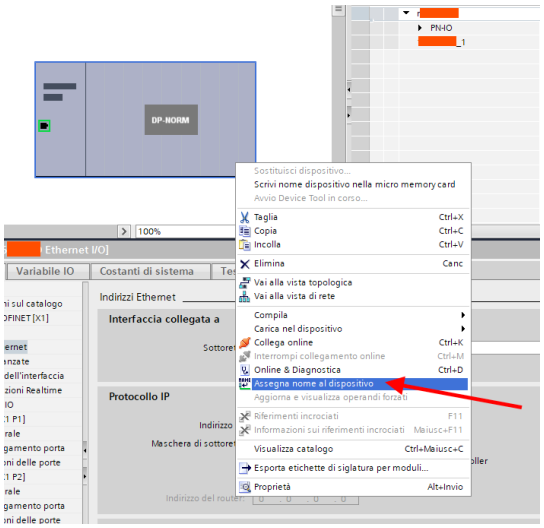
In Profinet the devices are identified by their name, so right click on the Seneca device and select "Assign device name"

ATTENTION!

AVOID INSERTING SPECIAL CHARACTERS IN THE PROFINET NAME OF THE DEVICE

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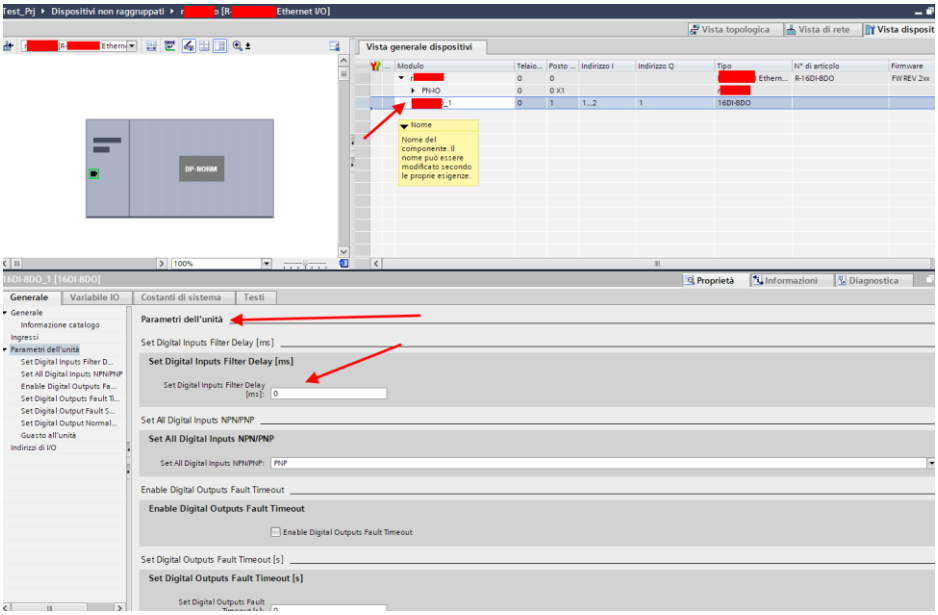
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Scan the network with "Update list" and set (if necessary) the device name with "Assign name".

4.6. CONFIGURATION OF THE PARAMETERS OF THE SENECA DEVICE

It is also possible to directly configure the device IO without any external software.
To configure the device, click on the IO so that the "Unit parameters" appear:



At the next start, the PLC will send the desired configuration to the device.

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4.7. CONFIGURATION PARAMETERS OF THE GSDML FILE

4.7.1. ZE-2AI-P / ZE-4DI-2AI-2DO-P

AIN Sample Time [ms]
Allows you to set the sampling time of the analog inputs.

The range of possible values varies from 10 ms to 300 ms in steps of 1 ms.
Considering that there are 2 channels in total, the measurement update time of a single channel is double the set sampling time.
Depending on the sampling time set, the measurement update times detected (with 2ms Profinet update time) are shown in the following table:

The resolution of the analog digital converter (ADC) depends on the set sampling time, in particular:
If the sampling time of the channel is < 150 ms the ADC is set with a resolution of 12 bits
If the sampling time of the channel is >= 150 ms the ADC is set with a resolution of 16 bits

AIN Setup
Input Type: Select if the respective input is a voltage or current input
Begin Scale [mV/uA]: measurement scale start, expressed in mV [0-30000 mV] or in uA [0-20000 uA]
End Scale [mV/uA]: scale of measurement end, expressed in mV [0-30000 mV] or in uA [0-20000 uA]
Begin Eng. Scale: Engineering scale start, associated with the measurement scale start [-32768 - + 32767]
End Eng. Scale: Engineering scale end, associated with the start of the measurement scale [-32768 - + 32767]

Example:
Input Type = Current
Begin Scale = 4000 [uA]
End Scale = 20000 [uA]
Begin Eng. Scale = 0
End Eng. Scale = 1000

The engineering measure will be 0 with an input of 4 mA, it will be 1000 with an input of 20 mA and will follow a linear trend between these two extremes, for example it will be 500 with an input of 12 mA (50% of the electrical scale)

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DIN/DOUT Setup (ZE-4DI-2AI-2DO-P MODEL ONLY)

DIN Input Type: Selects the type of digital input if PNP or NPN

DOUT Fail mode: Selects whether or not to activate the fail state in case of communication timeout. If the PLC no longer communicates for the set Timeout time, then the digital outputs go into the FAIL state.

DOUT Fail Timeout [s]: allows you to set the communication Timeout time in seconds after which the outputs are brought to the FAIL state.

DOUT1/DOUT2 when in fail mode: Sets the state that the digital outputs must have in case of FAIL.

4.7.2. ZE-SG3-P

⚠ ATTENTION!

FROM FIRMWARE REVISION 1005 THE DEVICE PARAMETERS CAN ALSO BE CONFIGURED IN REAL TIME FROM THE PLC BY OVERWRITING THE INITIAL CONFIGURATION.

FUNCTION MODE

It allows to configure the basic operation of the device, can be set to factory calibration or to Calibration with standard weight:

FACTORY CALIBRATION

It is used when a load cell with declared sensitivity is available.

In this mode, calibration only consists in acquiring the tare directly in the field with a direct measurement. If it is not possible to acquire the tare with a direct measurement (for example in the case of an already filled silo) it is possible to manually enter the tare value in the desired unit of measurement (kg, t, etc.).

CALIBRATION WITH STANDARD WEIGHT

It is used when a standard weight is available (as far as possible towards the load cell full scale).

In this mode the calibration consists in acquiring both the tare and the standard weight directly on the field.

MEASURE TYPE

It allows to configure the operation of the device between:

BALANCE (UNIPOLAR)

It is used when a scale is being created in which the load cell is only compressed, in this case the maximum resolution of the compression measurement is obtained.

COMPRESSION AND TRACTION (BIPOLAR)

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It is used when a measurement system (typically of force) is being created that can both compress and extend the load cell. In this case the direction of the force can also be decided, if compression the measurement will have the + sign, if traction it will have the - sign. A typical case of use is to link the direction of the force to the analog output so that, for example, 4mA correspond to the maximum traction force and 20mA correspond to the maximum compression force (in this case the cell at rest will provide 12Ma).

MEASURE UNIT
Sets the unit of measurement for the weighing in g, Kg, etc.

CELL SENSITIVITY
It is the declared cell sensitivity value expressed in mV/V (in most cells it is 2mV/V).

CELL FULL SCALE
It is the full scale value of the cell expressed in the selected unit of measurement.

STANDARD WEIGHT VALUE
It represents the value of the standard weight that will be used in the calibration if the operating mode with standard weight has been chosen.

NOISE FILTER
Enables or disables measurement filtering.

FILTER LEVEL
Allows you to set the measurement filter level according to the following table:

FILTER LEVEL	RESPONSE TIME [ms]
0	2
1	6.7
2	13
3	30
4	50
5	250
6	850
ADVANCED	Configurable

The higher the filter level the more stable (but slow) the weight measurement will be.
If you select the advanced filtering level (Advanced), the configuration will allow you to select the following parameters:

ADC SPEED Selects the ADC acquisition speed from 4.7 Hz to 960 Hz

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NOISE VARIATION It is the variation in ADC points due to noise alone (represents the measurement uncertainty due to noise) or how much we expect the measurement to vary (the unit of measurement is in raw ADC points).

FILTER RESPONSE SPEED

Represents a parameter related to the filter response speed, it can vary from 0.001 (slowest response) to 1 (fastest response). Represents the variance of the process.

NET WEIGHT RESOLUTION

It is the resolution with which the value of the net weighing is represented, it can be worth:

MAXIMUM RESOLUTION

It will represent the net weight with the highest possible resolution

MANUAL

It will represent the net weight with the manual resolution set (in engineering units).
For example, by setting 0.1 Kg you will get that the net weight can only vary by multiples of 100g.

AUTOMATIC RESOLUTION

It will represent the net weight with a calculated resolution of about 20000 points. Unlike Maximum or Manual resolution, this setting limits also the ADC value and therefore affects all measurements.

CAUTION

Keep in mind that in the "Calibration with standard weight" mode, using the "Manual Resolution", the correct standard weight value may not be perfectly represented:

For example, you have:

Cell full scale 15000 g
Standard weight 14000 g
Manual Resolution 1.5 g

The value of the standard weight (14000 g) cannot be represented with the resolution in 1.5g steps (14000/1.5g = 9333.333 is not an integer value) so it will be represented as: 9333*1.5g = 13999.5g
To avoid this effect, use a resolution that allows the value to be represented (for example 1g or 2g).

SAMPLE PIECE WEIGHT

Sets the weight of a single piece in technical units for the mode. By setting the net weight of a single element in this register, the converter will be able to indicate the number of pieces present in the scales special register according to the relation:

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$$Nr\ Pezzi = \frac{Peso\ Netto}{Peso\ Pezzo\ Campione}$$

AUTOMATIC TARE TRACKER

It allows you to enable or disable the automatic tare reset.

ADC VALUE

It allows to set the number of ADC points within which to reset the tare automatically.
If after 5 seconds of stable weighing condition the ADC value of the net weight deviates by less than this value then a new tare is acquired.

DELTA WEIGHT

Weight variation that contributes to the definition of "Stable Weight"

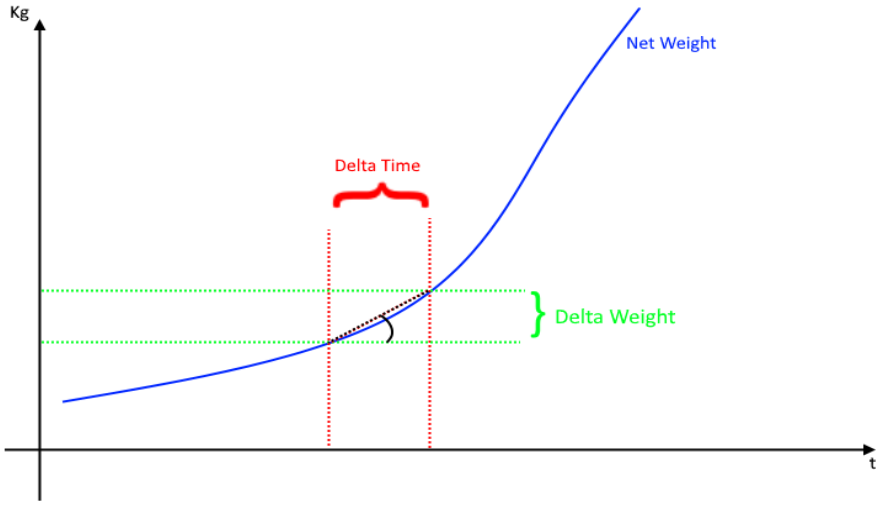
DELTA TIME [x100ms]

Time variation that contributes to the definition of "Stable Weight"

STABLE WEIGHT (Stable weighing condition)

The stable weighing condition is used to indicate that the net weight measurement is stable if:

The net weight remains within the weight $\Delta peso_netto$ *over time* $\Delta tempo$ *or if the slope of the curve drawn by the net weight is less than* $\frac{\Delta peso_netto}{\Delta tempo}$ *:*



*You will be prompted to enter Delta Net Weight (**Delta Weight**) (in engineering units) and Delta Time (**Delta Time**) (in 0.1 seconds).*

ANALOG OUTPUT WORKING MODE

Select whether the analogue output is linked to the net measurement or controlled by the Profinet io protocol.

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ANALOG OUTPUT TYPE
Select whether the analogue output is Voltage or Current

DIGITAL I/O MODE
Configure the device's digital I/O as input or output

FUNCTION
Configure the operation if the I/O is configured as a digital input:

> ***ACQUIRE TARE***
> In this mode, if the digital input is activated for a time longer than 3 seconds, a new tare value is acquired (in RAM, then it is lost upon restart). It is equivalent to sending the command 49594 (decimal) in the command register.
>
> ***DIGITAL INPUT***
> The input is configured as a digital input whose value can be read from the appropriate register.

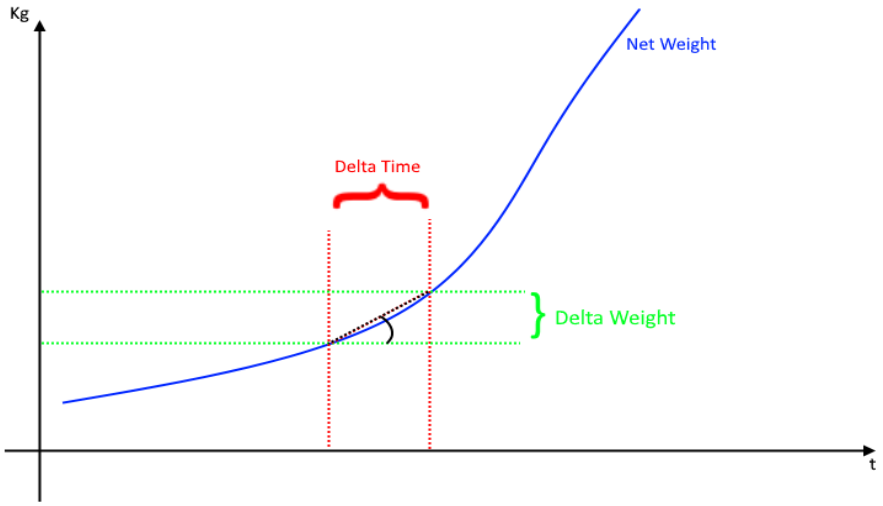
DIGITAL OUTPUT MODE
In the case of configuring the I/O as a digital output it is possible to choose whether this should be configured as normally open (***Normally Open***) or as normally closed (***Normally Close***)

DIGITAL OUTPUT CONFIGURATION
Here you can choose the behaviour of the digital output:

> ***FULL SCALE CELL***
> The digital output is activated if the cell has reached the measurement full scale.
>
> ***THRESHOLD AND STABLE WEIGHT***
> In this mode, the output activates when the net weight reaches the threshold and the weigh is in a stable weighing condition
>
> ***STABLE WEIGHT***
> The stable weighing condition is used to indicate that the net weight measurement is stable if:
> The net weight remains within the weight $\Delta peso_netto$ over time $\Delta tempo$ or if the slope of the curve drawn by the net weight is less than $\frac{\Delta peso_netto}{\Delta tempo}$:

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STABLE WEIGHT

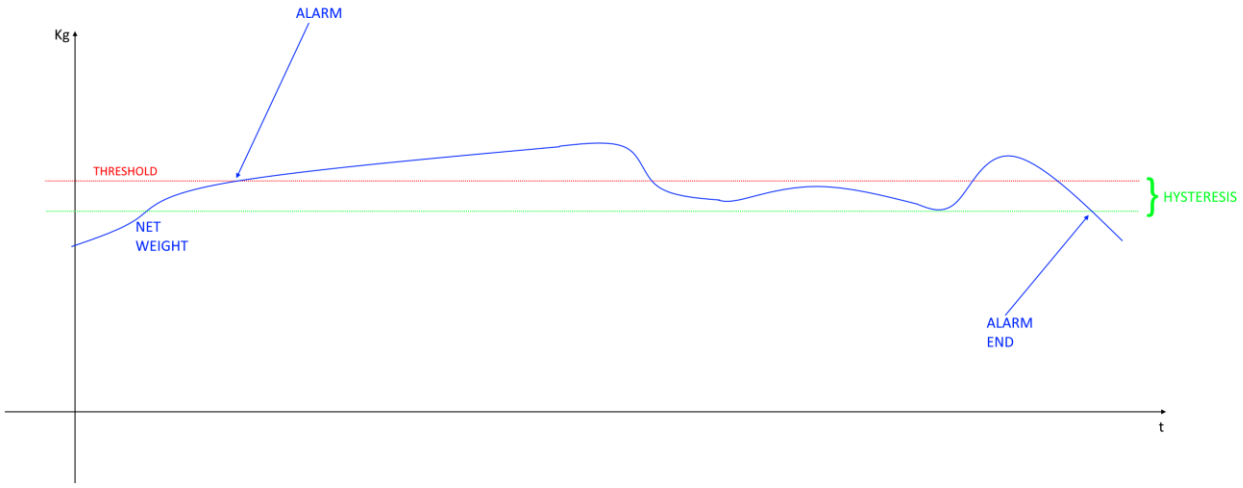
In this mode the output is activated if the weighing is in the stable weighing condition.

COMMANDABLE FROM PROFINET

In this mode the digital output can be controlled by the Profinet IO protocol.

THRESHOLD WITH HYSTERESIS

In this mode the output is activated when the net weight reaches the threshold, the alarm is cancelled when the net weight falls below the Threshold-Hysteresis value:

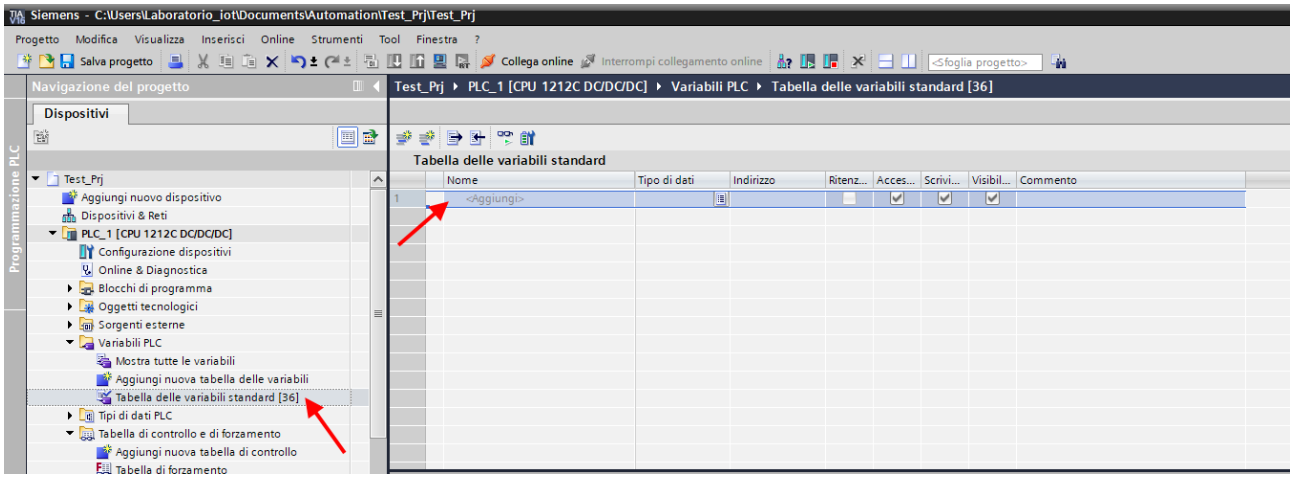


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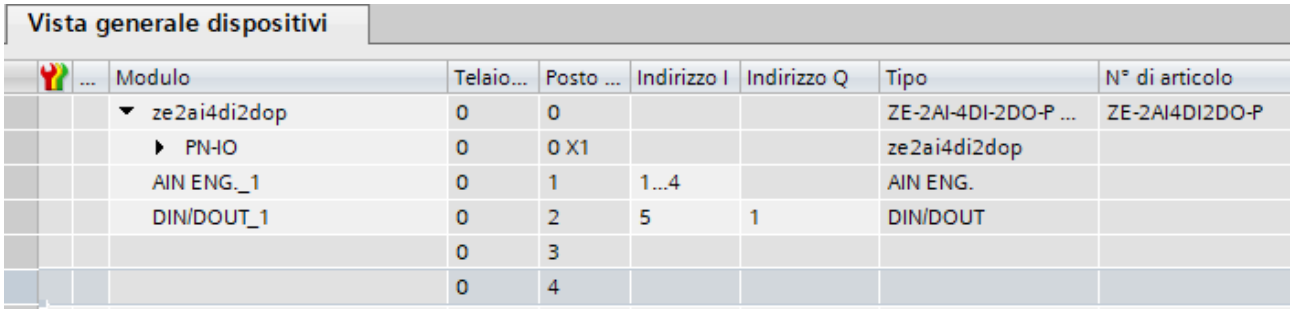
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4.8. I/O ZE-2AI-P / ZE-4DI-2AI-2DO-P DATA

Define the PLC tags directly in the "standard tag table":



Now let's add the variables related to the IO, the addresses are shown here (for example for the ZE-4DI-2AI-2DO-P model):



Modulo	Telaio...	Posto ...	Indirizzo I	Indirizzo Q	Tipo	N° di articolo
ze2ai4di2dop	0	0			ZE-2AI-4DI-2DO-P ...	ZE-2AI4DI2DO-P
PN-IO	0	0 X1			ze2ai4di2dop	
AIN ENG._1	0	1	1...4		AIN ENG.	
DIN/DOUT_1	0	2	5	1	DIN/DOUT	
	0	3				
	0	4				

So:
Bytes I1 to I4 contain the analog inputs in engineering format (i.e. after scaling) (IW1 for analog input 1 and IW3 for analog input 2)
Byte I5 contains the status of the 4 digital inputs, i.e. I5.0 the DIN1, I5.1 the DIN2, I5.2 the DIN3 etc…
Q1 contains the status of the 2 digital outputs, i.e. Q1.0 the DOUT1 and Q1.1 the DOUT2.

We define the 2 analog inputs, the 4 digital inputs and the 2 digital outputs in the table of the standard variables:

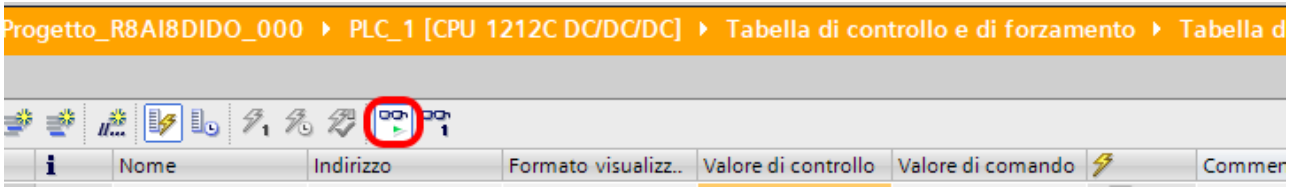
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Tabella delle variabili standard

	Nome	Tipo di dati	Indirizzo	Ritenz...	Acces...	Scrivi...	Visibil...	Comment
1	AIN1	UInt	%IW1	☐	☑	☐	☑	
2	AIN2	UInt	%IW3	☐	☑	☐	☑	
3	DIN1	Bool	%I5.0	☐	☑	☐	☑	
4	DIN2	Bool	%I5.1	☐	☑	☐	☑	
5	DIN3	Bool	%I5.2	☐	☑	☐	☑	
6	DIN4	Bool	%I5.3	☐	☑	☐	☑	
7	DOUT1	Bool	%Q1.0	☐	☑	☑	☑	
8	DOUT2	Bool	%Q1.1	☐	☑	☑	☑	
9	<Aggiungi>			☐	☑	☑	☑	

Now compile, send the project and go online with the PLC.
Once online, press the glasses icon to update the status of the variables.



Under the "Control value" column you can read the I/O value in real time.

To control the outputs, it is necessary to enter "TRUE" or "FALSE" in the "Command value" column and then press the icon with the lightning bolt to order the writing. Note the status of the LED relating to the commanded output.

In the "Control value" column, the status of the outputs is also read in real time.

ZE-2AI-P MODEL

SLOT	***No. OF BYTES***	***TYPE***	***INFO***
AIN ENG	***4***	***READ***	***Represents the measurements of the two analog scaled in engineering units. The scale values can be set via the hardware configuration of the Profinet IO Master.*** ***Byte[0][1] = AIN1 value*** ***Byte[2][3] = AIN2 value***

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AIN (optional)	*4*	*READ*	*Represents the measurements of the two analogs in mV/uA* *Byte[0][1] = AIN1 value* *Byte[2][3] = AIN2 value*
DIAGNOSTIC (optional)	*1*	*READ*	*Allows to detect the anomaly status related to the analog measures. The interpretation is to be carried out in bits as follows:* *bit .0 = NOT USED* *bit .1 = AIN1 underflow* *bit .2 = AIN1 overflow* *bit .3 = AIN2 underflow* *bit .4= AIN2 overflow*

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ZE-4DI-2AI-2DO-P MODEL

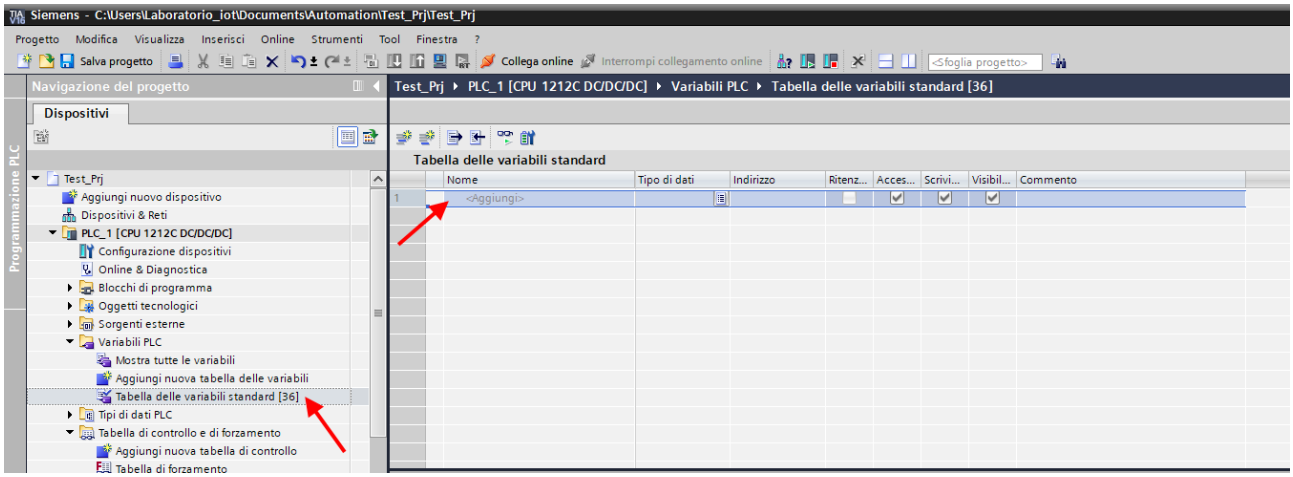
SLOT	*No. OF BYTES*	*TYPE*	*INFO*
AIN ENG	*4*	*READ*	*Represents the measurements of the two analog scaled in engineering units. The scale values can be set via the hardware configuration of the Profinet IO Master.* *Byte[0][1] = AIN1 value* *Byte[2][3] = AIN2 value*
DIN/DOUT	*2*	*1 BYTE READ* *1 BYTE WRITE*	*Represents the states of the digital inputs and digital outputs.* *READ:* *bit .0 = DIN1* *bit .1 = DIN2* *bit .2 = DIN3* *bit .3 = DIN4* *WRITE:* *bit .0 = DOUT1* *bit .1 = DOUT2*
AIN (optional)	*4*	*READ*	*Represents the measurements of the two analogs in mV/uA* *Byte[0][1] = AIN1 value* *Byte[2][3] = AIN2 value*
DIAGNOSTIC (optional)	*1*	*READ*	*Allows to detect the anomaly status related to the analog measures. The interpretation is to be carried out in bits as follows:* *bit .0 = NOT USED* *bit .1 = AIN1 underflow* *bit .2 = AIN1 overflow* *bit .3 = AIN2 underflow* *bit .4= AIN2 overflow*

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4.9. I/O ZE-SG3-P DATA

Define the PLC tags directly in the "standard tag table":



Let's now add the variables relating to the IO.

ATTENTION!

FROM FIRMWARE REVISION 1005 THE DEVICE PARAMETERS CAN ALSO BE CONFIGURED IN REAL TIME FROM THE PLC BY OVERWRITING THE INITIAL CONFIGURATION.

For instance, by default you have:



Therefore, the Weight slot (integer) is created by default:

SLOT "WEIGHT (INTEGER)"

This slot contains only write variables:

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SLOT WEIGHT (INTEGER)	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Notes*
NET WEIGHT	0-1-2-3	4 Byte Signed Integer	Read	Net Weight in integer format
GROSS WEIGHT	4-5-6-7	4 Byte Signed Integer	Read	Gross Weight in integer format
TARE WEIGHT	8-9-10-11	4 Byte Signed Integer	Read	Tare Weight in integer format
NO. PIECES	12-13	2 Byte Unsigned	Read	Pieces count number
ADC RAW	14-15-16-17	4 Byte unsigned Integer	Read	24 Bit ADC RAW

SLOT DIN/DOUT

The DIN/DOUT slot contains the digital variables relating to the DIN1 and DIN2 inputs (read) and the DOUT1 and DOUT2 variables (write) relating to the outputs.

Attention! It is only possible to configure a digital channel as DIN or DOUT:

SLOT DIN/DOUT	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
DIN1	0.0	BIT	READ	Digital Input 1 value
DIN2	0.1	BIT	READ	Digital Input 2 value

SLOT DIN/DOUT	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
DOUT1	0.0	BIT	WRITE	Digital Out 1 value
DOUT2	0.1	BIT	WRITE	Digital Out 2 value

The following optional slots can also be added:

Slot Analog Input Configuration

These are variables used to modify the weight measurement configuration parameters in real time:

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SLOT ANALOG INPUT CONFIGURATION	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
FUNCTION MODE	0	1 Byte Unsigned	Write	"0" = Factory Calibration "1" = Calibration with standard weight
MEASURE TYPE	1	1 Byte Unsigned	Write	"0" = Compression and traction (Bipolar) "1" = Balance (Unipolar)
MEASURE UNIT	2	1 Byte Unsigned	Write	0 = Kg 1 = g 2 = t 3 = lb 4 = l 5 = N 6 = bar 7 = atm 8 = other
CELL SENSIBILITY	3-4-5-6	4 Byte Floating Point	Write	Cell Sensibility in [mV/V]
CELL FULLSCALE	7-8-9-10	4 Byte Floating Point	Write	Cell Full Scale
STANDARD WEIGHT VALUE	11-12-13-14	4 Byte Floating Point	Write	Standard Weight value
NOISE FILTER	15	1 Byte Unsigned	Write	"0" = disable "1" = enable
FILTER LEVEL	16	1 Byte Unsigned	Write	"0".."6" = Filter Level "7" = Advanced
ADC SPEED	17	1 Byte Unsigned	Write	"0" = 960 Hz "1" = 300 Hz "2" = 150 Hz "3" = 100 Hz "4" = 60 Hz "5" = 12 Hz "6" = 4.7 Hz

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NOISE VARIATION	18-19-20-21	4 Byte Floating Point	Write	ADC Points variation
FILTER RESPONSE SPEED	22-23-24-25	4 Byte Floating Point	Write	“0.01” = Max Slow Response “1” = Max Fast Response
NET WEIGHT RESOLUTION	26	1 Byte Unsigned	Write	“0” = Automatic “1” = Manual “2” = Maximum
MANUAL RESOLUTION	27-28-29-30	4 Byte Floating Point	Write	Manual Resolution Value
SAMPLE PIECE WEIGHT	31-32-33-34	4 Byte Floating Point	Write	Single Piece Weight
AUTOMATIC TARE TRACKER	35	1 Byte Unsigned	Write	“0” = disable “1” = enable
ADC VALUE	36-37-38-39	4 Byte Unsigned Integer	Write	Tracker ADC Value
DELTA WEIGHT	40-41-42-43	4 Byte Floating Point	Write	Stable condition Delta Weight
DELTA TIME	44-45	2 Byte Unsigned Integer	Write	Stable condition Delta Time [x100ms]

SLOT ANALOG INPUT CONFIGURATION	***OFFSET (BYTE)***	***DATA TYPE***	***Read/Write***	***Values***
CONFIGURATION APPLAYED	0-1	2 Byte Unsigned Integer	Read	“0” = configuration on-going “1” = configuration applayed

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SLOT Analog Output (NOT USABLE ON THE R-SG3-P MODEL)

It is the variable related to the analog output in voltage/current, it accepts the value in uA or mV

SLOT ANALOG OUTPUT	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
Analog Output	0-1	2 Byte Unsigned Integer	Write	Usable only if the parameter "ANALOG OUTPUT WORKING MODE" is configured in "Commandable from Profinet" Output value in [mV] from 0 to 10500 or [uA] from 0 to 21000

SLOT Analog Output Configuration (NOT USABLE ON THE R-SG3-P MODEL)

These are variables used to modify the analog output configuration parameters in real time:

SLOT ANALOG OUTPUT CONFIGURATION	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
ANALOG OUTPUT WORKING MODE	0	1 Byte Unsigned Integer	Write	"0" = Linked to Weight % "1" = Commandable from Profinet
ANALOG OUTPUT TYPE	1	1 Byte Unsigned Integer	Write	"0" =Output configured in voltage mode "1" = Output configured in current mode

SLOT ANALOG OUTPUT CONFIGURATION	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*

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CONFIGURATION APPLAYED	0-1	2 Byte Unsigned Integer	Read	"0" = configuration on-going "1" = configuration applayed

SLOT CMD

These are variables that allow you to send commands to the device and know the status of the command.

SLOT ANALOG OUTPUT CONFIGURATION	***OFFSET (BYTE)***	***DATA TYPE***	***Read/Write***	***Values***
COMMAND VALUE	0-1	2 Byte Unsigned Integer	Write	See Table below

COMMAND (DECIMAL) Values	***FUNCTION***
0	No Command
43948	Reboot the device
49594	Acquires the tare in RAM (at reboot is lost)
49914	Acquires the tare in Flash for the calibration procedure in both operating modes (factory calibration and with sample weight)
50700	Acquires the sample weight value in Flash for calibration with standard weight
50773	Acquires the tare value from the register MANUAL TARE (only for the factory calibration mode)
49151	Reset the maximum net weight
45056	Reset the minimum net weight

Note that if you need to send the same command 2 or more times, you must first insert the "0" command because the command are executed on change.

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SLOT ANALOG OUTPUT CONFIGURATION	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
COMMAND VALUE (STATUS)	0-1	2 Byte Unsigned Integer	Read	"0" Command executed ≠ "0" Command Pending

SLOT DIAGN

It contains the diagnostic variable

SLOT DIAGNOSTIC	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
DIAGNOSTIC	0-1	2 Byte Unsigned Integer	Read	BIT 0 LSBIT Bit 0 = 1 THRESHOLD AND STABLE WEIGHT for DIDO 1 BIT 1 Bit 1 = 1 FULL SCALE CELL BIT 2 (RO) Bit 2 = 1 NET WEIGHT < 0 BIT 3 (RO) Bit 3 =1 THRESHOLD AND STABLE WEIGHT for DIDO 2 BIT 4 (RO) Bit 4 = 1 Stable weight BIT 5-6 Not used BIT 7 (RO) Bit 7 = 1 Threshold with hysteresis for DIDO 1 BIT 8 (RO) Bit 8 = 1 automatic tare tracker (if enabled) BIT 9 (RO) Bit 9 = 1 Threshold with hysteresis for DIDO 2 BIT 10..15 Not used

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SLOT Digital I/O Configuration

SLOT DIGITAL I/O CONFIGURATION	*OFFSET (BYTE)*	*DATA TYPE*	*Read/Write*	*Values*
DIGITAL 1 I/O MODE	0	1 Byte Unsigned	Write	"0" = Digital Input Mode "1" = Digital Output Mode
DIGITAL 1 INPUT FUNCTION	1	1 Byte Unsigned	Write	"0" = Acquire Tare "1" = Digital INput
DIGITAL 1 OUTPUT MODE	2	1 Byte Unsigned	Write	"0" = Normally Open "1" = Normally Close
DIGITAL 1 OUTPUT CONFIGURATION	3	1 Byte Unsigned	Write	"0" = Cell Full Scale "1" = Threshold and Stable Weight "2" = Stable Weight "3" = Commandable from Profinet "4" = Threshold with hysteresis
DIGITAL 1 I/O THRESHOLD OUTPUT	4-5-6-7	4 Byte Floating Point	Write	Threshold Value
DIGITAL 1 I/O HYSTERESIS OUTPUT	8-9-10-11	4 Byte Floating Point	Write	Hysteresis Value
DIGITAL 2 I/O MODE	12	1 Byte Unsigned	Write	"0" = Digital Input Mode "1" = Digital Output Mode
DIGITAL 2 I/O FUNCTION	13	1 Byte Unsigned	Write	"0" = Acquire Tare "1" = Digital INput
DIGITAL 2 I/O OUTPUT MODE	14	1 Byte Unsigned	Write	"0" = Normally Open "1" = Normally Close
DIGITAL 2 I/O OUTPUT CONFIGURATION	15	1 Byte Unsigned	Write	"0" = Cell Full Scale "1" = Threshold and Stable Weight "2" = Stable Weight "3" = Commandable from Profinet "4" = Threshold with hysteresis

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DIGITAL 2 I/O THRESHOLD OUTPUT	16-17-18-19	4 Byte Floating Point	Write	Threshold Value
DIGITAL 2 I/O HYSTERESIS OUTPUT	20-21-22-23	4 Byte Floating Point	Write	Hysteresis Value

SLOT DIGITAL I/O CONFIGURATION	***OFFSET (BYTE)***	***DATA TYPE***	***Read/Write***	***Values***
CONFIGURATION APPLAYED	0-1	2 Byte Unsigned Integer	Read	"0" = configuration on-going "1" = configuration applayed

SLOT WEIGHT (FLOAT)

It shows the weight measurement variables in 32-bit floating point format.

SLOT WEIGHT (FLOAT)	***OFFSET (BYTE)***	***DATA TYPE***	***Read/Write***	***Notes***
NET WEIGHT	0-1-2-3	4 Byte Floating Point	Read	Net Weight in float format
GROSS WEIGHT	4-5-6-7	4 Byte Floating Point	Read	Gross Weight in float format
TARE WEIGHT	8-9-10-11	4 Byte Floating Point	Read	Tare Weight in float format
MAX Net Weight	12-13-14-15	4 Byte Floating Point	Read	Max Net Weight from reboot or reset command
MIN Net Weight	16-17-18-19	4 Byte Floating Point	Read	Min Net Weight from reboot or reset command

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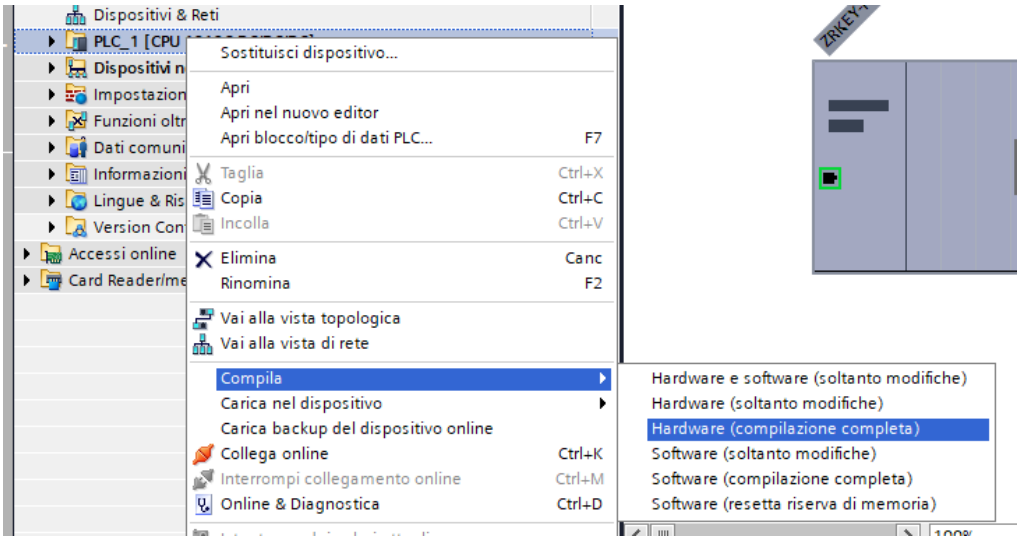
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4.10. COMPILATION AND SENDING OF THE PROJECT TO THE SIEMENS PLC

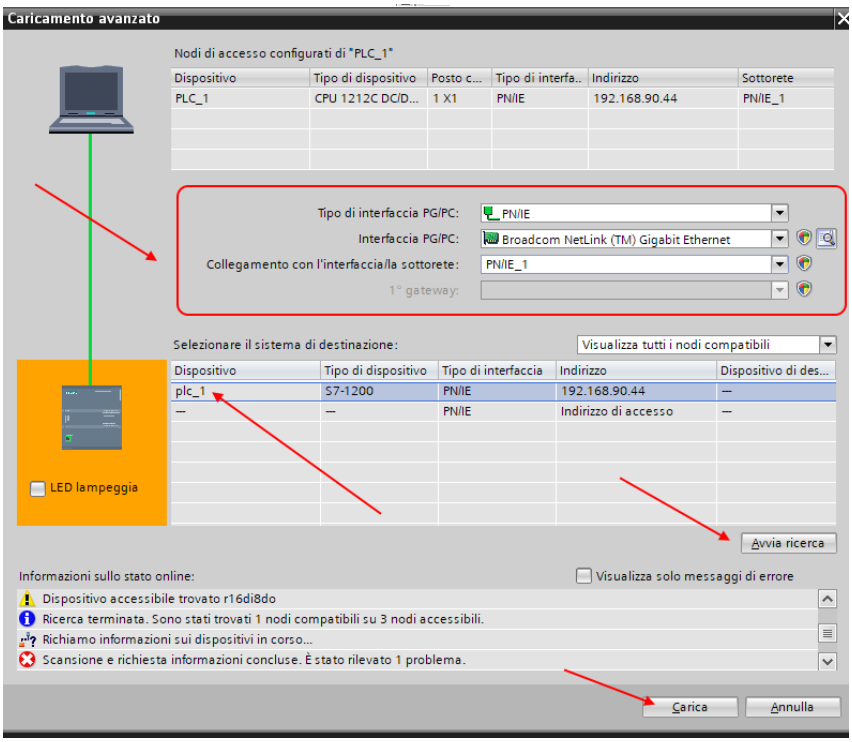
Now that the devices are configured, all that remains is to compile and send the configuration to the PLC.

ATTENTION!

YOU MUST ALWAYS DO A FULL HARDWARE COMPILATION BEFORE SENDING A PROJECT TO THE DEVICE:



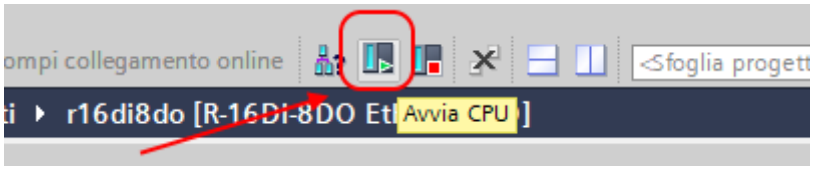
Before sending the project to the PLC, you are asked to select the ethernet interface and start the search, in order to select the PLC and press "Load".



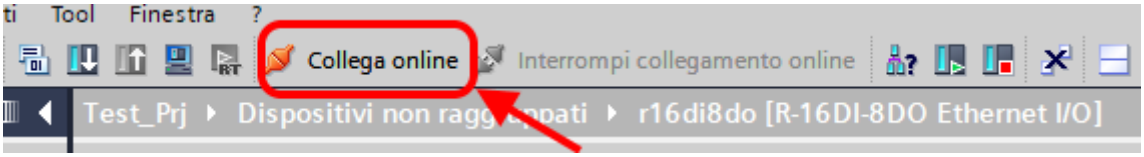
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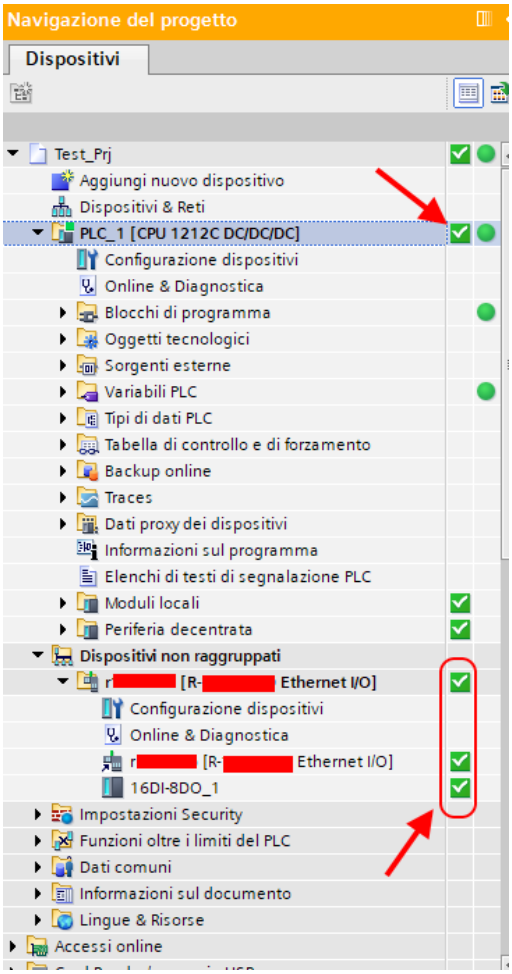
Once the project has been sent, RUN the PLC:



And go On-Line so as to check if there are any errors:



If everything is correct you will get a green icon next to the Seneca device:

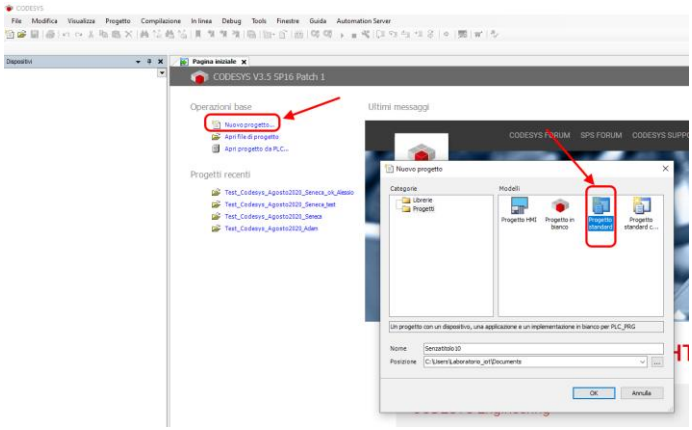


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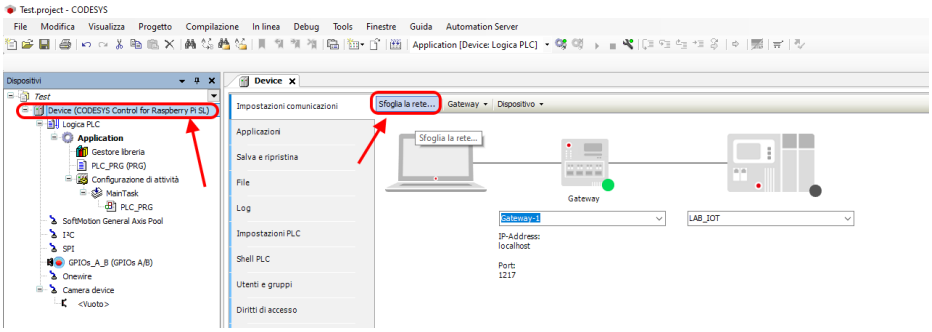
5. EXAMPLE OF CREATING A PROJECT WITH PLC CODESYS

Create a new standard project:

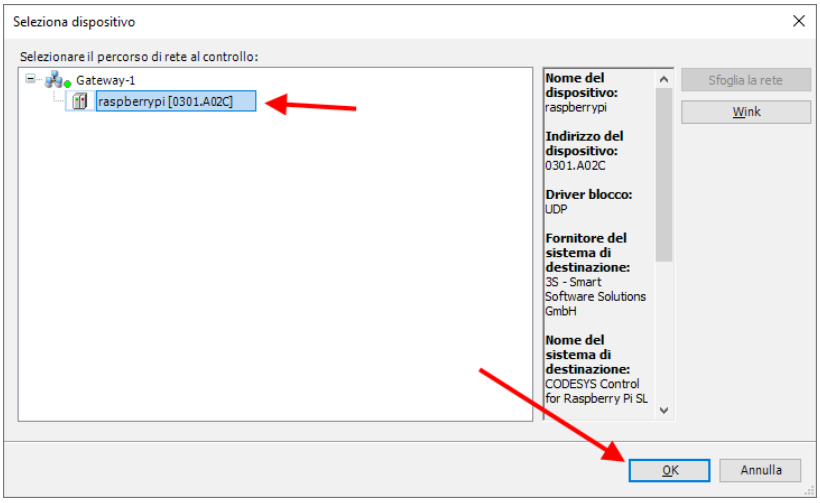


5.1.1. INSERTION OF THE CODESYS PLC IN THE PROJECT

Configure the PLC by selecting it in the tree on the left and then browsing the network:



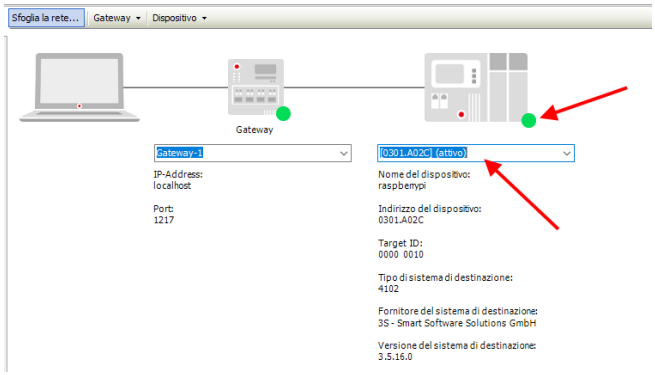
Select the PLC after scanning the network:



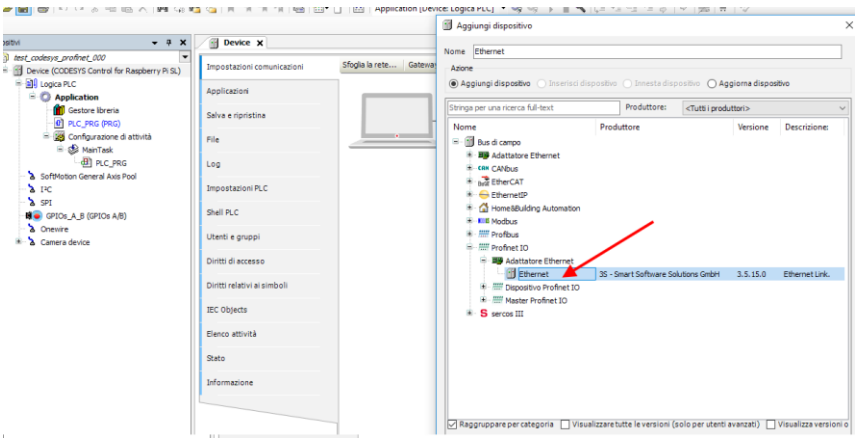
The PLC is now connected to the system:

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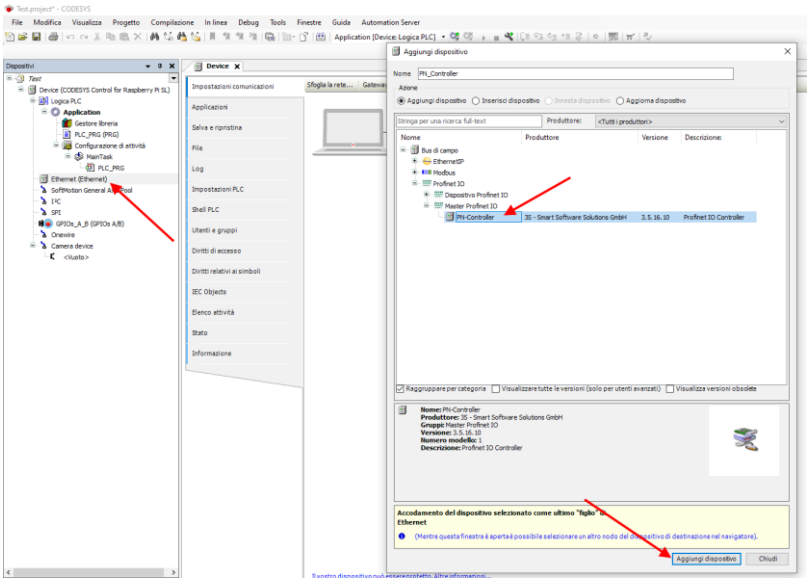
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Now that the PLC has been detected, move on to insert a Profinet port on standard Ethernet:
Right click on device and "add device":



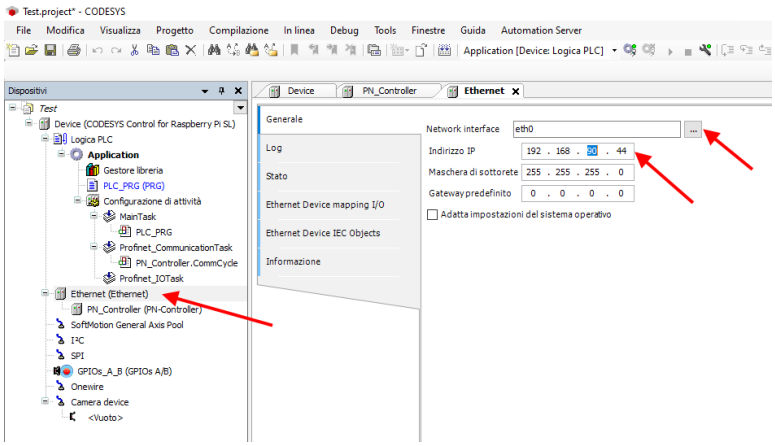
Then add the Profinet IO Master:



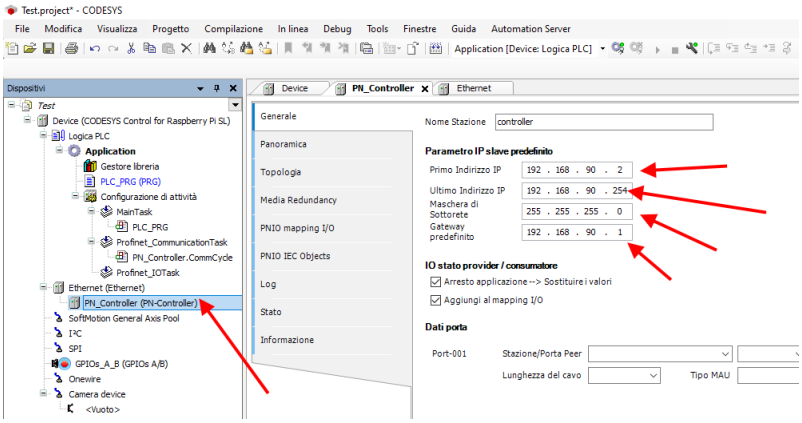
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Double click on Ethernet, set the Ethernet port and the IP address of the PLC (in this case use 192.168.90.44):



Set also the address range for the Profinet peripheral, double click on PN_Controller:

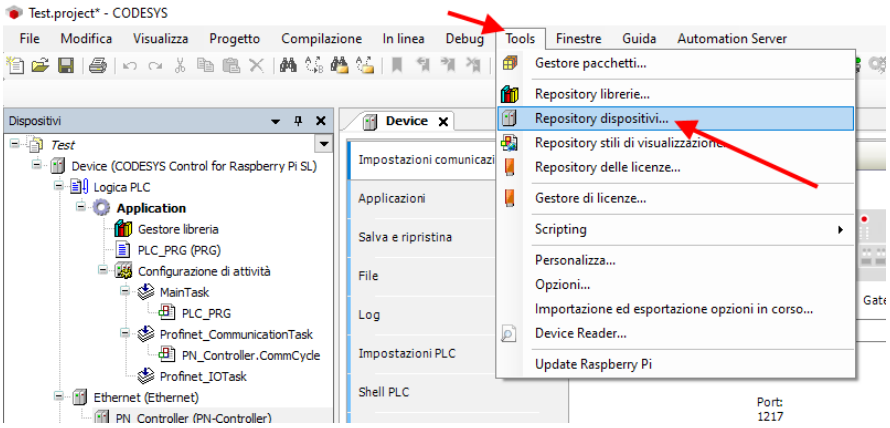


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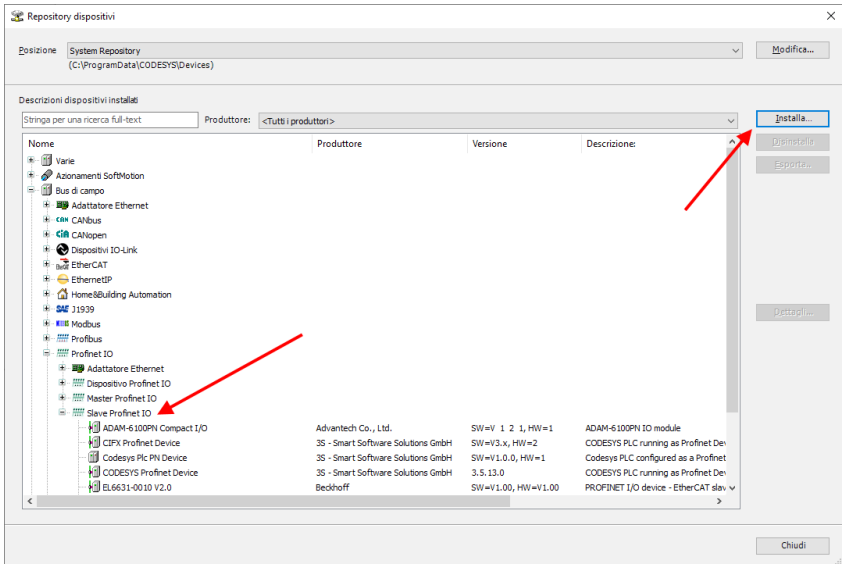
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5.1.2. INSTALLING THE GSDML FILE

Now you need to connect the Seneca slave device PROFINET IO to the profinet master (controller).
First install the GSD file of the Seneca IO.
Select Tools->Device Repository:



Now import the GSD file by selecting Profinet IO Slave and then Install:



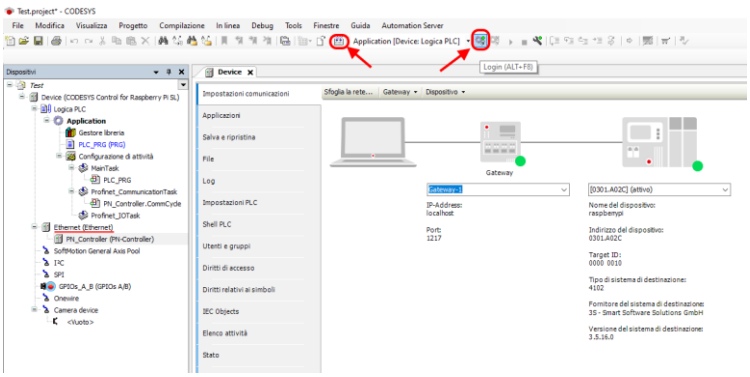
Now point to the correct folder and press OK.
Codesys has now added the GSD file correctly.

At this point you can scan the network in search of Slave devices (Device).

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First compile the project and log in to the PLC:

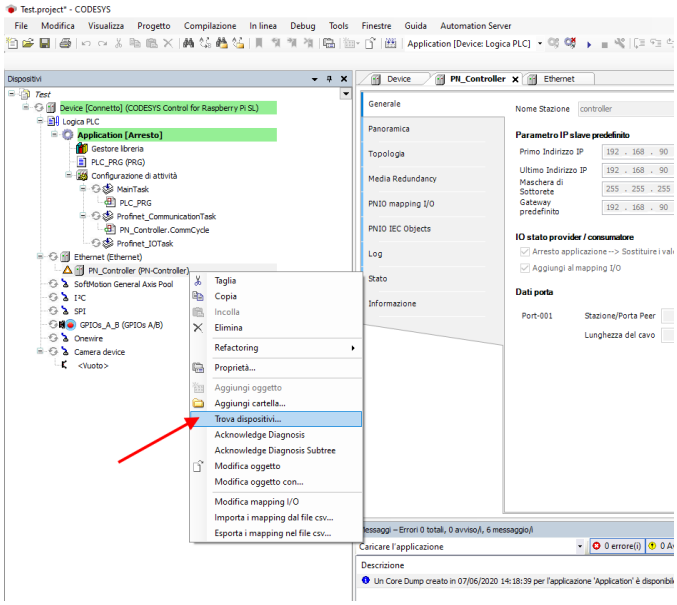


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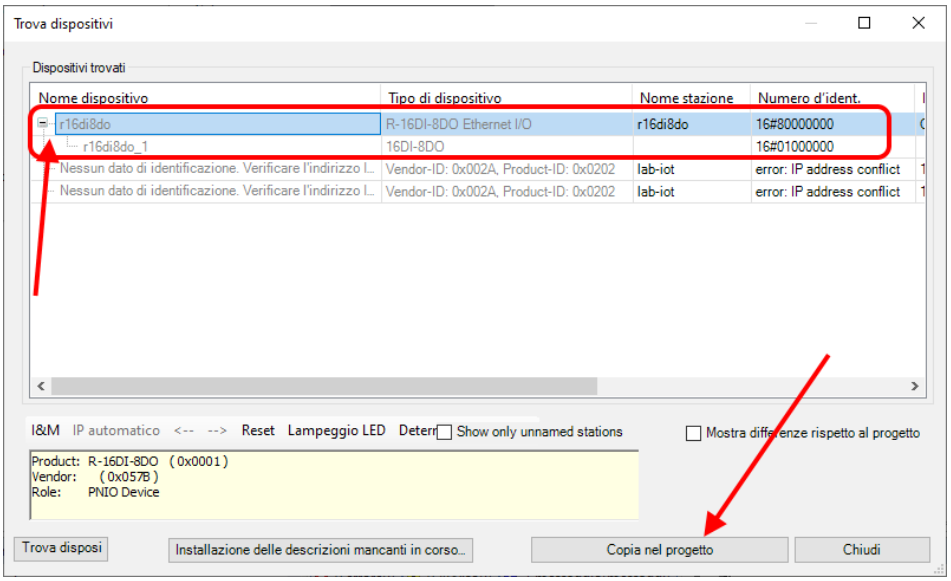
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5.1.3. INSTALLATION OF THE SENECA PROFINET IO

Now that you are connected to the PLC, run the scan to find the devices:



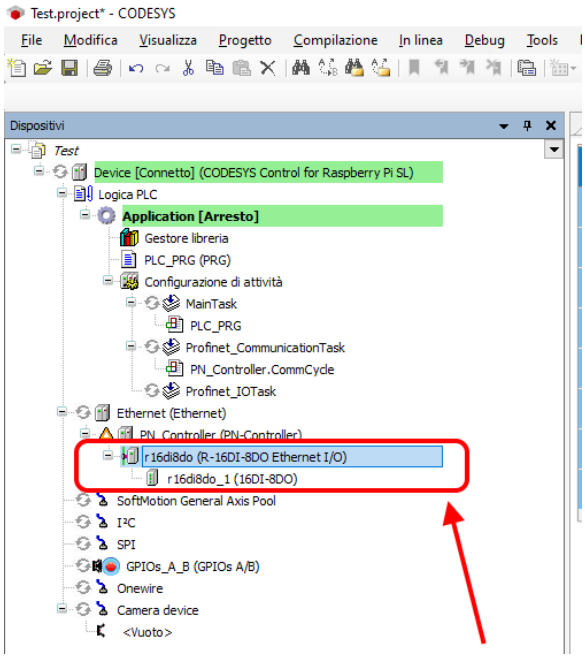
In the list of devices, select the Seneca IO and then "Copy to project":



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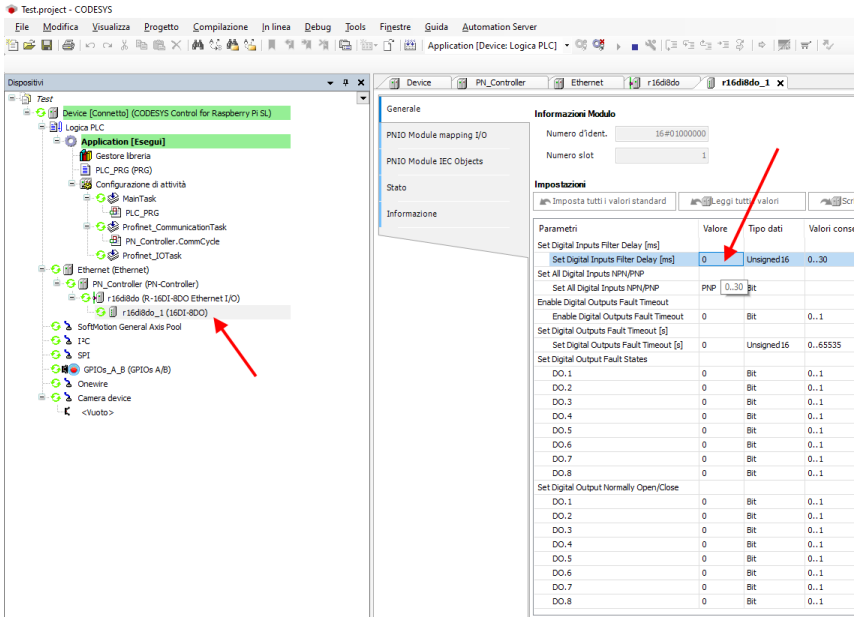
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At this point you have added the device to the project:



5.1.4. CONFIGURATION OF THE PARAMETERS OF THE SENECA IO

If you want to change the IO configuration parameters, you can set them from here:

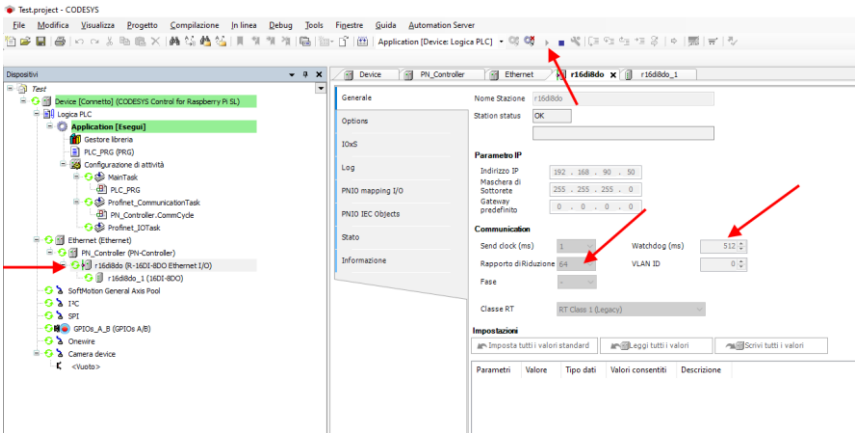


Check that everything is correct by compiling and running the PLC.

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The PLC (Raspberry-pi) is quite slow and not real time, consequently it cannot manage the profinet at maximum speed so we modify the values by setting safety parameters:

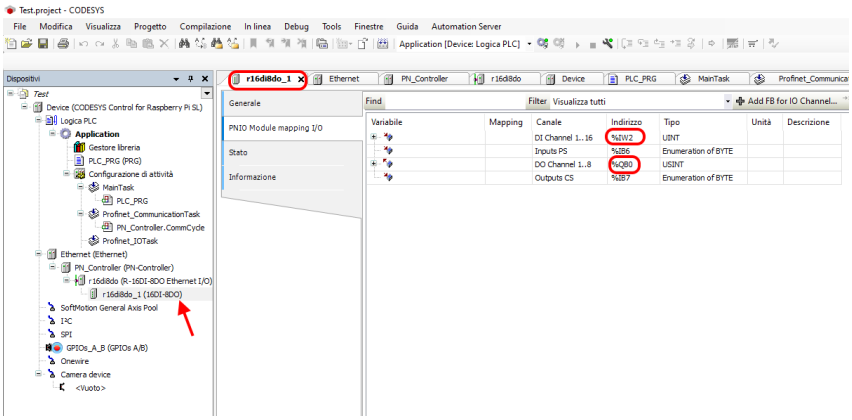


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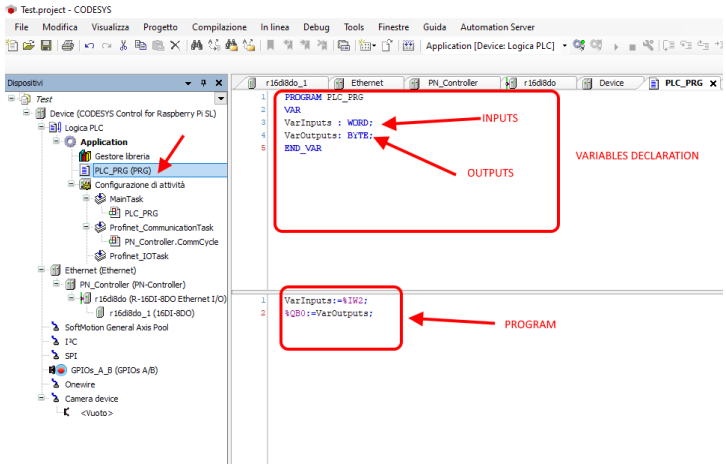
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5.1.5. READING AND WRITING THE SENECA IO FROM CODESYS

Now see how it is possible to read and write IO on the Seneca device.
To write and read the status of the IO you have to insert a few code lines under PRG.
In the program, read the inputs from the %IW2 address and write in the %QB0 address as it is obtained from here:



Declare an 8-bit (Word) variable for the 16 inputs and one byte for the 8 outputs.
In the program, instead, read the inputs from %IW2 and write the outputs on %QB0:

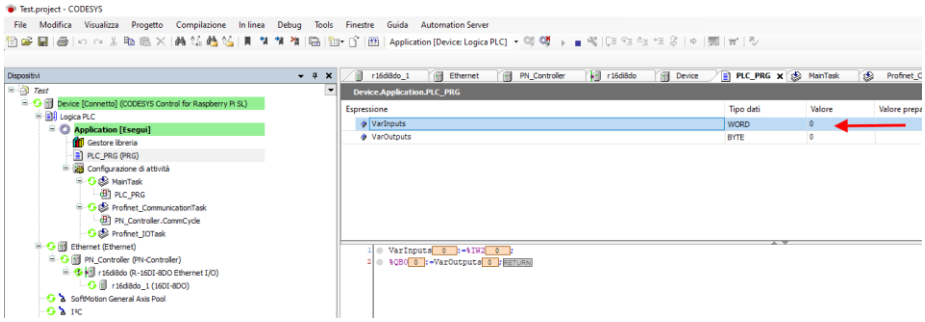


Go into login and start.

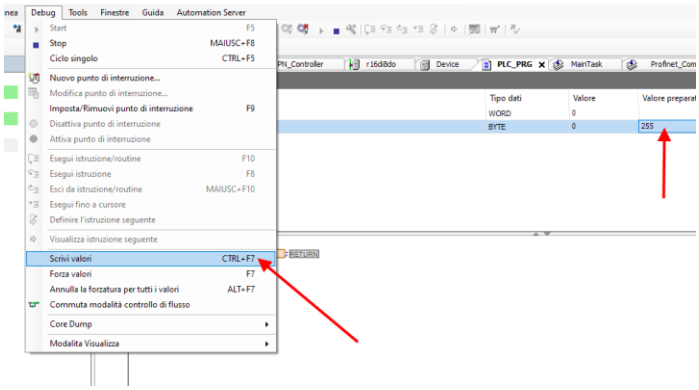
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The value of the inputs can be read here:



while to write the outputs you just set the byte value in the "prepared value" column, for example by writing 255 decimal = 11111111 binary all the outputs will be brought to 1:



And then with "Write values" all the outputs are activated correctly.

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6. LOAD CELL CALIBRATION (ZE-SG3-P MODEL ONLY)

Calibration of the load cell can take place via the device webserver or by sending commands to the COMMAND register via Profinet.

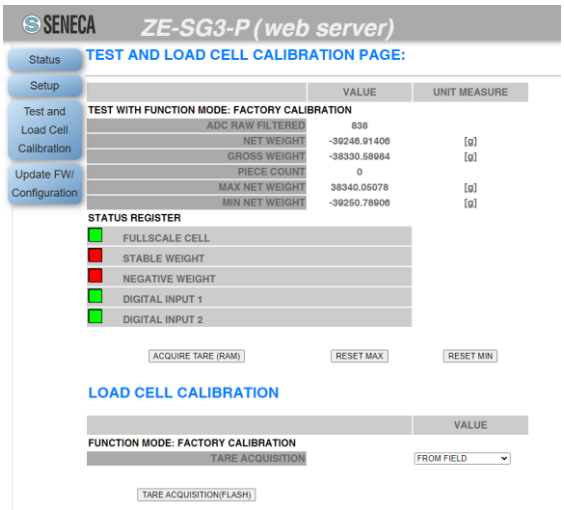
There are two ways of calibrating the cell: via factory parameters and via sample weight.
In calibration with factory parameters it is necessary to acquire only the tare value so that the device provides the net weight. For calibration with sample weight it is necessary to acquire the tare and the sample weight (also taking care to enter the value in technical units).

6.1. LOAD CELL CALIBRATION THROUGH THE WEBSERVER

ATTENTION!

TO PROCEED WITH CALIBRATION OF THE CELL THROUGH THE WEBSERVER YOU MUST HAVE PREVIOUSLY SET THE CELL PARAMETERS FROM THE GSDML FILE.

To calibrate the load cell through the webserver, access the "TEST AND LOAD CELL CALIBRATION" section . Depending on the two modes chosen between factory calibration or with sample weight, it will be possible to proceed according to the selected mode:



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6.1.1. CELL CALIBRATION WITH FACTORY PARAMETERS VIA WEBSERVER

In cell calibration with factory parameters it is not necessary to use a standard weight as reference is made to the parameters acquired in the factory.
The necessary data are:

-The cell sensitivity
-The cell full scale

For the cell calibration procedure it is necessary to acquire the tare.
The tare can be entered manually in technical units (if known) or it can be acquired from the field.

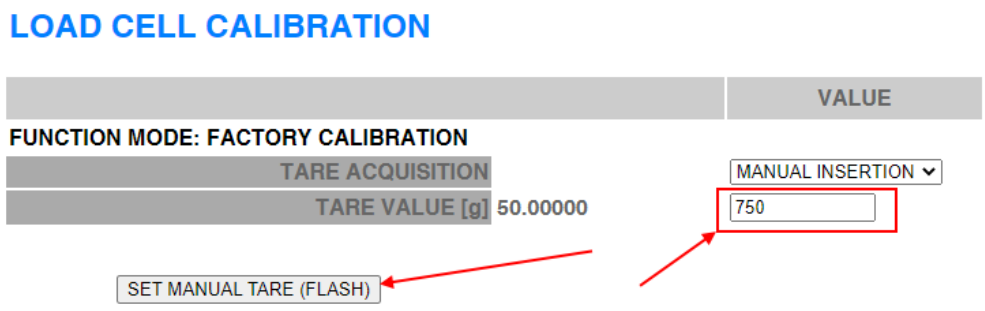
6.1.1.1. ACQUISITION OF THE TARE FROM THE FIELD VIA WEBSERVER

1) Enter the "Test and load cell calibration" web server page
2) Replace the tare on the cell
3) Wait for the measurement to stabilize
4) Press the "TARE ACQUISITION (FLASH)" button



6.1.1.2. MANUAL ENTRY OF THE TARE MANUAL VIA WEBSERVER

It is not always possible to acquire the tare value from the field (for example in the case of already filled silos), in these cases it is possible to introduce the tare weight in technical units.



To acquire the tare value, press the "SET MANUAL TARE (FLASH)" button.

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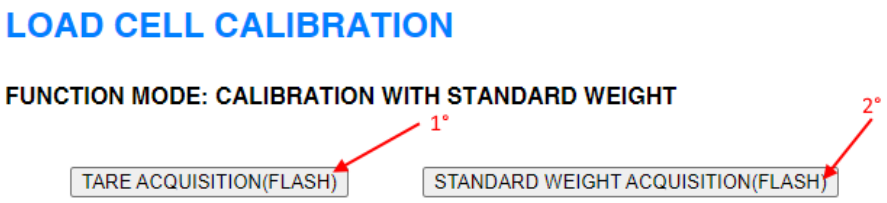
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6.1.2. CELL CALIBRATION WITH A SAMPLE WEIGHT VIA WEBSERVER

In cell calibration with a standard weight it is necessary to know:

-The cell sensitivity
-The cell full scale
-A standard weight (so that Standard weight + Tare are as close as possible to the cell full scale)

1) Enter the "Test and load cell calibration" web server page
2) Replace the tare on the cell
3) Wait for the measurement to stabilize
4) Press the "TARE ACQUISITION (FLASH)" button



5) Replace the Tare + Sample Weight
6) Wait for the measurement to stabilize
7) Press the "STANDARD WEIGHT ACQUISITION (FLASH)" button

6.2. LOAD CELL CALIBRATION VIA PROFINET

The device provides a “COMMAND” register which allows sending commands from the PLC.
For the calibration of the load cell the procedure changes depending on the type of operating mode that was chosen in the configuration.
The device (and cell) configuration can be done in real time.

6.2.1. FACTORY PARAMETERS CELL CALIBRATION VIA PROFINET

In cell calibration with factory parameters it is not necessary to use a standard weight as reference is made to the parameters acquired in the factory.
The necessary data are:

-The cell sensitivity
-The cell full scale

The tare can be entered manually in technical units (if known) or it can be acquired from the field.

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6.2.1.1. CELL CALIBRATION WITH FACTORY PARAMETERS AND WITH TARE ACQUIRED FROM THE FIELD VIA PROFINET

1) Place the tare on the load cell
2) Wait for the measurement to stabilize
3) Write the decimal value 49914 in the COMMAND variable
4) The device saves the new tare value in flash
5) The load cell is calibrated

6.2.1.2. MANUAL ENTRY OF THE TARE MANUAL VIA PROFINET

It is not always possible to acquire the tare value from the field (for example in the case of already filled silos), in these cases it is possible to introduce the tare weight in technical units.
In the GSDML file there is the Use Manual Tare field and then Tare Value in which to insert the tare value in technical units.
Send the command: 50773 (decimal) in the COMMAND register the manual tare is acquired.

6.2.2. CELL CALIBRATION WITH A SAMPLE WEIGHT VIA PROFINET

In cell calibration with a sample weight the necessary data are:

-The cell sensitivity
-The cell full scale
-The value (in technical units) of the sample weight that will be used

Furthermore, it is necessary to have a Sample weight (so that Sample weight + Tare are as close as possible to the full scale of the cell)

1) Place the tare on the load cell
2) Wait for the measurement to stabilize
3) Write the decimal value 49914 in the COMMAND variable
4) The device saves the new tare value in flash
5) Place the standard weight on the load cell
6) Wait for the measurement to stabilize
7) Write the decimal value 50700 in the COMMAND variable
8) The device saves the new standard weight value in flash
9) The load cell is calibrated

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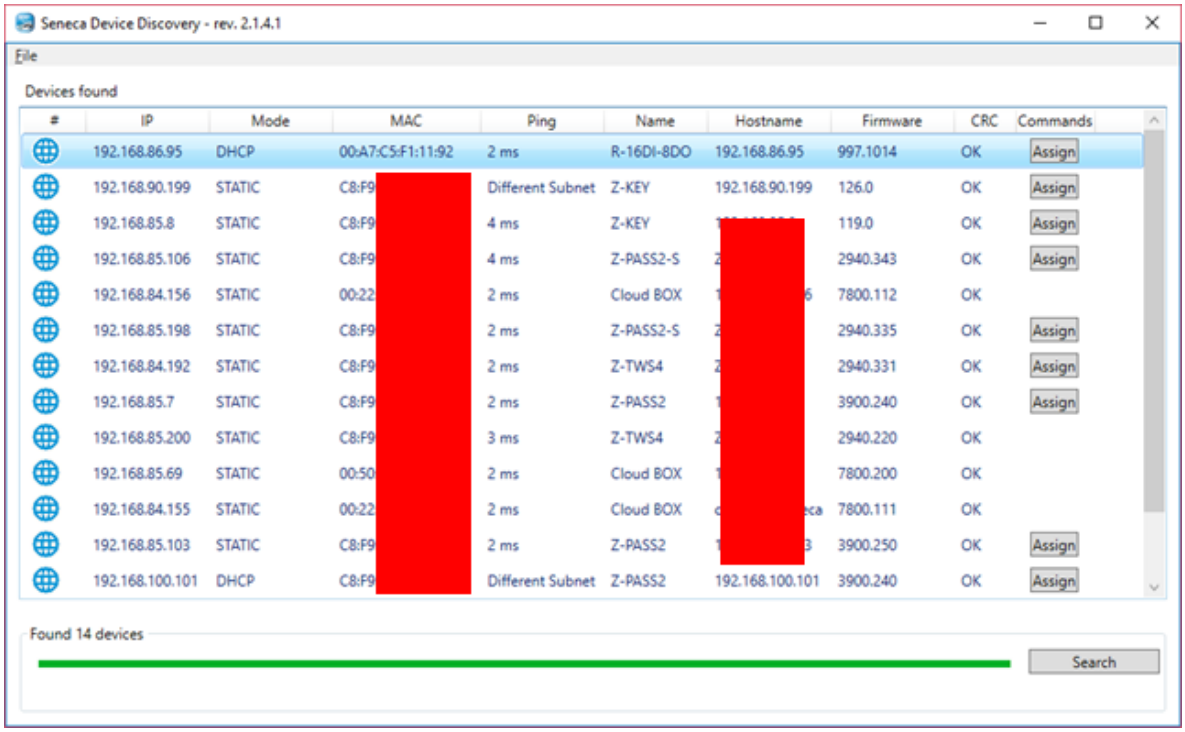
7. SEARCH AND MODIFICATION OF THE DEVICE IP WITH SENECA DISCOVERY TOOL

You can also get the IP address that has been set by using the "Seneca Discovery" tool.

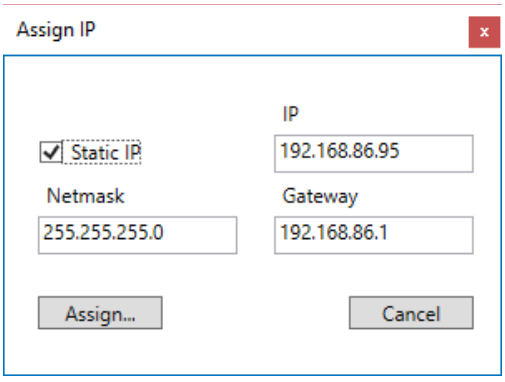
The software can be downloaded from:

https://www.seneca.it/en/linee-di-prodotto/software/easy/sdd

Pressing the "search" button starts the search for all Seneca devices present in the network even if with IP addresses not compatible with the current PC configuration:



It is now possible to change the address by pressing the "Assign" button:



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The software works on layer 2 level and it is therefore not necessary to have an Ethernet configuration compatible with the device you are looking for.

ATTENTION!

UPON FIRST USE THE IP ADDRESS OF THE DEVICE IS NOT SET (0.0.0.0). IN THIS SITUATION IT WILL NOT BE POSSIBLE TO SEARCH FOR THE DEVICE WITH THE SENECA DISCOVERY TOOL SOFTWARE

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8. FIRMWARE UPDATE

The firmware update can be performed via the web server in the appropriate section.

ATTENTION!

BEFORE ACCESSING THE WEB SERVER, DISCONNECT THE DEVICE FROM THE PROFINET NETWORK

ATTENTION!

NOT TO DAMAGE THE DEVICE DO NOT REMOVE THE POWER SUPPLY DURING THE FIRMWARE UPDATE OPERATION.

ATTENTION!

SOME MODELS ARE SUPPLIED WITHOUT AN IP ADDRESS (0.0.0.0).
TO SET AN IP ADDRESS (FOR EXAMPLE TO ACCESS THE WEBSERVER OR TO CONNECT TO THE SENECA DISCOVERY DEVICE TOOL) USE THE PROFINET CONFIGURATION ENVIRONMENT OR FORCE THE ADDRESS 192.168.90.101 WITH THE APPROPRIATE DIP SWITCH

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