ABB

AC500-eCo V3 Starter kit

Mobile view

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Version 10 | en_US

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AC500-eCo V3 Starter kit, Safety precautions

Step 1 / 6

Ensure that electrostatic discharge cannot happen when you store, transport, handle, connect or operate the devices.

- Pack, store and transport the devices only in original packaging.
- Touch a grounded object to dissipate possible static charge.
- Use an antistatic workplace.
- Wear grounded antistatic wrist strap when handling the devices.
- Do not touch circuit boards in the devices.

Step 2 / 6

Make sure that no dangerous electrical voltage is present at the working place.

Use overload protected power supply meeting Protective Extra Low Voltage (PELV) / Safety Extra Low Voltage (SELV) requirements.

Step 3 / 6

Perform electrical installation according to the technical rules, codes and relevant standards, e.g. EN 60204-1.

Wiring must be made by skilled electricians only.

Step 4 / 6

Splicing of stranded wires can lead to hazards!

Avoid stranded wire splicing when connecting to terminals.

Use wire end ferrules to prevent splicing.

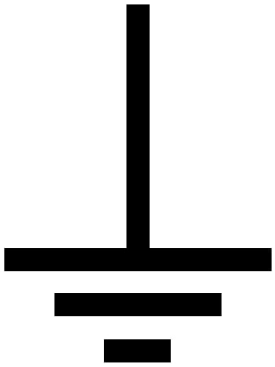
Step 5 / 6

Ensure that the ventilation openings of the devices are not obstructed.

Step 6 / 6

Connect the devices to functional earth (FE) before powering up.

- PLC CPU: either mount the device on a DIN rail which is connect to functional earth, or connect functional earth to terminal with earth symbol.
- Control panel: connect functional earth to terminal with earth symbol.



AC500-eCo V3 Starter kit, TA5415-STAKIT, Unpacking and examining delivery

Step 1 / 8

The AC500-eCo V3 (TA5415-STAKIT) starter kit contains the following items:

- Instruction sheets
- A PLC CPU with terminal blocks
- A TA5400-SIM simulator board with six switches (in a small cardboard box)
- An Ethernet cable

Step 2 / 8

The connection markings on PLC CPU have the following meanings:

- **Earth symbol** denotes connection to **functional earth (FE)**• **L+** denotes connection to **+24 VDC supply**• **M** denotes connection to **0 V supply**

Step 3 / 8

The terminal blocks on the PLC CPU feature the following digital input and output channels:

• 12 inputs (**I0**...**I11**) • 8 outputs (**O0**...**O7**) • 2 channels that can be used as either output or input (**C12** and **C13**)
The output circuits a power by connecting 24 VDC to terminal **UP** and 0 V to terminal **ZP**.

Step 4 / 8

The swiveling lid on the PLC CPU protects a micro memory card slot. A suitable memory card is available in the accessories assortment.

Step 5 / 8

The LED descriptions on the PLC CPU have the following meanings:

• **PWR:** Power• **ERR:** Error• **MC:** Memory card access• **MOD1:** Mode 1 indication
The two LEDs without any description on the PLC CPU can be programmed by the user.

Step 6 / 8

The push button marked **RUN** is used in operation to toggle between the modes RUN and STOP in programs executed in the PLC CPU.

Step 7 / 8

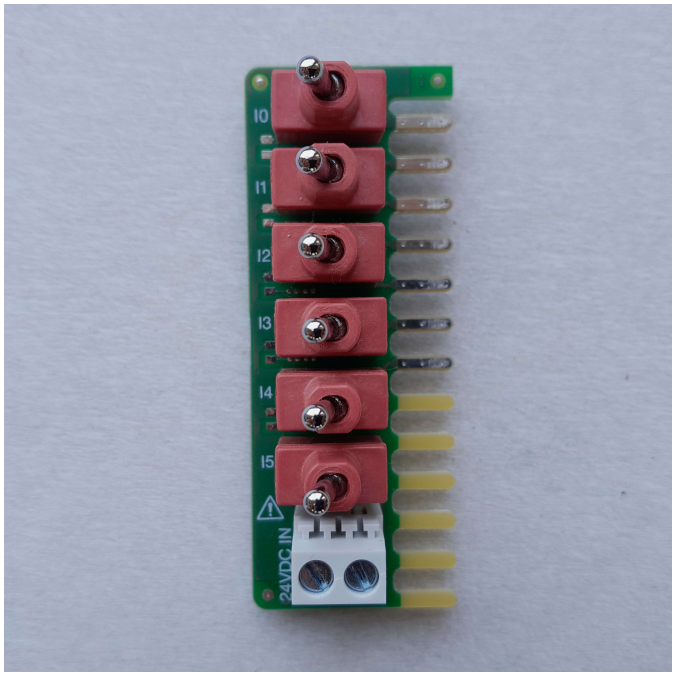
The Ethernet interface is used for communication or for connecting the PLC CPU to a PC for the purpose of programming.

Step 8 / 8

The switches on the simulator board TA5400-SIM are numbered according to the input channels **I0...I5**. The input status is marked on the green board:

- Switch toggle left = 0 = Input LOW
- Switch toggle right = 1 = Input HIGH

The 13 pins are used for fixing and connecting the simulation board to the terminal block of the PLC CPU for digital inputs. A green tongue ensures correct positioning on the terminal block.



AC500-eCo V3 Starter kit, TA5426-STAKIT, Unpacking and examining delivery

Step 1 / 9

The AC500-eCo V3 (TA5426-STAKIT) starter kit contains the following items:

- Instruction sheets
- A PLC CPU with terminal blocks
- A TA5400-SIM simulator board with six switches (in a small cardboard box)
- A CP604 control panel with accessories
- Two Ethernet cables

Step 2 / 9

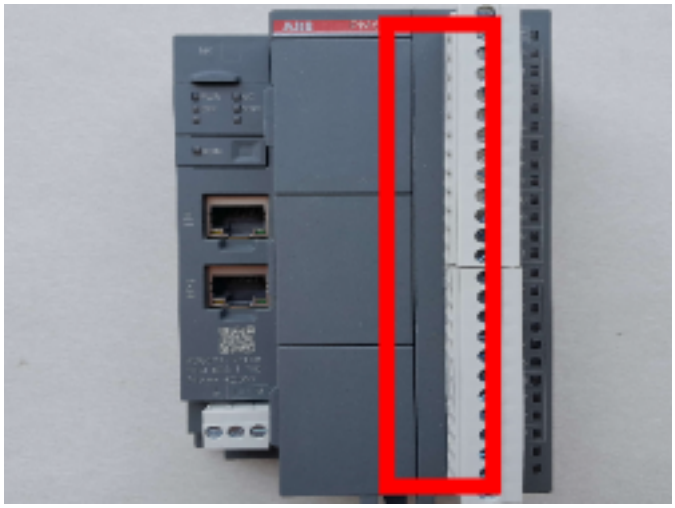
The connection markings on PLC CPU have the following meanings:

- **Earth symbol** denotes connection to **functional earth (FE)**• **L+** denotes connection to **+24 VDC supply**• **M** denotes connection to **0 V supply**

Step 3 / 9

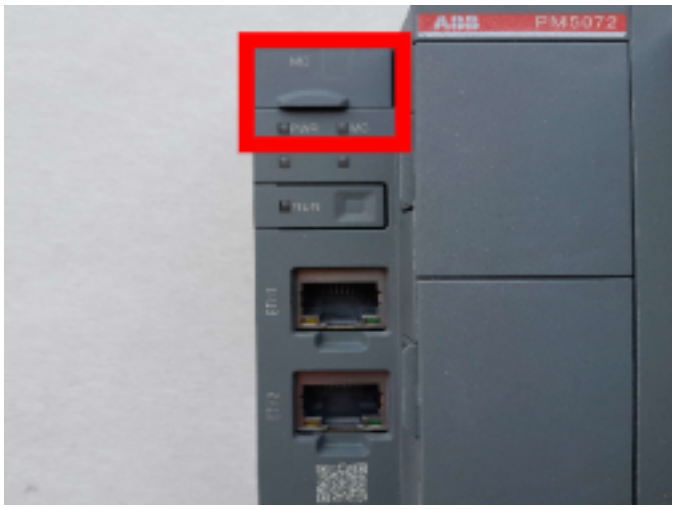
The terminal blocks on the PLC CPU feature the following digital input and output channels:

• 12 inputs (**I0...I11**) • 8 outputs (**O0...O7**) • 2 channels that can be used as either output or input (**C12** and **C13**)
The output circuits a power by connecting 24 VDC to terminal **UP** and 0 V to terminal **ZP**.



Step 4 / 9

The swiveling lid on the PLC CPU protects a micro memory card slot. A suitable memory card is available in the accessories assortment.



Step 5 / 9

The LED descriptions on the PLC CPU have the following meanings:

• **PWR**: Power• **ERR**: Error• **MC**: Memory card access• **MOD1**: Mode 1 indication
The two LEDs without any description on the PLC CPU can be programmed by the user.

Step 6 / 9

The push button marked **RUN** is used in operation to toggle between the modes RUN and STOP in programs executed in the PLC CPU.

Step 7 / 9

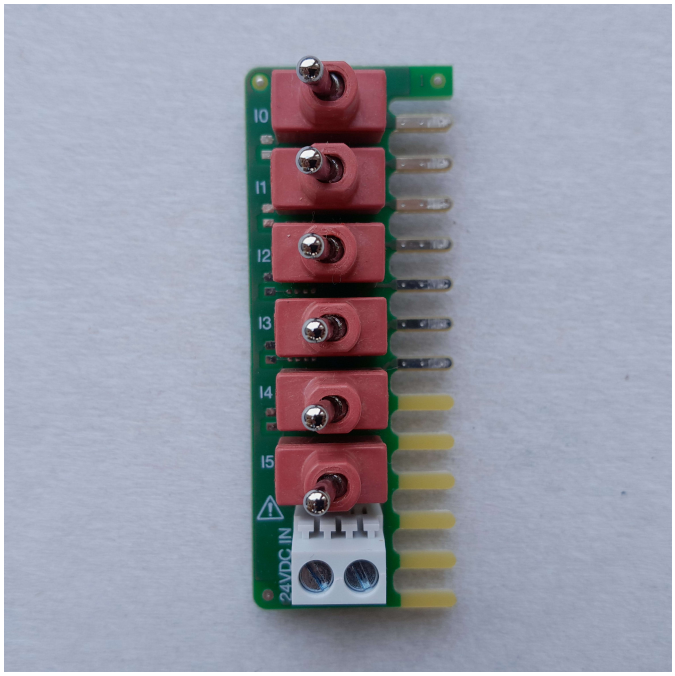
The Ethernet interface is used for communication, for connecting the PLC CPU to a control panel, or for connecting the PLC CPU to a PC for the purpose of programming.

Step 8 / 9

The switches on the simulator board TA5400-SIM are numbered according to the input channels **I0...I5**. The input status is marked on the green board:

- Switch toggle left = 0 = Input LOW
- Switch toggle right = 1 = Input HIGH

The 13 pins are used for fixing and connecting the simulation board to the terminal block of the PLC CPU for digital inputs. A green tongue ensures correct positioning on the terminal block.



Step 9 / 9

The CP604 control panel is an HMI with a 4.3" color touch screen with a resolution of 480x272.

The accessories bag shipped with the CP604 control panel contains the following items:

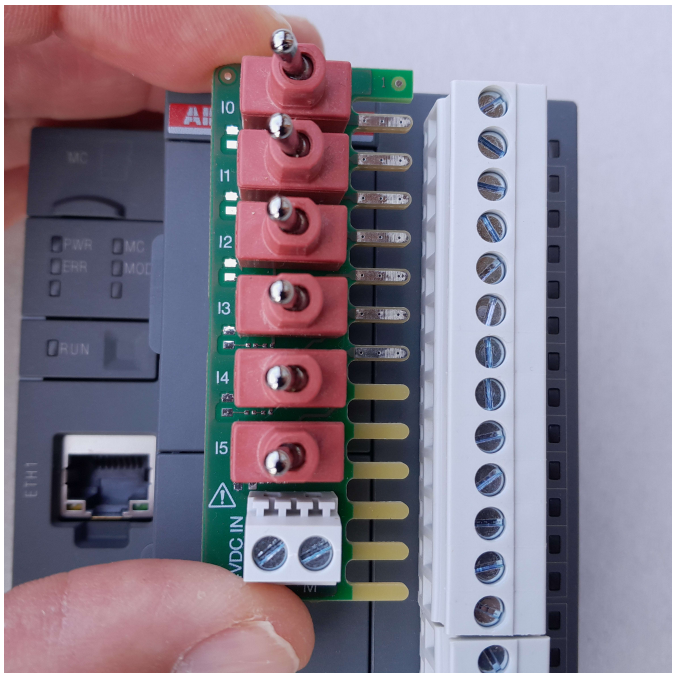
- Four mounting brackets used for fixation in a mounting plate
- A terminal block used for power supply connection

AC500-eCo V3 Starter kit, Connecting the PLC CPU

Step 1 / 6

Connecting the simulator board to the PLC CPU (1/3)

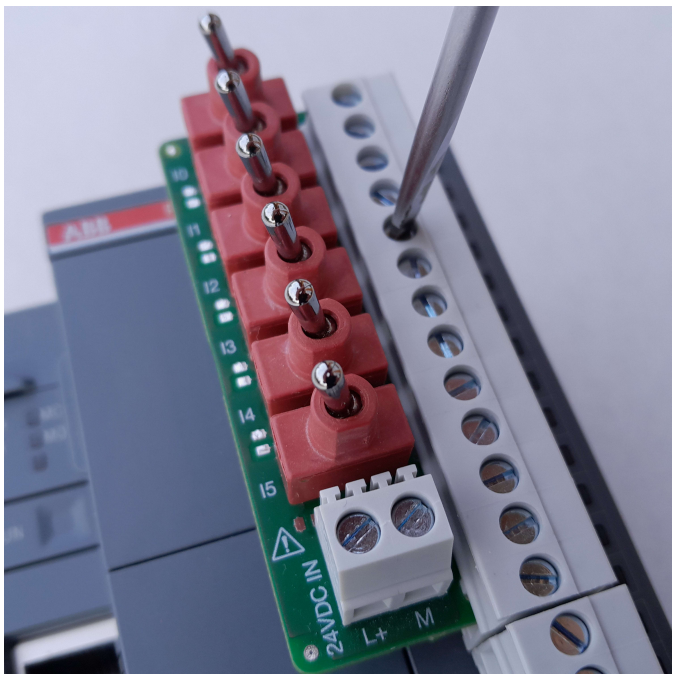
- Make sure that all clamps of the terminal block of the digital inputs on the PLC CPU are open.
- Insert the simulator board into the terminal block as shown here.



Step 2 / 6

Connecting the simulator board to the PLC CPU (2/3)

- Tighten all screws of the terminal block. Use a flat screw driver 0.6 x 3.5 mm with torque 0.4 to 0.5 Nm.
- Make sure that all switches are in OFF state (0).

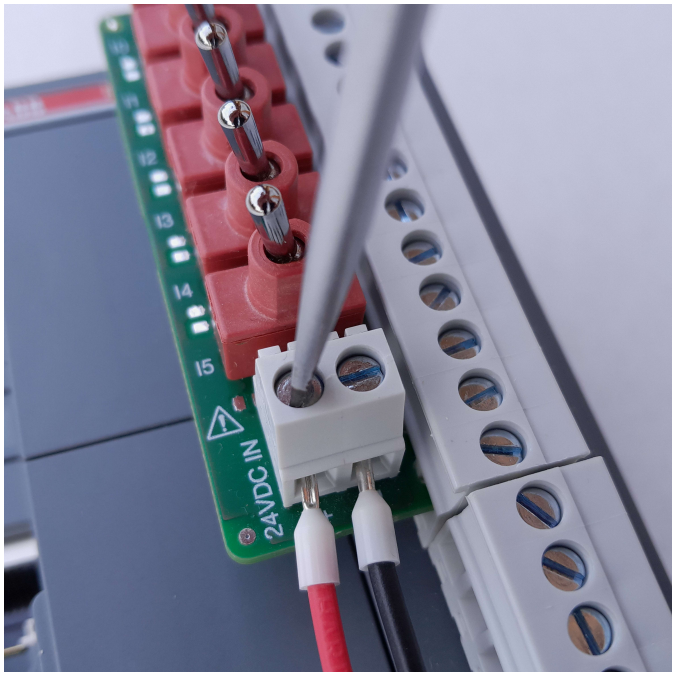


Step 3 / 6

Connecting the simulator board to the PLC CPU (3/3)

To connect 24 V DC to the power supply terminal block of the simulator board, do the following:

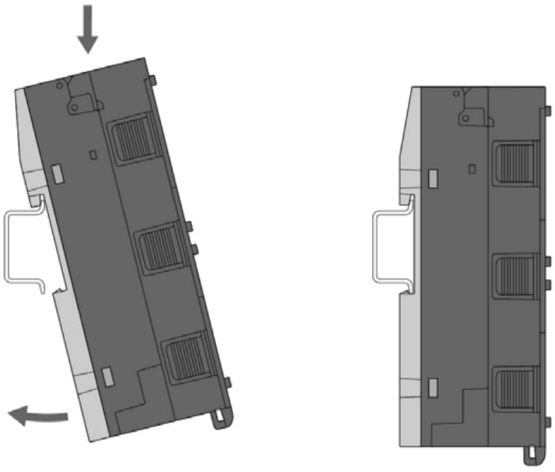
• Connect **+24 VDC** to terminal **L+**.• Connect **0V** to terminal **M.**• Tighten the terminal block screws. Use a flat screw driver 0.6 x 3.5 mm with torque 0.4 to 0.5 Nm.



Step 4 / 6

Connecting the PLC CPU to a DIN rail

• Hang the device on the DIN rail.
• Swivel the device until it snaps completely onto the DIN rail.



Step 5 / 6

Connect 24 VDC power supply to the power supply terminal block of the PLC CPU:

• Connect **+24 VDC** to the terminal marked **L+**.• Connect **0V** to the terminal marked **M**.• Connect **functional earth** to **pin 1**.• Tighten the terminal block screws. Use flat screw driver 0.6 x 3.5 mm with torque 0.4 to 0.5 Nm.

Pin Assignment	Pin	Label	Function
 Terminal block inserted	1	⏚	FE
	2	L+	+24 V DC
	3	M	0 V

Step 6 / 6

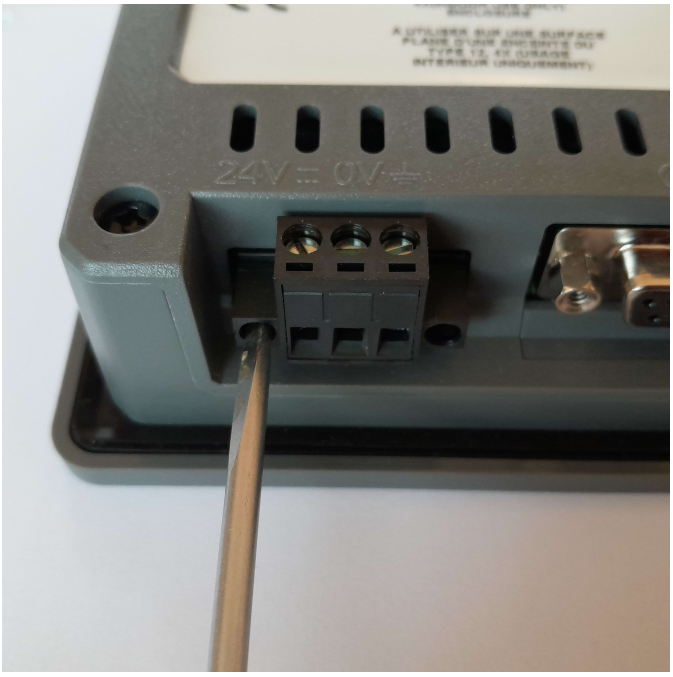
Connecting the PLC CPU to a PC

• Insert one end of an Ethernet cable into the Ethernet connector (e.g. **ETH1**) on the PLC CPU as shown here.
1. Insert the other end of the Ethernet cable into a PC with the software Automation Builder installed.

AC500-eCo V3 Starter kit, Connecting the control panel

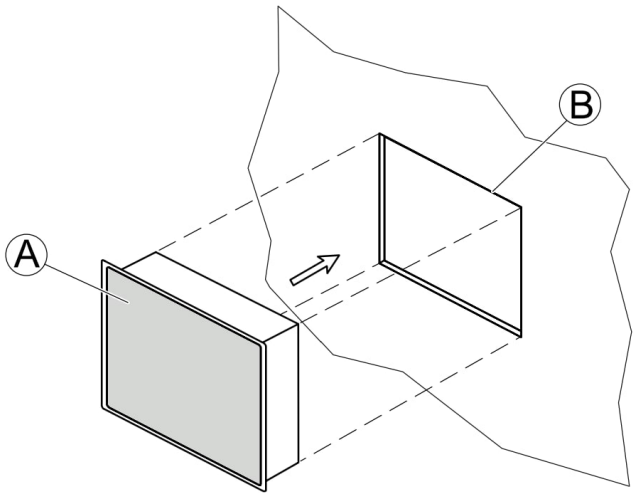
Step 1 / 5

Plug the black terminal block into the three-pole pin header of the control panel as shown here, and fix the terminal block with two fixation screws.



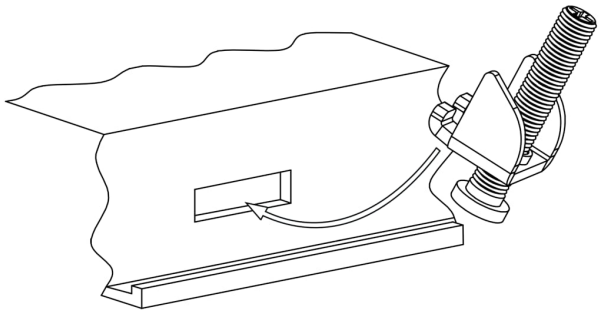
Step 2 / 5

Prepare a 135 mm x 96 mm mounting plate with a rectangular opening (B), and insert the control panel into it (A).



Step 3 / 5

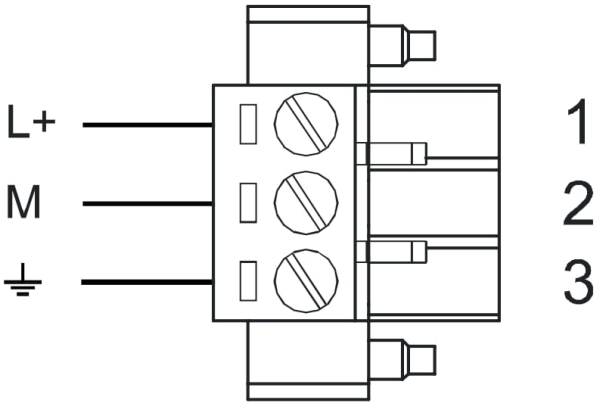
Assemble the four mounting brackets and fix these to the control panel in the mounting plate as shown here (tightening torque: 0.75 Nm).



Step 4 / 5

Connect the power supply terminal block of the control panel to 24 VDC power supply and functional earth:

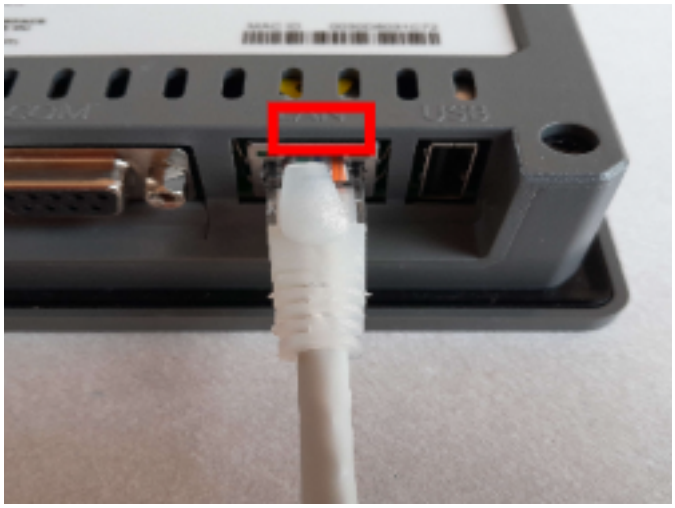
• Connect **+24 VDC** to the terminal marked **L+**.• Connect **0V** to the terminal marked **M**.• Connect **functional earth** to **pin 3**.
Tighten the terminal block screws. Use a flat screw driver 0.6 x 3.5 mm with torque 0.5 Nm.



Step 5 / 5

Connect the Ethernet cable:

1. one end to the **LAN** connector of the control panel.
2. the other end to the Ethernet interface of the PC.



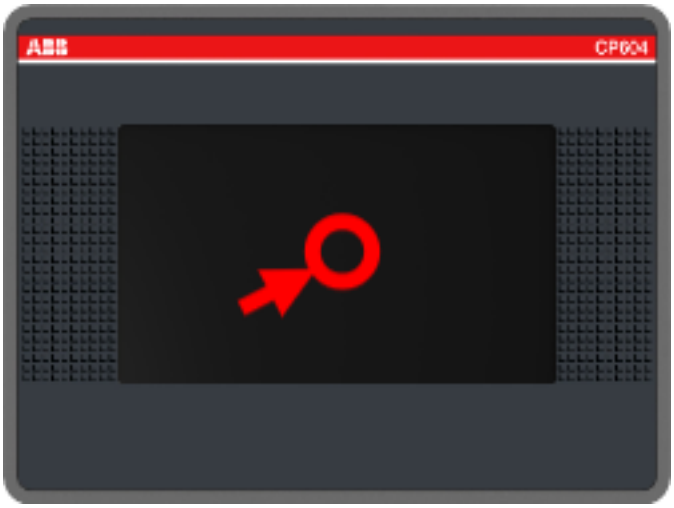
AC500-eCo V3 Starter kit, Setting the IP address of a control panel

Step 1 / 14

To set the IP address of the control panel:

Power up the panel.

After the first beep, tap at least four times with the finger on the control panel screen.



Step 2 / 14

When TAP-TAP DETECTED message appears on the screen, wait without touching the screen,

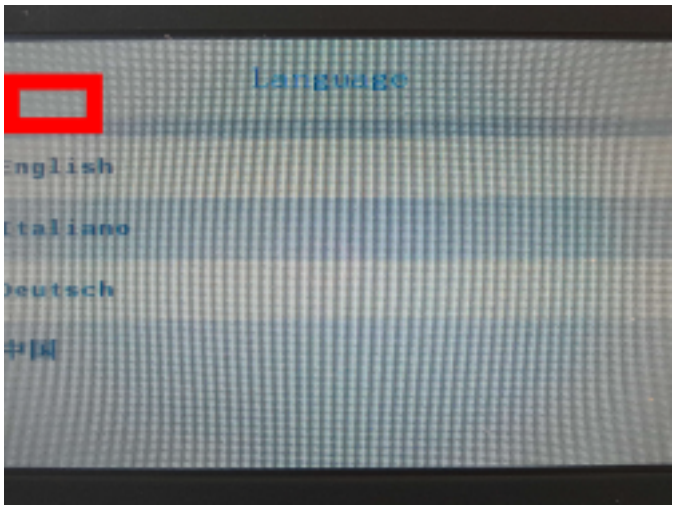
until System Settings is displayed on the screen.

Step 3 / 14

On the control panel screen, tap on **System Settings** button.

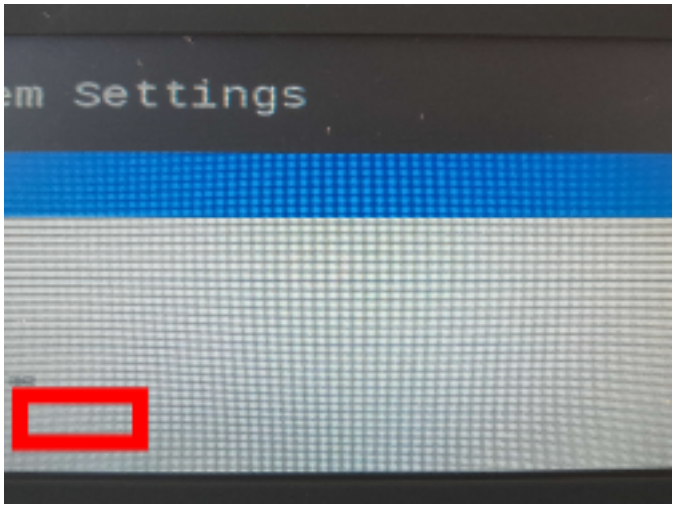
Step 4 / 14

In control panel Language screen, tap on **MENU**.



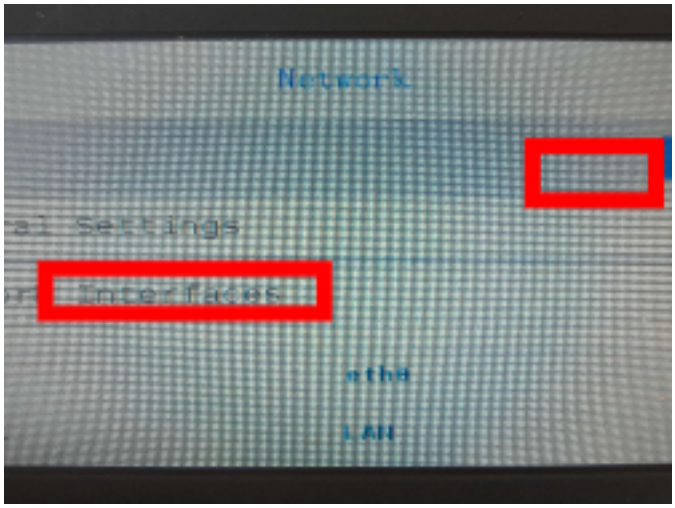
Step 5 / 14

In control panel System Settings screen, tap on **Network**.



Step 6 / 14

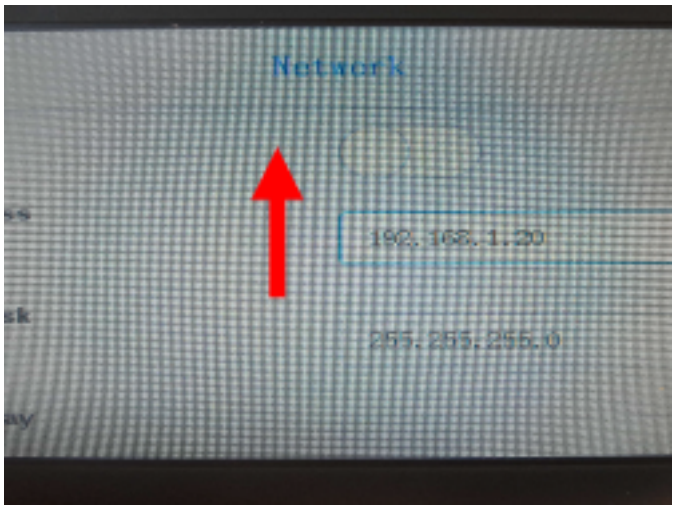
In control panel Network screen, tap on **Network Interfaces**, next tap on **Edit**.



Step 7 / 14

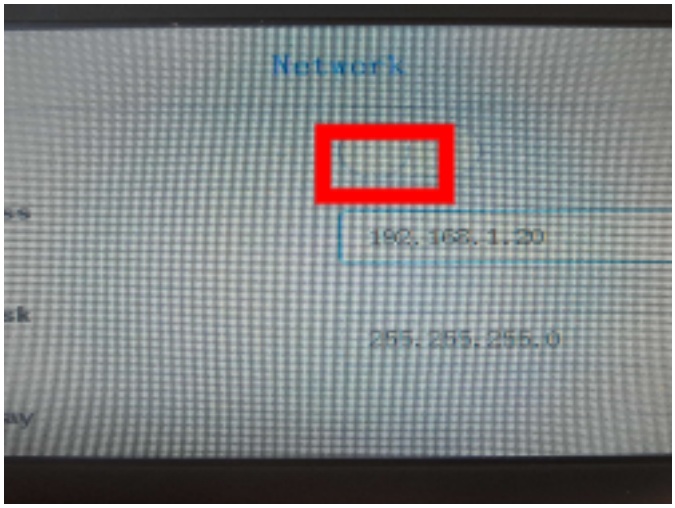
On the control panel Network screen, drag your finger upwards, until you see the lines:

- DHCP
- Address
- Netmask
- Gateway



Step 8 / 14

If the switch button near DHCP is colored blue, next tap on the **switch** button until it is colored white, to deactivate DHCP.



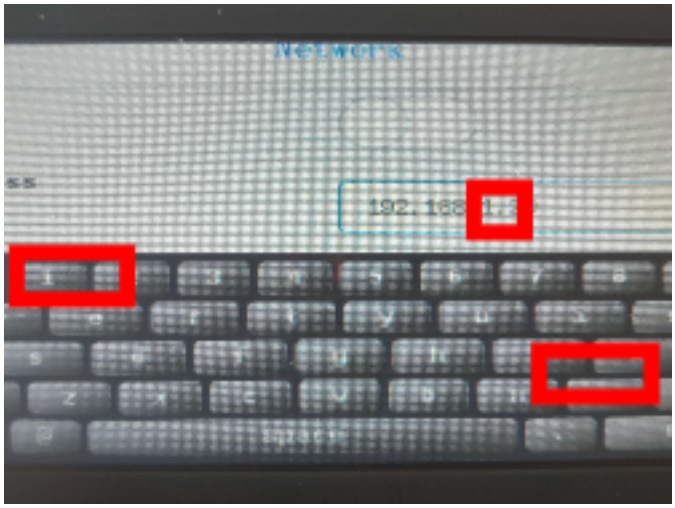
Step 9 / 14

Tap two times on the right side of the field near Address to activate the on screen keyboard.

Tap several times on the **Back** button of the keyboard, until the field is empty.

Type the IP address (e.g. **192.168.1.20**),

Next tap **Close** button to deactivate the keyboard.



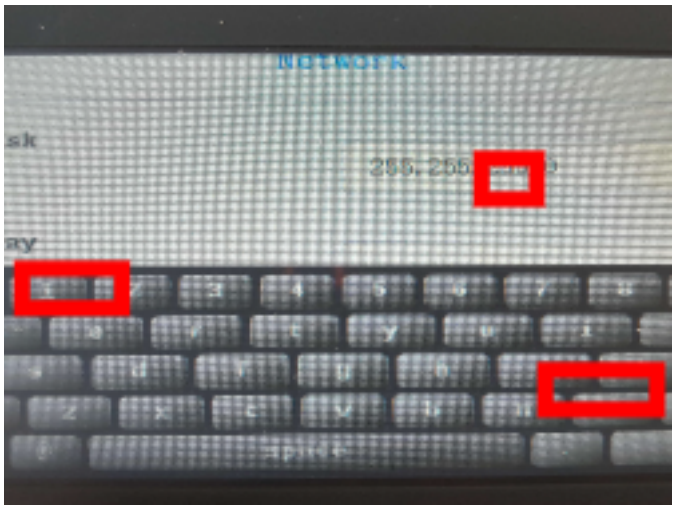
Step 10 / 14

Tap two times on the right side of the field near Netmask to activate the on screen keyboard.

Tap several times on the **Back** button of the keyboard, until the field is empty.

Type the Netmask (e.g. **255.255.255.0**),

Next tap **Close** button to deactivate the keyboard.

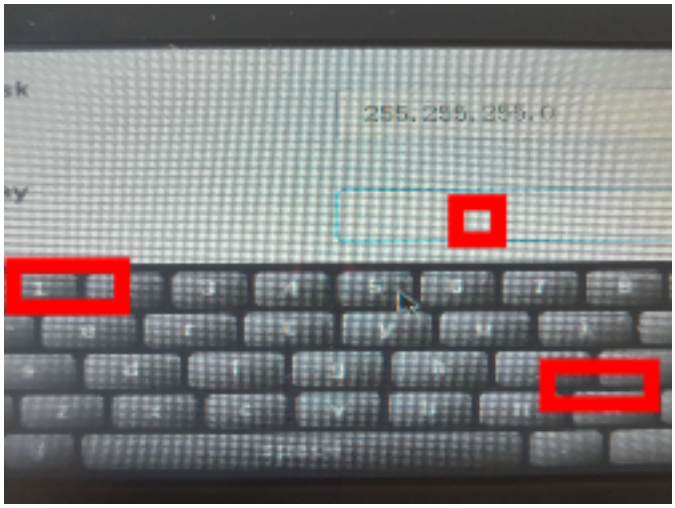


Step 11 / 14

Tap two times on the right side of the field near Gateway to activate the on screen keyboard.

Tap several times on the **Back** button of the keyboard, until the field is empty.

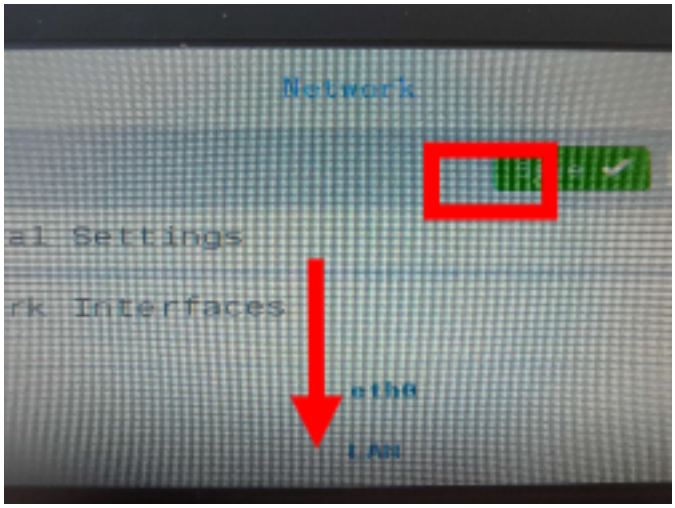
Next tap **Close** button to deactivate the keyboard.



Step 12 / 14

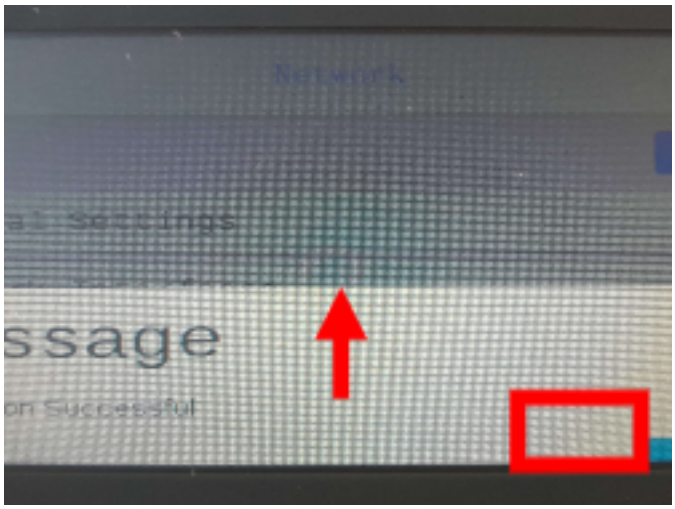
On the control panel Network screen, drag your finger downwards, until you see the Save button.

Tap **Save**.



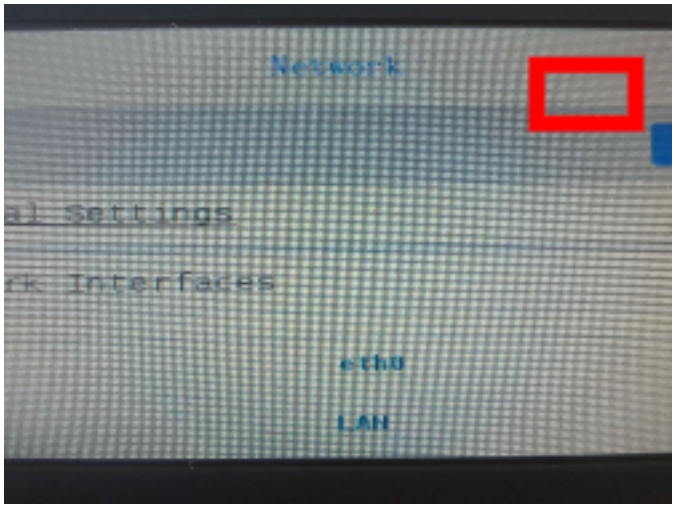
Step 13 / 14

On the Message pop-up window, drag your finger upwards, next tap **OK**.



Step 14 / 14

On the Network screen, tap on **ADMIN**.



AC500-eCo V3 Starter kit, Installing Automation Builder

Step 1 / 15

To configure and program the devices in the starter kit, you need the **Automation Builder** engineering software. Before installing the Automation Builder on your PC, make sure that you use Microsoft Windows 10 and have admin rights.

Step 2 / 15

Go to the website below and click on **Download Automational Builder**:

- new.abb.com/plc/automationbuilder [1]

External references

[1] http://new.abb.com/plc/automationbuilder

Step 3 / 15

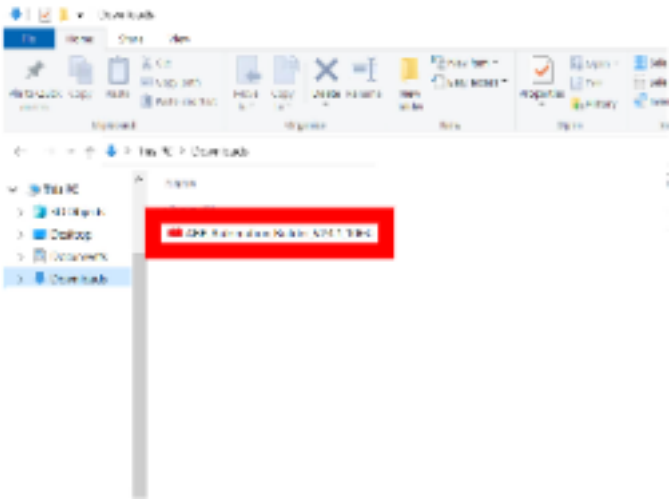
Download the latest Automation Builder version.

Step 4 / 15

Open the file that you just downloaded. If you did not change the file name, it is called:

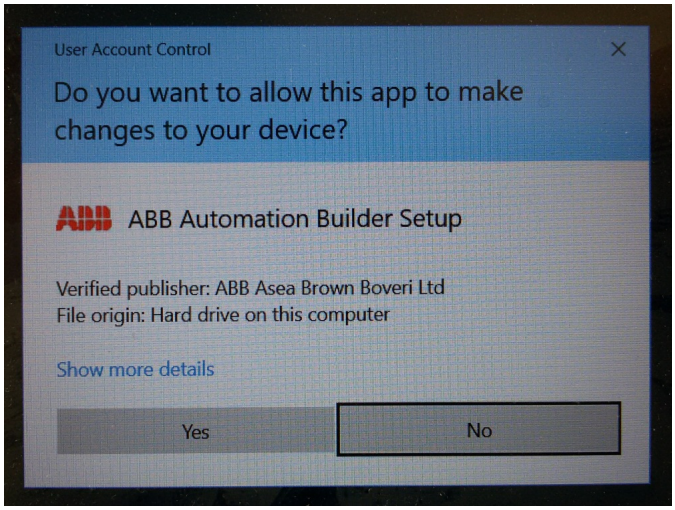
- **ABB_Automation_Builder_Vx.x.x_yyy**

The **x.x.x** indicates version number, and the **yyy** its build number.



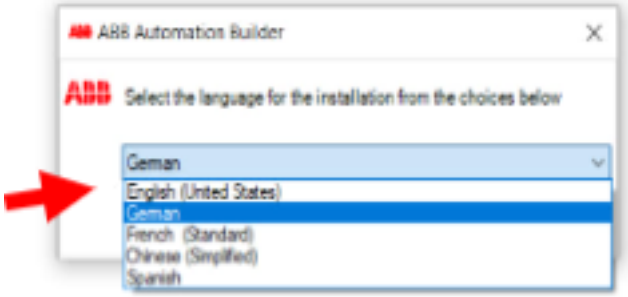
Step 5 / 15

Check that the **Verified publisher** is **ABB Asea Brown Boveri Ltd**. If so, click on **Yes**.



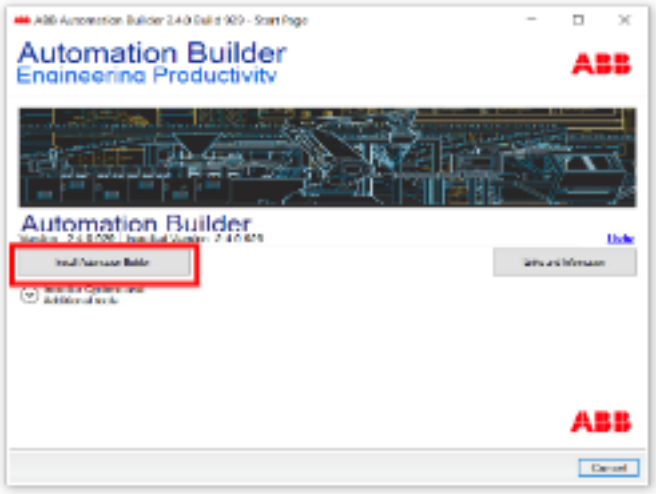
Step 6 / 15

Choose a language in the drop-down menu and click on **OK**.



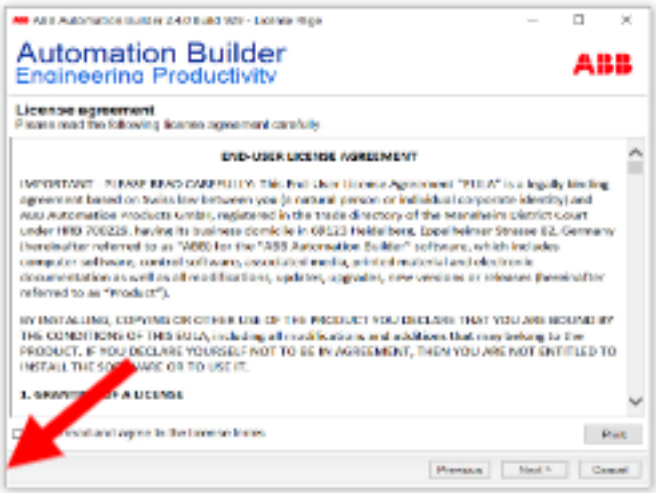
Step 7 / 15

Click on **Install Automation Builder**.



Step 8 / 15

After having read the license agreement, click the box **I have read and agree to the license terms**, and then click on **Next**.

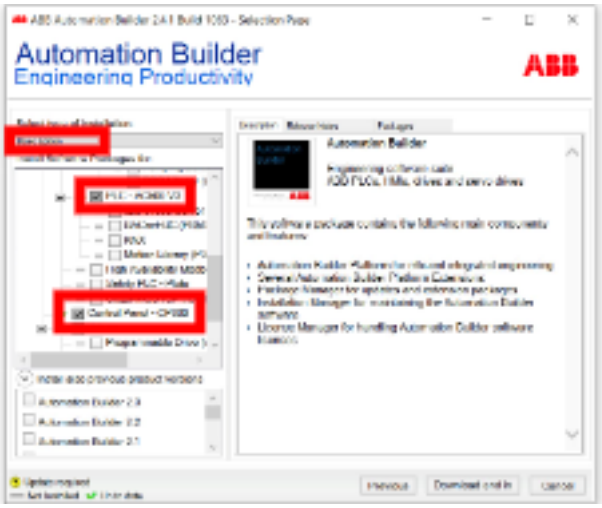


Step 9 / 15

Click on **Basic Edition** in the Select type of installation drop-down menu, and then make sure that the following boxes are ticked in the Install Software Packages for tree:

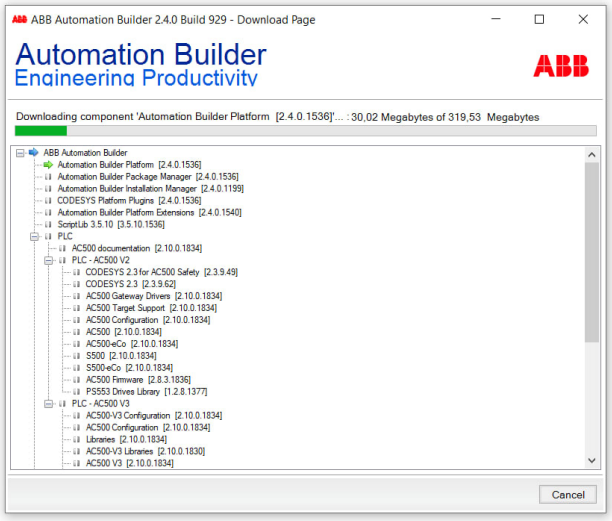
- **PLC - AC500 V3**
- **Control Panel - CP600**

Click on **Download and Install**.



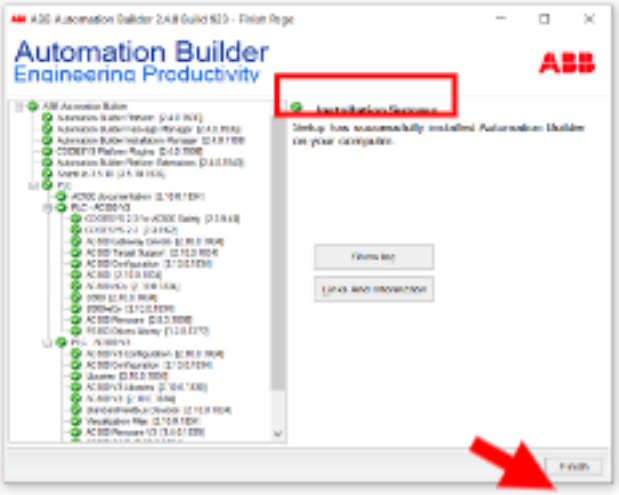
Step 10 / 15

Downloading and installation of the software might take some time.



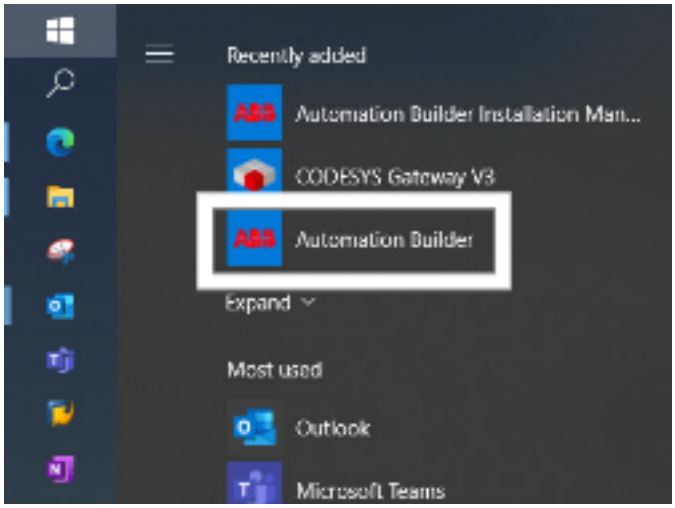
Step 11 / 15

The installation is complete when the message **Installation Success** shows on the screen. Click on **Finish**.



Step 12 / 15

Click on **Start** in the task bar, locate **Automation Builder**, and open it.



Step 13 / 15

In the licensing window, choose **I want to activate a basic license** and click on **Next**.

Step 14 / 15

Choose **PC locked: single PC license** and click on **Next**.

Step 15 / 15

Choose **Online activation** and click on **Next**.

AC500-eCo V3 Starter kit, Setting the Ethernet communication parameters

Step 1 / 7

To set the communication parameters for communication with the AC500 PLC CPU, open **Windows Control Panel** and click on **Network and Internet**.

Step 2 / 7

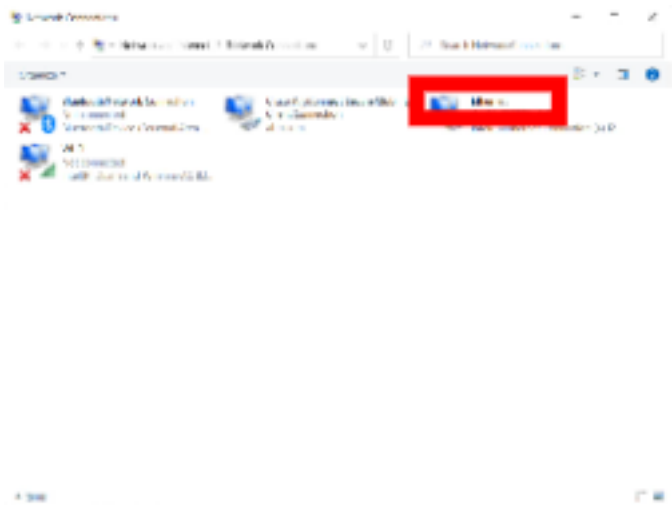
In the Network and Internet window, click on **Network and Sharing Center**.

Step 3 / 7

In the Network and Sharing Center window, click on **Change adapter setting**.

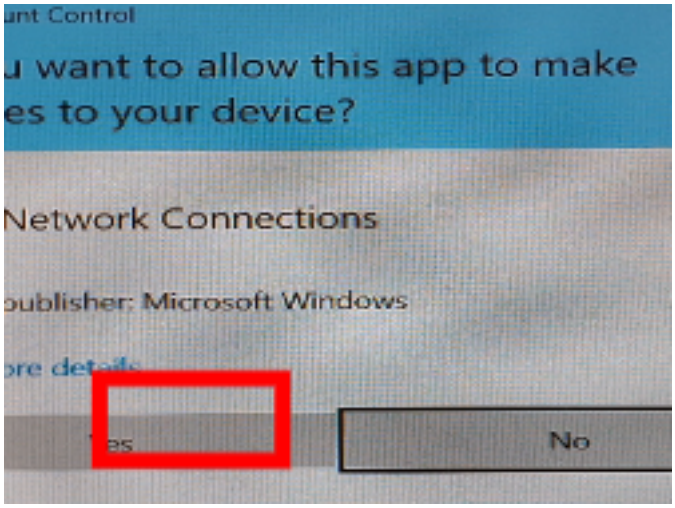
Step 4 / 7

In the Network Connections window, right-click **Ethernet**, and in the pop-up menu click **Properties**.



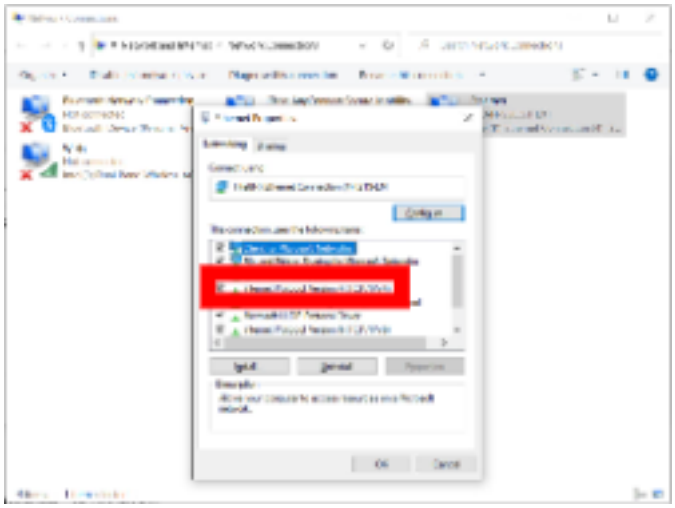
Step 5 / 7

In the pop-up window, click on **Yes**.



Step 6 / 7

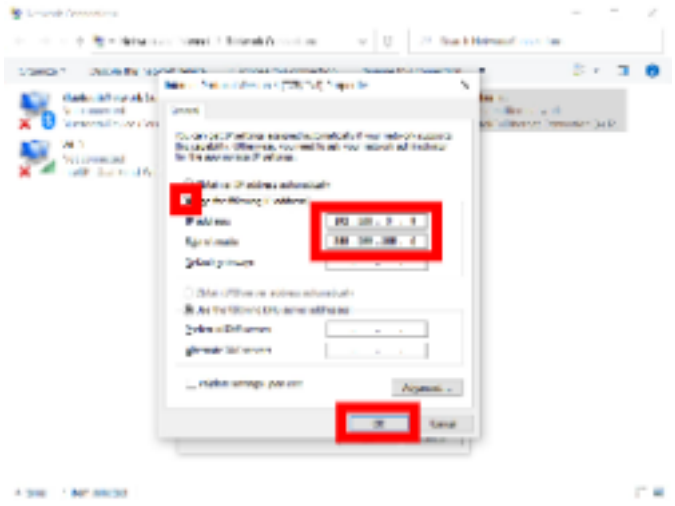
In the Ethernet Properties window, double-click on **Internet Protocol Version 4 (TCP/IPv4)**.



Step 7 / 7

In the Internet Protocol Version 4 (TCP/IPv4) Properties window, edit the following values:

1. Click the round **select box** near Use the following IP address.
2. Type **192.168.0.9** in the IP address field.
3. Type **255.255.255.0** in the Subnet mask field.
4. Click on **OK**.



AC500-eCo V3 Starter kit, Commissioning the PLC CPU

Step 1 / 11

Before commissioning the PLC CPU, make sure that...

• you have the software Automation Builder installed on your PC (see Installing Automation Builder 1),• you have done the Ethernet interface setup (see Setting the Ethernet communication parameters 2), • the PLC CPU (e.g. **ETH1**) is connected to the PC using an Ethernet cable,• the PLC CPU is powered with 24 VDC supply voltage.

External references

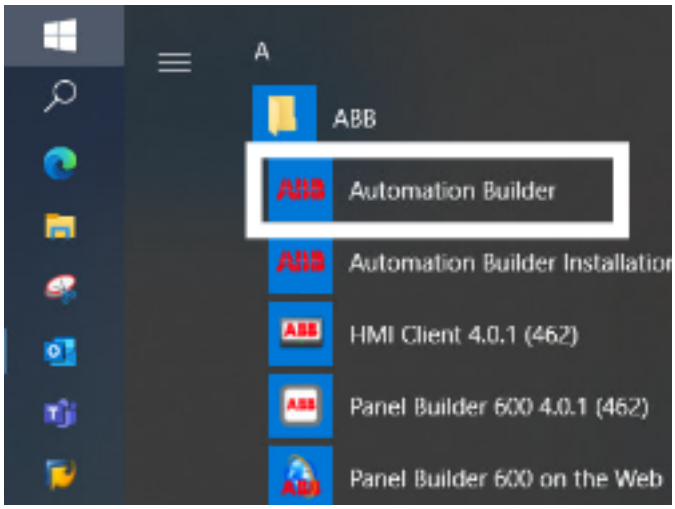
1 Go to: AC500-eCo V3 Starter kit, Commissioning the PLC CPU › AC500-eCo V3 Starter kit, Installing Automation Builder

2 Go to: AC500-eCo V3 Starter kit, Commissioning the PLC CPU › AC500-eCo V3 Starter kit, Setting the Ethernet communication parameters

Step 2 / 11

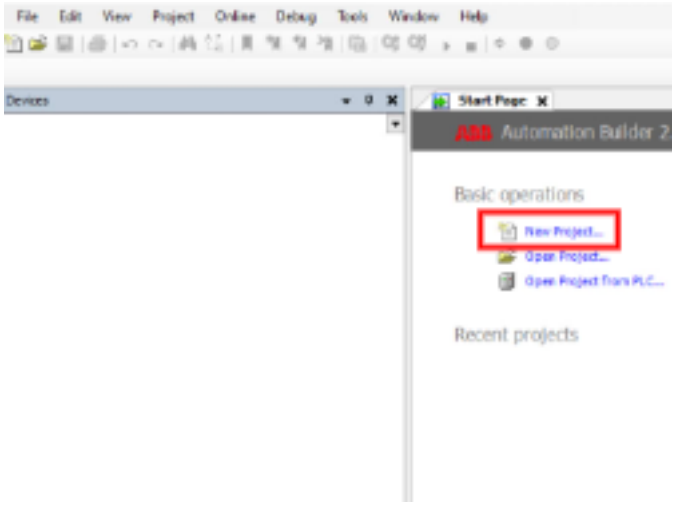
Launch the Automation Builder on your PC by:

1. Clicking **Start** on the taskbar,
2. Then clicking **ABB**,
3. Then clicking **Automation Builder**.



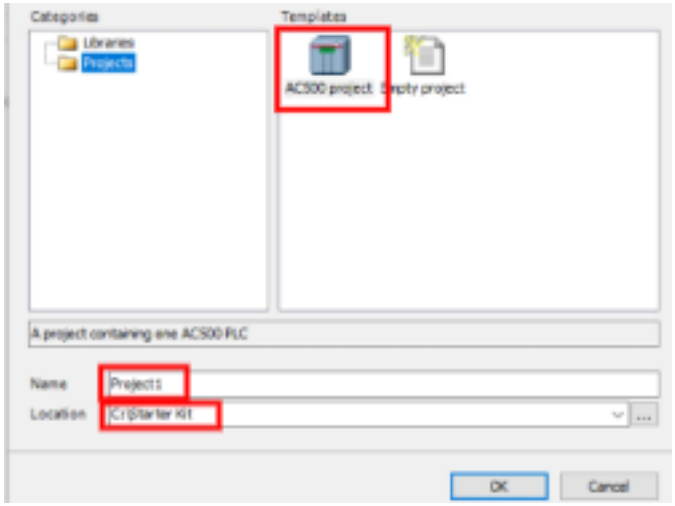
Step 3 / 11

Click on **New Project**... in the Start Page window.



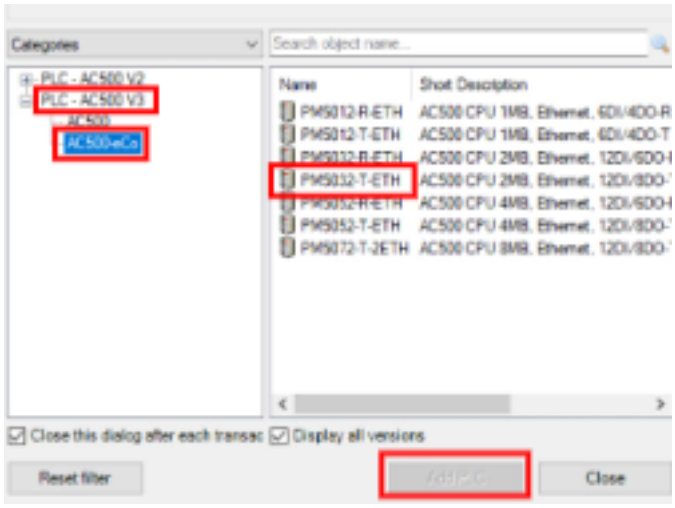
Step 4 / 11

1. Click on **AC500 project** in the Templates field.
2. Type the project name (e.g. **Project1**) in the Name field.
3. Choose a storage location for the project (e.g. **C:\Starter Kit**) in the Location field.
4. Click on **OK**.



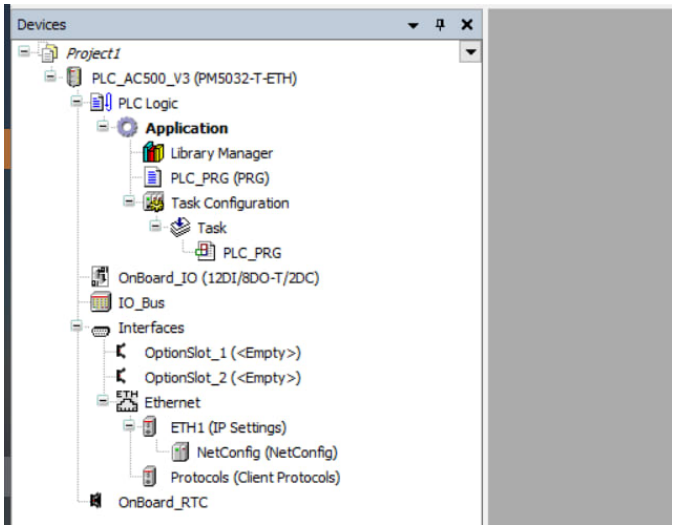
Step 5 / 11

1. In the left field, click on [+] next to **PLC - AC500 V3**, and then click on **AC500-eCo**.
2. In the Name column, click on the CPU that is delivered with the starter kit (e.g. **PM5032-T-ETH**).
3. Click on **Add PLC**.



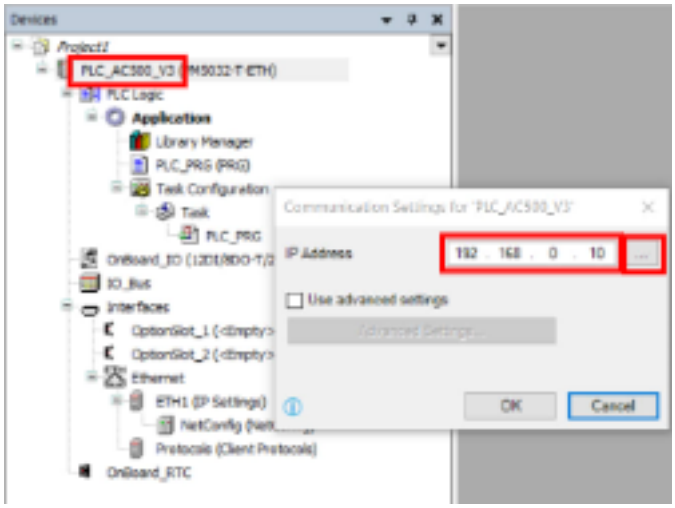
Step 6 / 11

Verify that a Devices tree is created for the project. Next, click on **File** in the Menu bar, and click on **Save Project** in the drop-down menu.



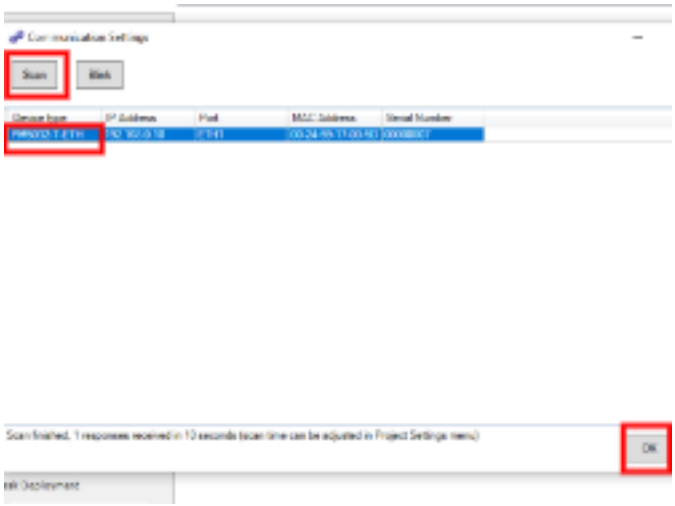
Step 7 / 11

1. In the Devices tree, right-click on **PLC_AC300_V3**, and then click on **Communication Settings** in the pop-up menu.
2. In the Communication Settings window, type **192.168.0.10** in the IP Address field.
3. Click **...** next to the IP Address field.



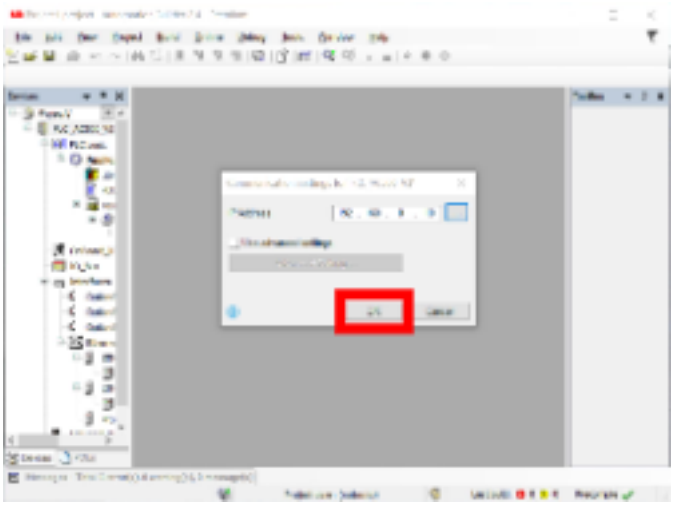
Step 8 / 11

1. In the Communication Settings window, click on **Scan**.
2. Wait until the message **Scan finished** is shown in the bottom of the window.
3. Click on your CPU in the Device type column.
4. Click on **OK.**



Step 9 / 11

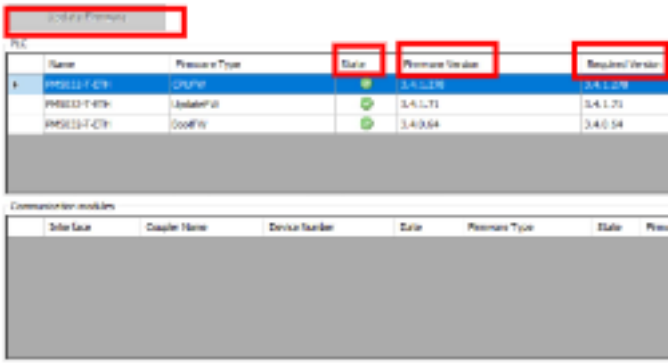
In the Communication Settings for 'PLC_AC500_V3' window, click **OK**.



Step 10 / 11

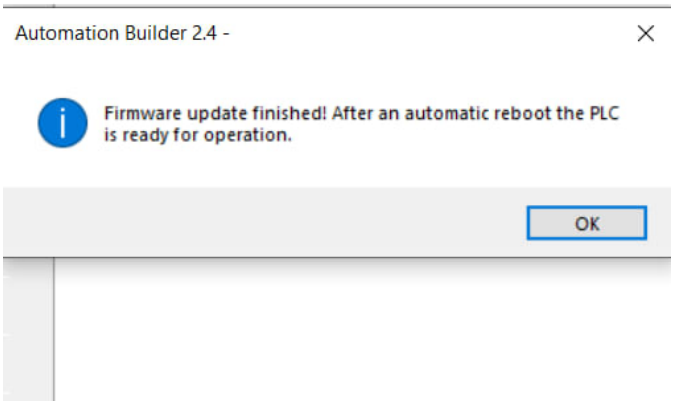
In the Devices tree, double-click on **PLC_AC500_V3**, and then click on **Version information** in the PLC_AC500_V3 tab.

Make sure that there is no mismatch between the columns **Firmware version** and **Required version**. If there is a mismatch in any of the rows, click on **Update Firmware**.



Step 11 / 11

If you clicked on **Firmware Update**, wait for a pop-up window displaying a message saying that the firmware update has finished. Click on **OK**.

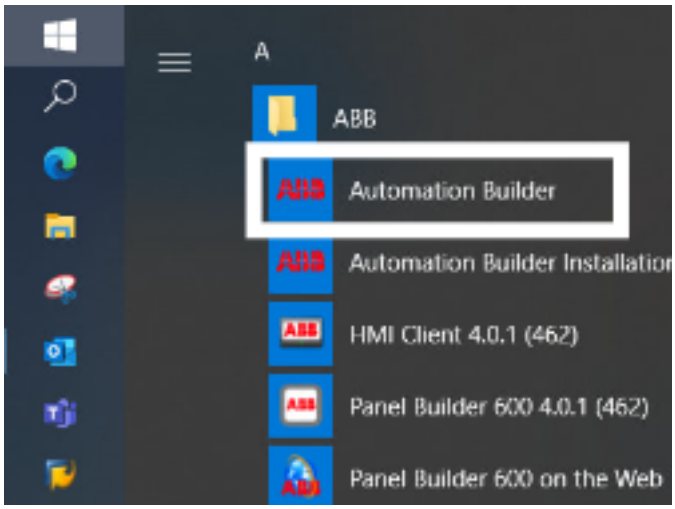


AC500-eCo V3 Starter kit, Creating a PLC program

Step 1 / 18

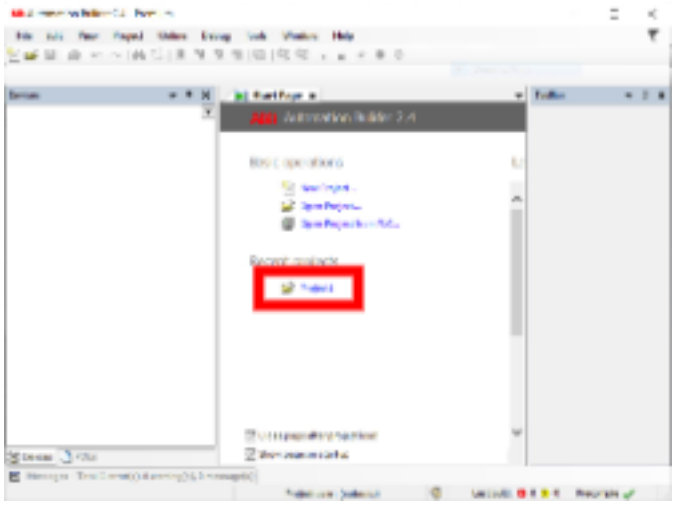
Launch the Automation Builder on your PC by:

1. Clicking **Start** on the taskbar,
2. Then clicking **ABB**,
3. Then clicking **Automation Builder**.



Step 2 / 18

Open a project (e.g. **Project1**) in the Start Page window (See Commissioning the PLC CPU 1 for creation of a project).

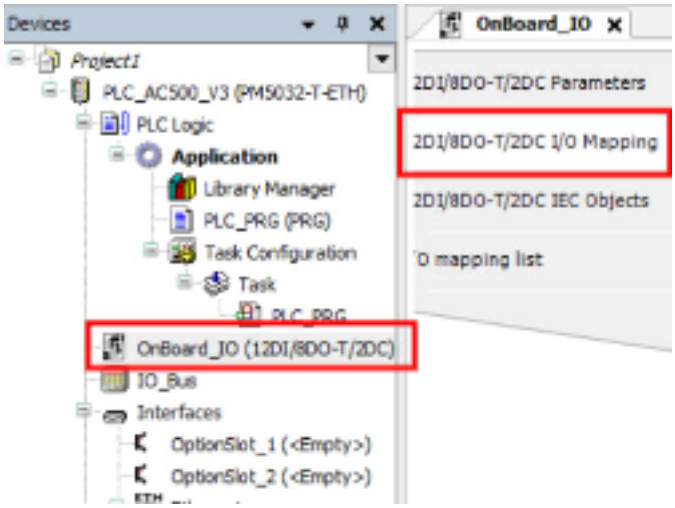


External references

1 Go to: AC500-eCo V3 Starter kit, Commissioning the PLC CPU › AC500-eCo V3 Starter kit, Commissioning the PLC CPU

Step 3 / 18

In the Devices tree, double-click on **OnBoard_IO,** and then click on **I/O Mapping** in the OnBoard_IO tab.



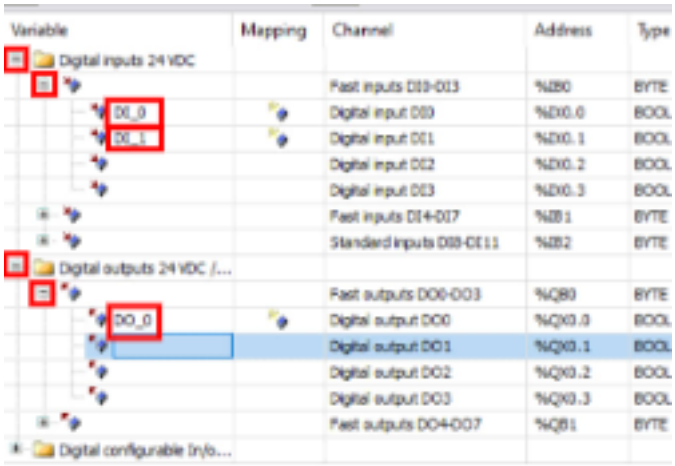
Step 4 / 18

In the Variable column, click on [+] next to the following rows:

- **Digital inputs 24 VDC**
- **Digital outputs 24 VDC**

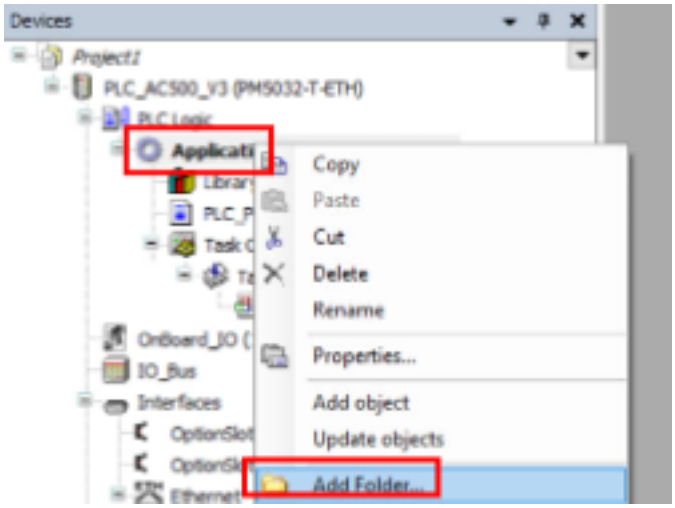
In the column Variable, type the names of inputs and outputs in the following manner:

- **Digital input DI0**: DI_0• **Digital input DI1**: DI_1• **Digital output DO0**: DO_0



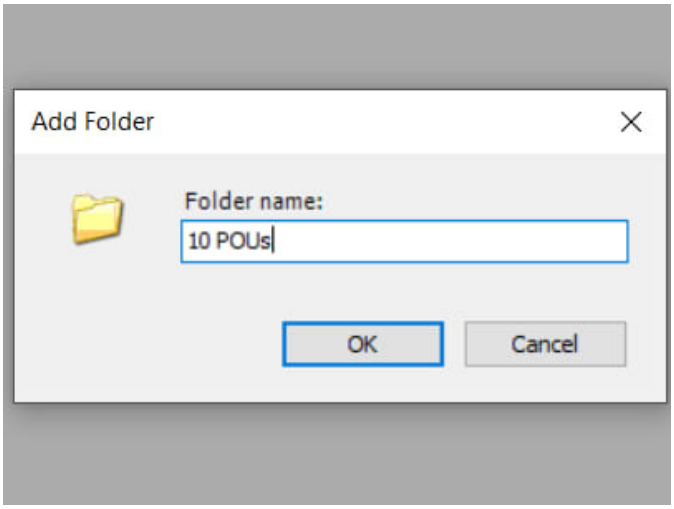
Step 5 / 18

In the Devices tree, right-click on **Applications**, and then click on **Add Folder** in the pop-up menu.



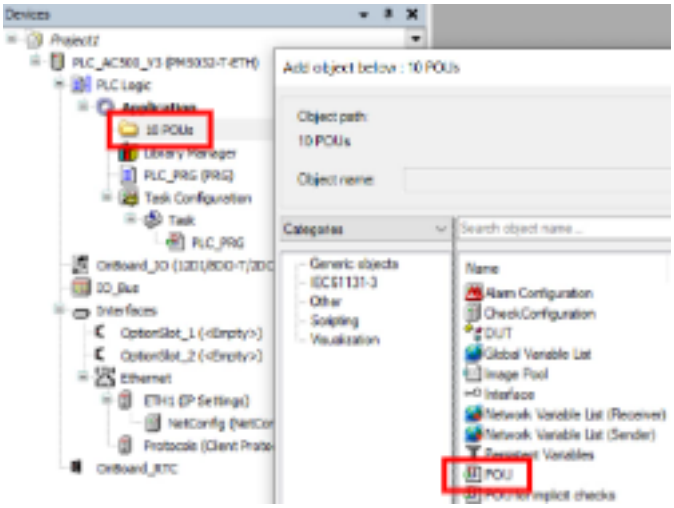
Step 6 / 18

In the Add Folder window, type a folder name (e.g. **10 POUs**) in the Folder name field, and then click on **OK**.



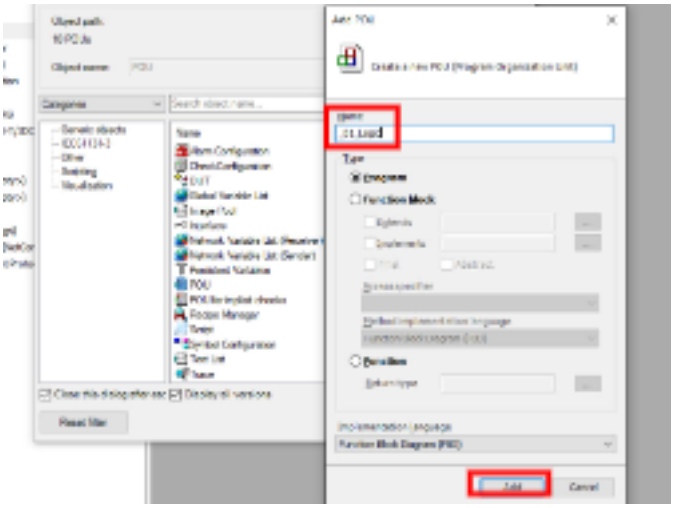
Step 7 / 18

In the Devices tree, right-click on the newly created folder (e.g. **10 POUs**), and then click on **Add object** in the pop-up menu. Next, click on **POU** and then click on **Add object**.



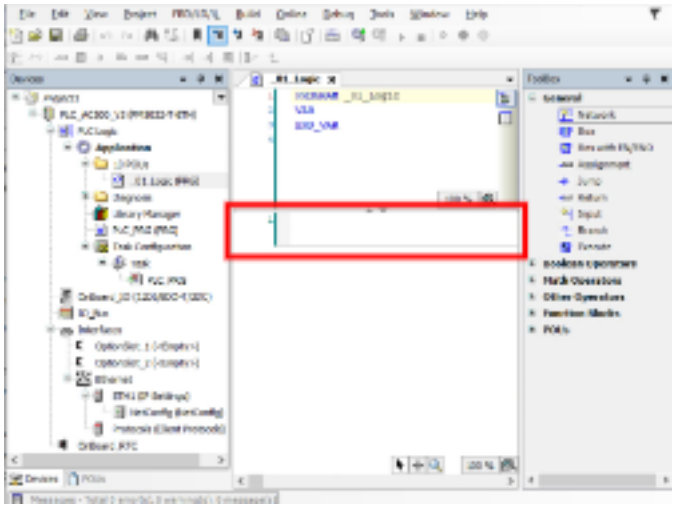
Step 8 / 18

In the Add POU window, type a name (e.g. **_01_Logic**) in the Name field, and then click on **Add**.



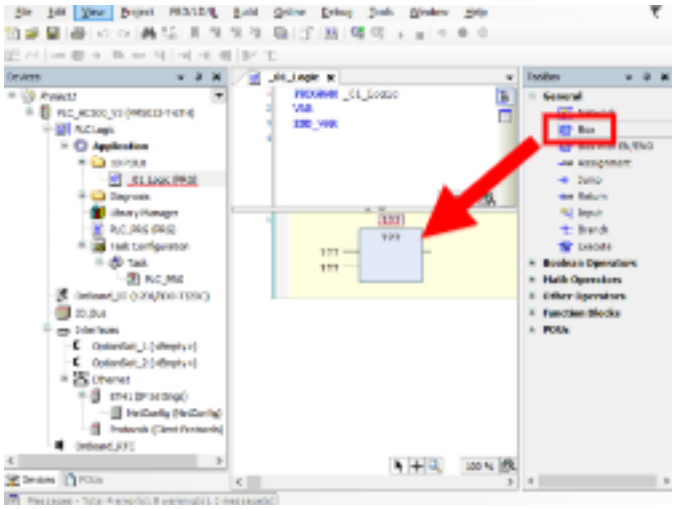
Step 9 / 18

The program editor opens and the first network is created with the number 1.



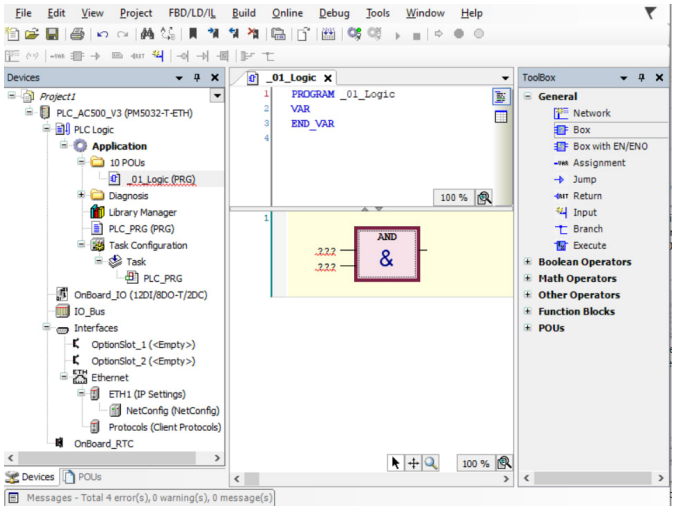
Step 10 / 18

Click and hold on the element **Box** in the ToolBox, move it to the first network, and then drop it by releasing.



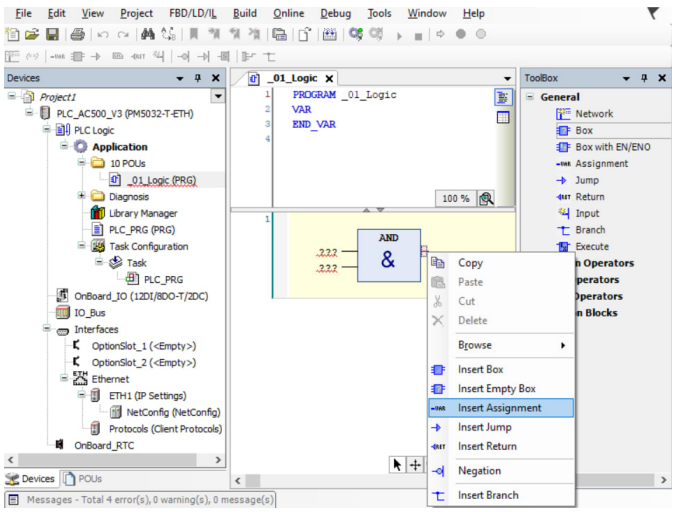
Step 11 / 18

Click on the box and type **AND** to define the function of the box as logical AND.



Step 12 / 18

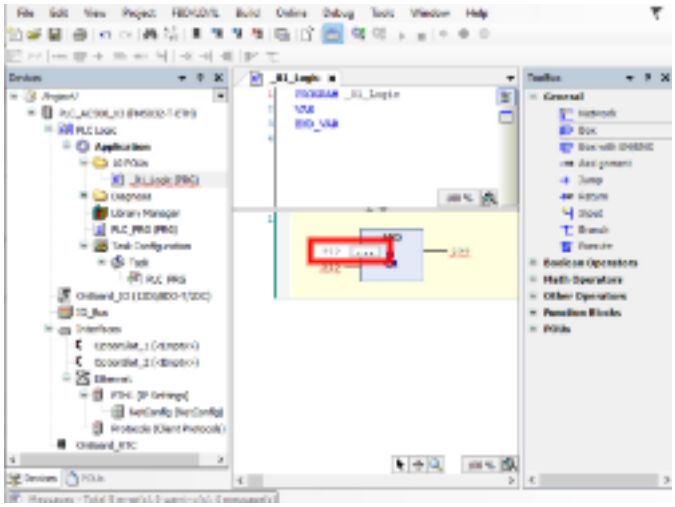
Right-click on the output of the function block AND, and then click on **Insert Assignment** in the pop-up menu.



Step 13 / 18

Connecting the inputs and outputs of the AND to the PLC CPU (1/3)

Double-click on **???** near each connection of the function block AND, and then click on the three dots (**...**).



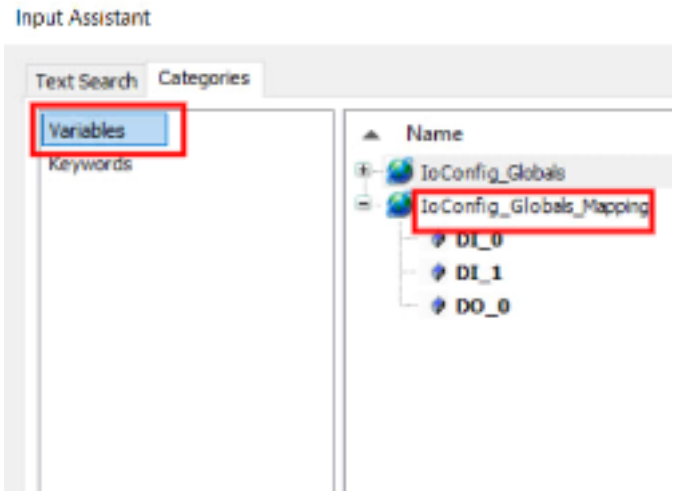
Step 14 / 18

Connecting the inputs and outputs of the AND to the PLC CPU (2/3)

In the Input Assistant window, click on [+] next to the row **IoConfig_Globals_Mapping**, and then choose the names of the I/O channels to be connected.

Repeat the procedure for each input and for the output in the following manner:

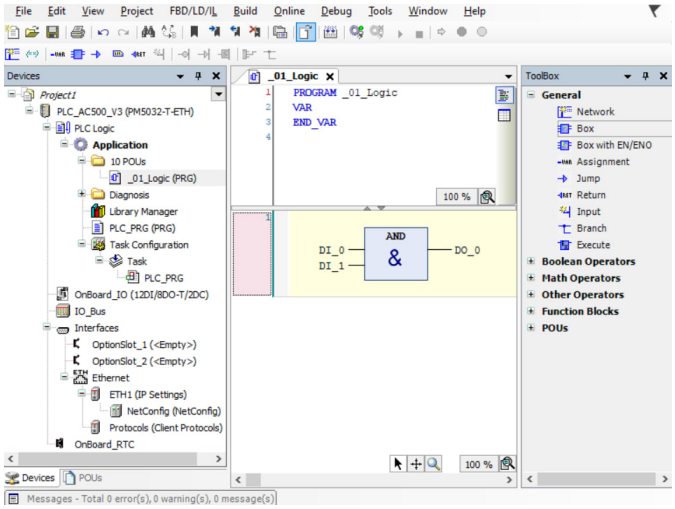
- **First input of the AND**: DI_0
- **Second input of the AND**: DI_1
- **Output of the AND**: DO_0



Step 15 / 18

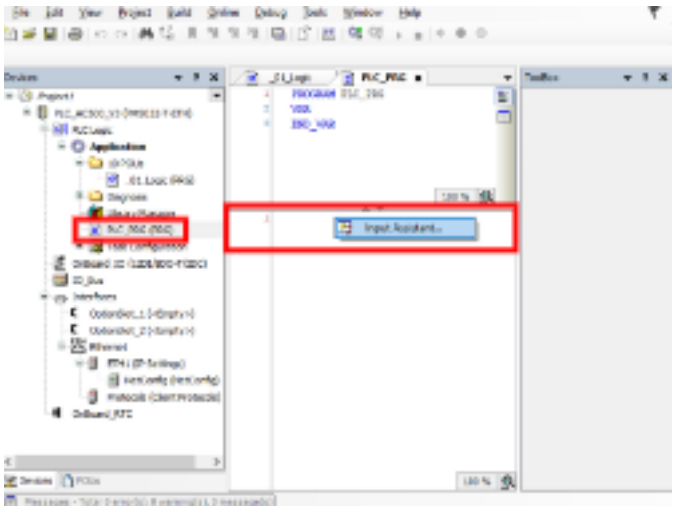
Connecting the inputs and outputs of the AND to the PLC CPU (3/3)

The function block AND is now connected to the I/O channels, and the program is ready to be called in the CPU task manager.



Step 16 / 18

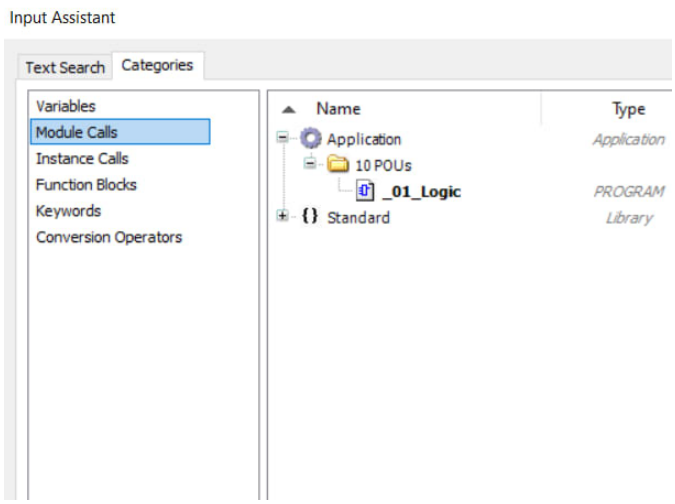
In the Devices tree, double-click on **PLC_PRG**, and then right-click in the first network window in the editor to open the **Input Assistant**.



Step 17 / 18

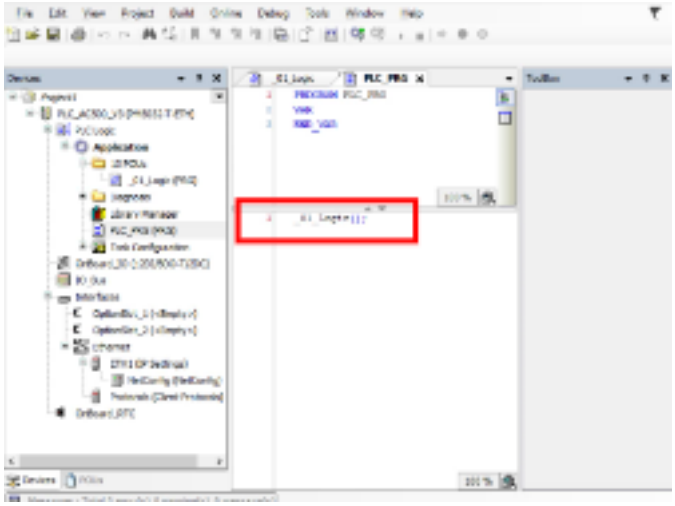
In the Input Assistant window, click on **Module Calls**, and then perform the following steps:

1. Click on [+] next to the row **Application**.
2. Click on [+] next to your folder (e.g. **10 POUs**).
3. Click on your program (e.g. **_01_Logic**).
4. Click on **OK**.



Step 18 / 18

Your program (e.g. **_01_Logic**) is now ready to be executed. To save the project, click on **File** in the Menu bar, next click on **Save Project** in the pop-up menu.



AC500-eCo V3 Starter kit, Downloading a PLC program

Step 1 / 6

Before attempting to run a PLC program, make sure that:

1. the PLC CPU is powered up and connected to the PC by an Ethernet cable (see Connecting the PLC CPU 1).
2. the IP address of the PC is set (see Setting the Ethernet communication parameters 2).

External references

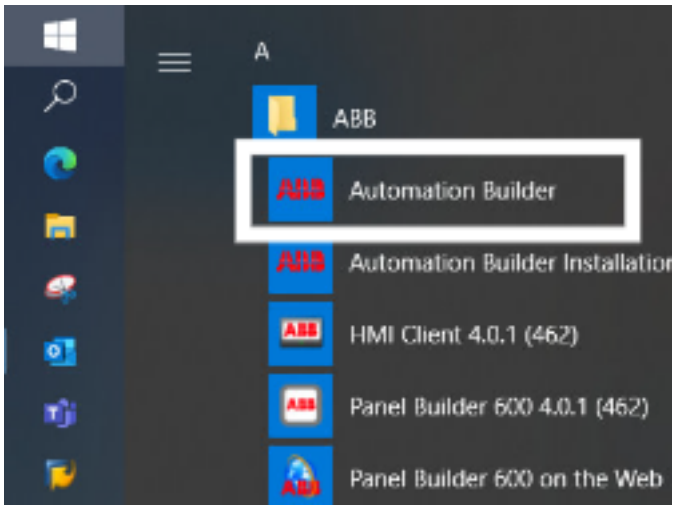
1 Go to: AC500-eCo V3 Starter kit, Preparing for commissioning › AC500-eCo V3 Starter kit, Connecting the PLC CPU

2 Go to: AC500-eCo V3 Starter kit, Commissioning the PLC CPU › AC500-eCo V3 Starter kit, Setting the Ethernet communication parameters

Step 2 / 6

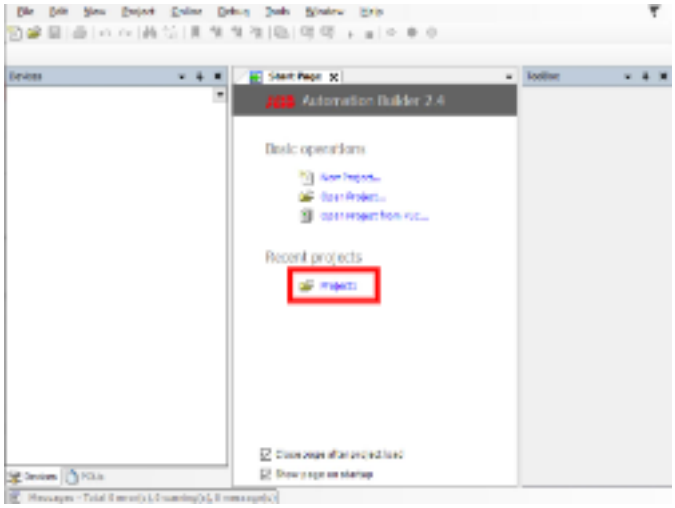
Launch the Automation Builder on your PC by:

1. Clicking **Start** on the taskbar,
2. Then clicking **ABB**,
3. Then clicking **Automation Builder**.



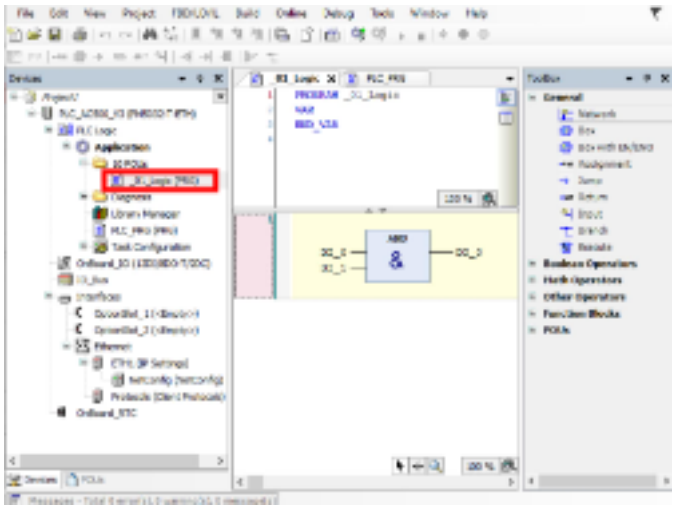
Step 3 / 6

Open a project (e.g. **Project1**) in the Start Page window.



Step 4 / 6

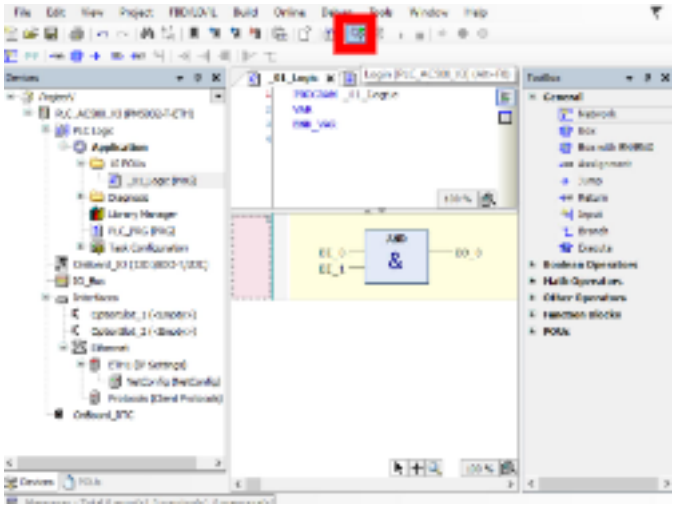
In the Devices tree, click on [+] next to a folder (e.g. **10 POUs**), and then double-click on a program (e.g. **_01_Logic**).



Step 5 / 6

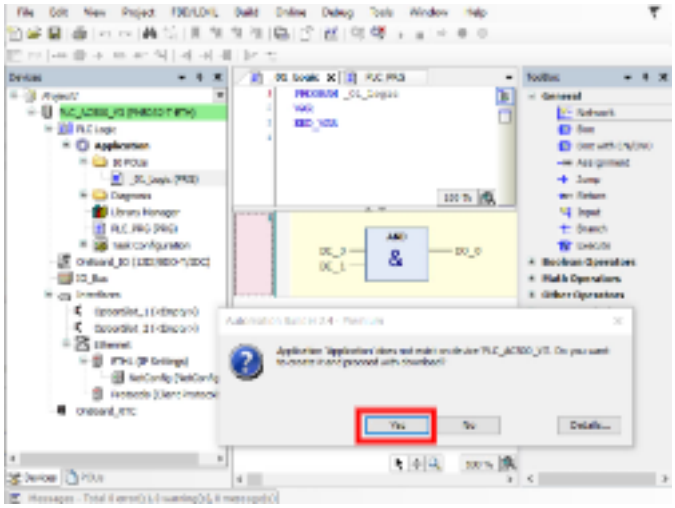
Click on the **Login** icon in the tool bar.

Before being downloaded to the PLC CPU, the program is compiled.



Step 6 / 6

Click on **Yes** in the pop-up window that appears after compilation.



AC500-eCo V3 Starter kit, Running a PLC program

Step 1 / 7

Before attempting to run a PLC program, make sure that:

1. the PLC CPU is powered up and connected to the PC by an Ethernet cable (see Connecting the PLC CPU 1).
2. the IP address of the PC is set (see Setting the Ethernet communication parameters 2).
3. the program has been downloaded (see Downloading a PLC program 3)

External references

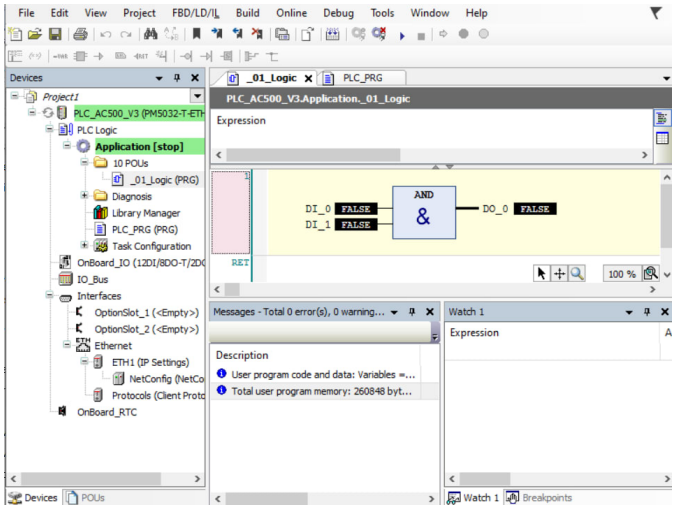
1 Go to: AC500-eCo V3 Starter kit, Preparing for commissioning › AC500-eCo V3 Starter kit, Connecting the PLC CPU

2 Go to: AC500-eCo V3 Starter kit, Commissioning the PLC CPU › AC500-eCo V3 Starter kit, Setting the Ethernet communication parameters

3 Go to: AC500-eCo V3 Starter kit, Programming the PLC CPU › AC500-eCo V3 Starter kit, Downloading a PLC program

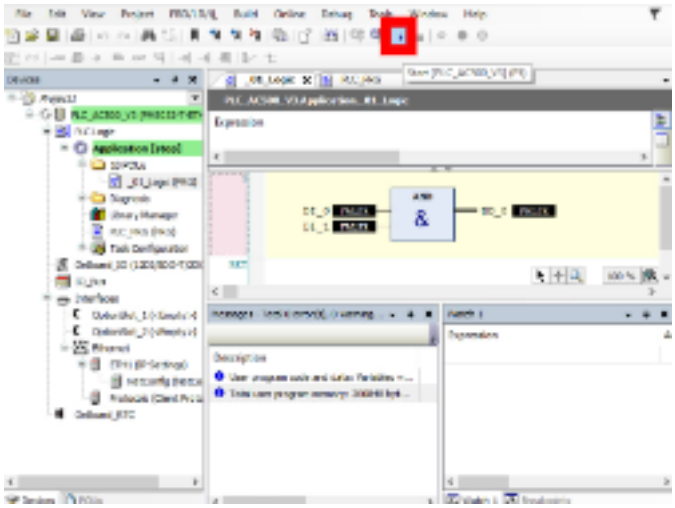
Step 2 / 7

If needed, the ToolBox can be closed to get a better view of the program and its function. In this illustration, an AND function is shown. A black bar (FALSE) indicates that the inputs and the output are inactive (off).



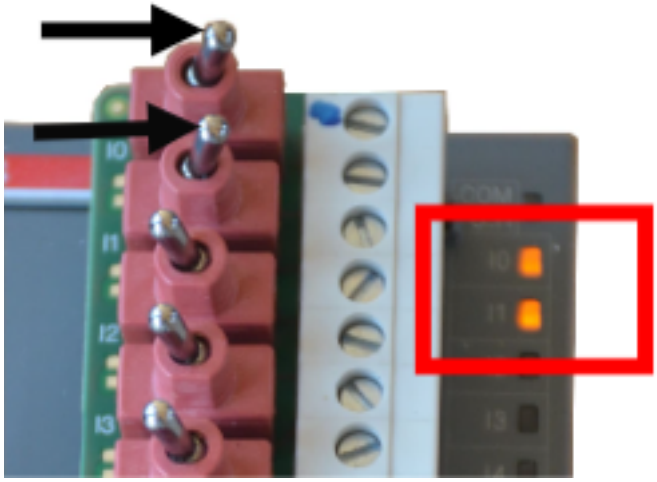
Step 3 / 7

Click on the **Start** icon in the tool bar to execute the program.



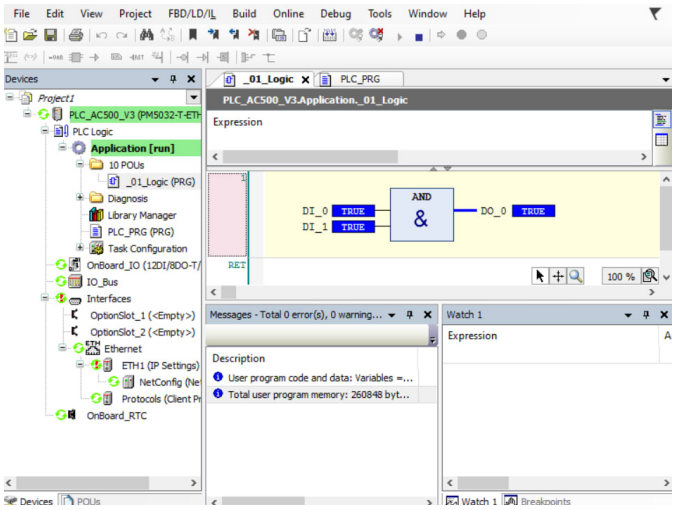
Step 4 / 7

Set the switches **I0** and **I1** on the simulator board to **1**. Make sure that the status LED of the inputs are lit.



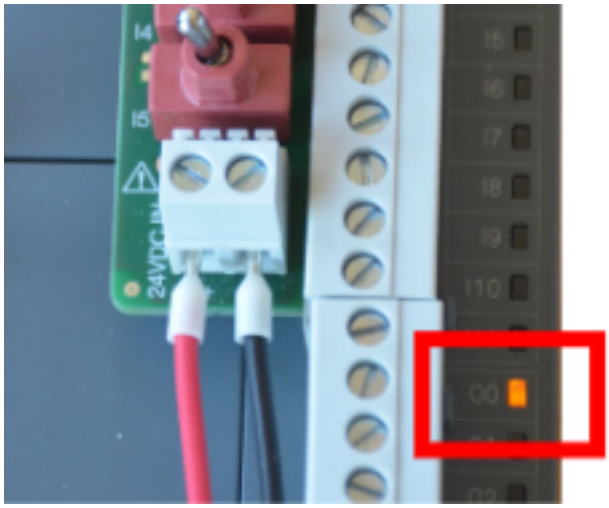
Step 5 / 7

Check the status of the inputs and outputs in the Automation Builder. A blue bar (TRUE) indicates that the inputs and the output are active (on).



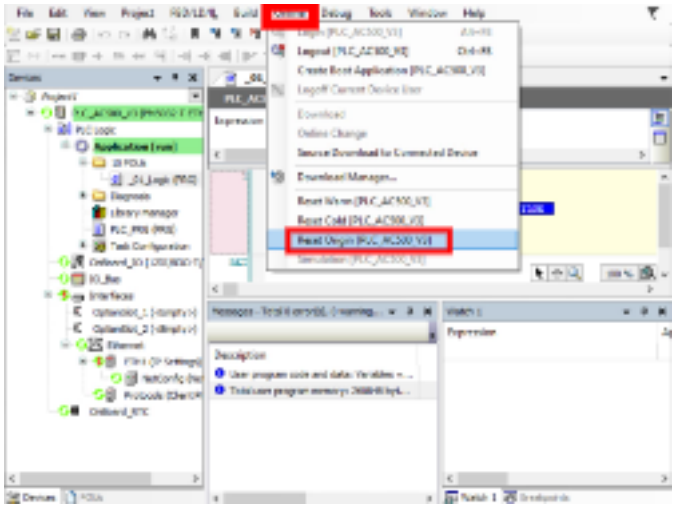
Step 6 / 7

Check the status LED of output **O0** on the PLC CPU. When the LED is lit, the logic state of the output is active (on).



Step 7 / 7

To remove a program from the PLC CPU, click on **Online** in the Menu bar, and then click on **Reset Origin** in the pop-up menu.

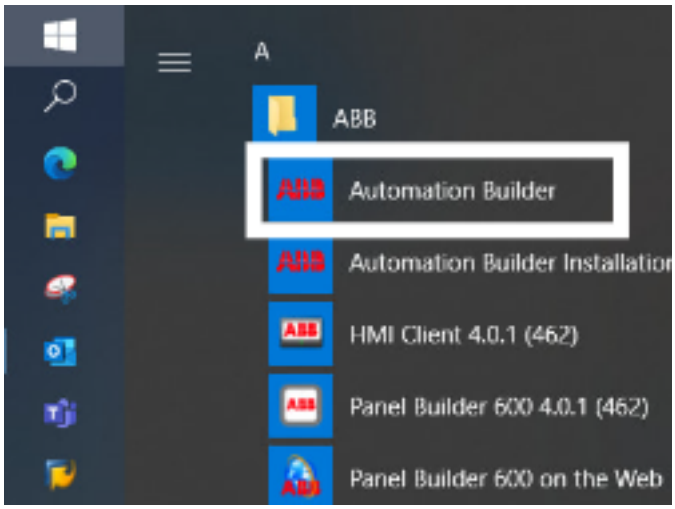


AC500-eCo V3 Starter kit, Creating the symbol configuration

Step 1 / 9

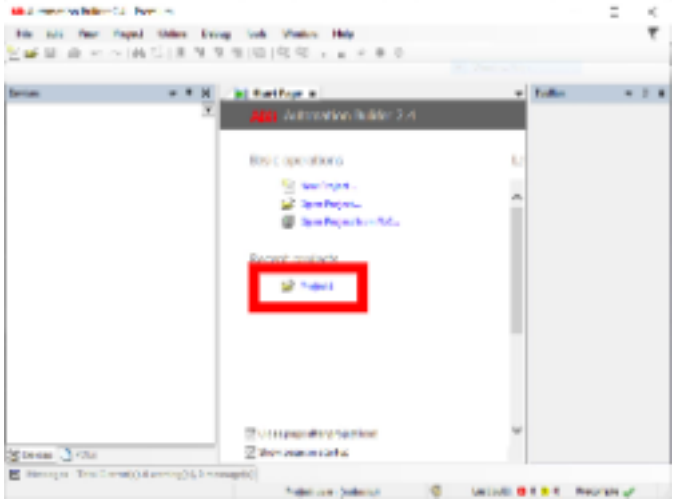
Launch the Automation Builder on your PC by:

1. Clicking **Start** on the taskbar,
2. Then clicking **ABB**,
3. Then clicking **Automation Builder**.



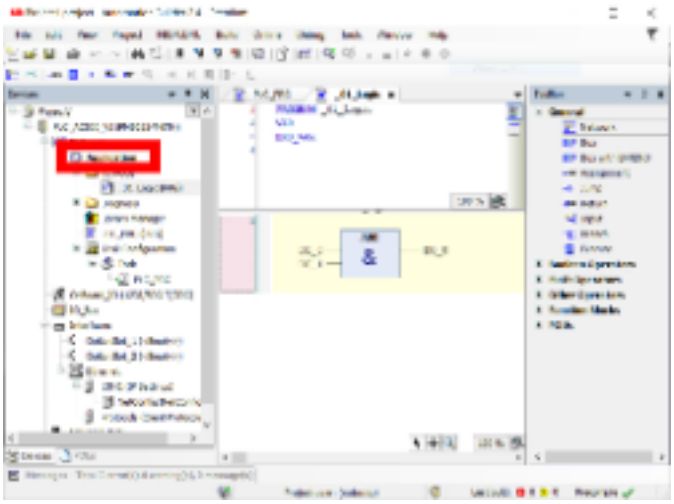
Step 2 / 9

Open a project (e.g. **Project1**) in the Start Page window.



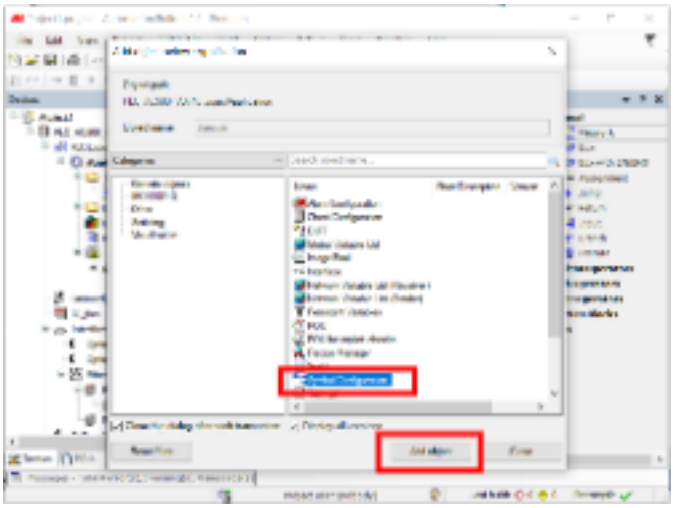
Step 3 / 9

In the Devices tree, right-click on **Application**, next click on **Add Object** in the pop-up menu.



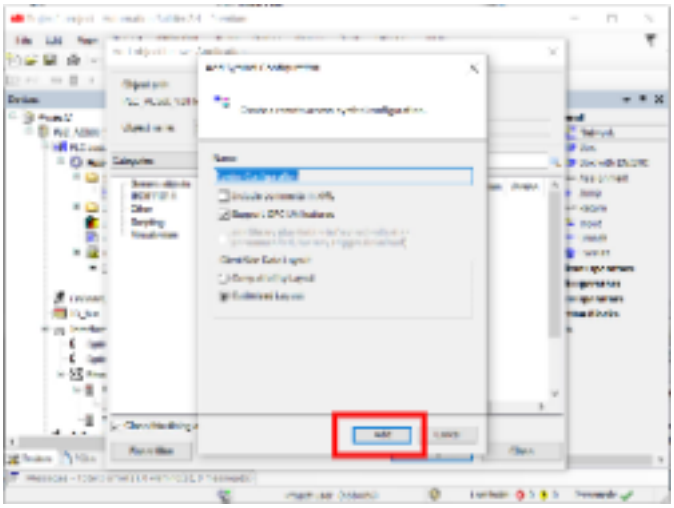
Step 4 / 9

In the Add object below: Application window, click on **Symbol Configuration**, next click on **Add Object**.



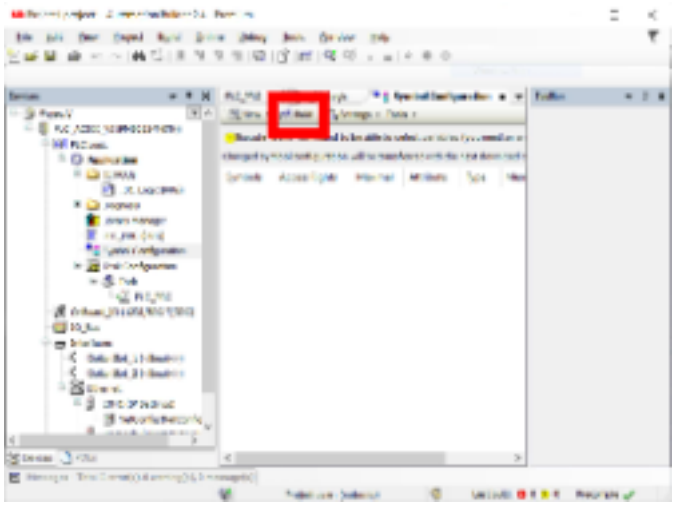
Step 5 / 9

In the Add Symbol Configuration window, click on **Add**.



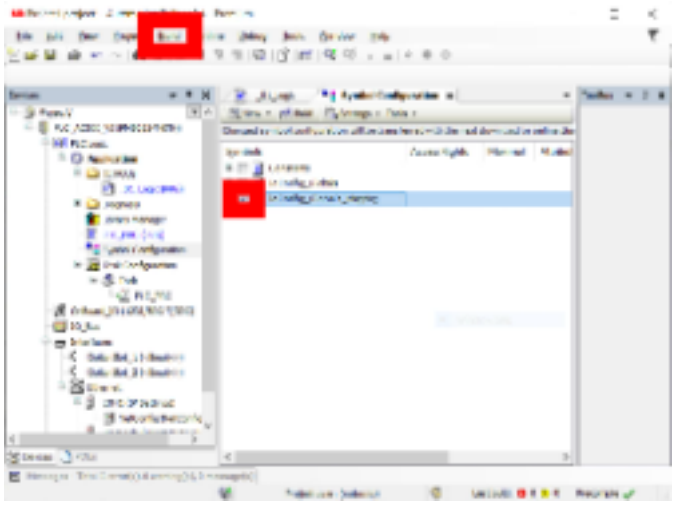
Step 6 / 9

In the Symbol Configuration tab, click on **Build**.



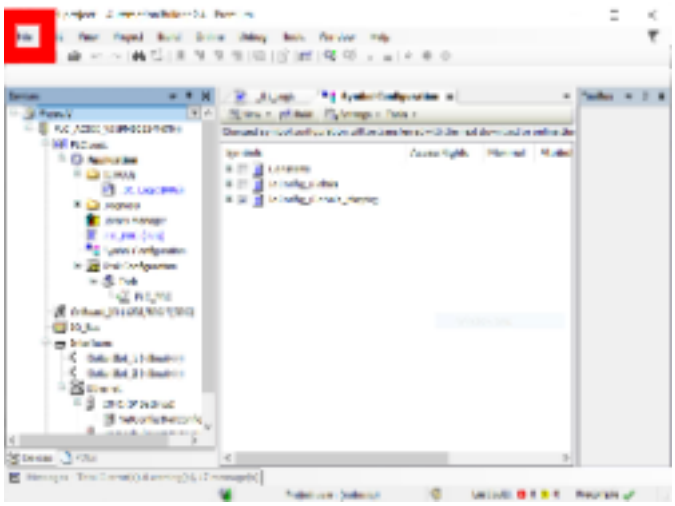
Step 7 / 9

In the Symbol Configuration tab, click on the tick box **IoConfig_Globals_Mapping**. Next, click on **Build** in the menu and click on **Generate Code** in the drop-down menu.



Step 8 / 9

To save the project, click on **File** in the Menu bar, next click on **Save Project** in the pop-up menu.



Step 9 / 9

Download the project to the PLC CPU (see Downloading a PLC program 1).

External references

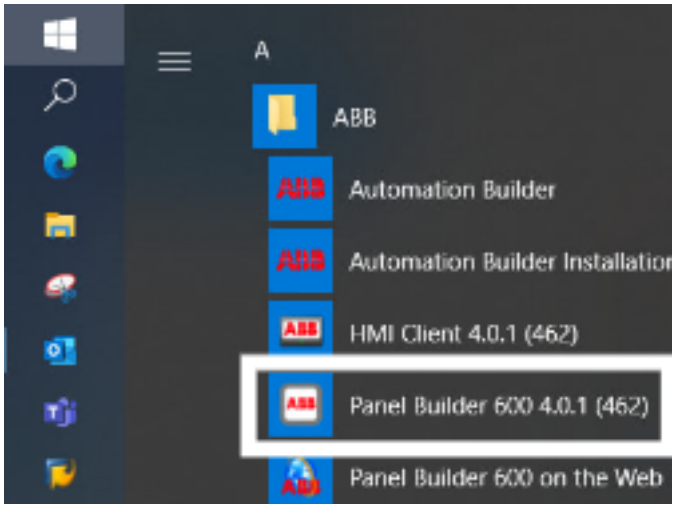
1 Go to: AC500-eCo V3 Starter kit, Programming the PLC CPU › AC500-eCo V3 Starter kit, Downloading a PLC program

AC500-eCo V3 Starter kit, Creating a Panel Builder project

Step 1 / 17

Launch the Panel Builder 600 on your PC by:

1. Clicking **Start** on the taskbar,
2. Then clicking **ABB**,
3. Then clicking **Panel Builder 600**.

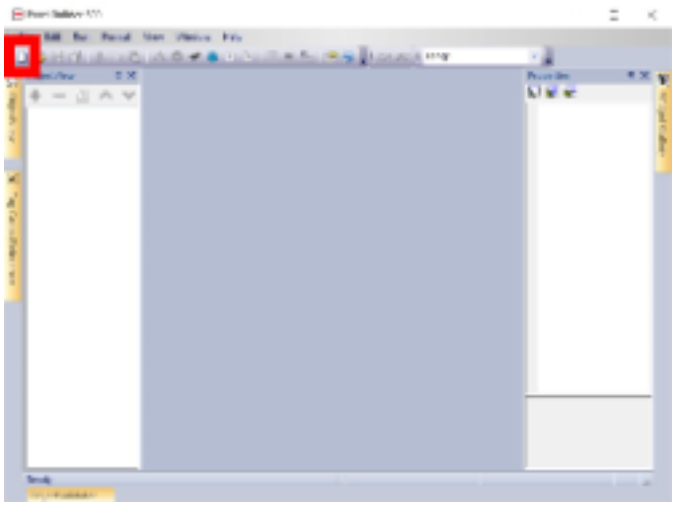


Step 2 / 17

When the Panel Builder 600 software is started for the first time, a Windows Security Alert pops up. Tick a box according to your network (e.g. Private networks), next click on **Allow access**.

Step 3 / 17

Click on the **New** icon in the tool bar to create a new project.

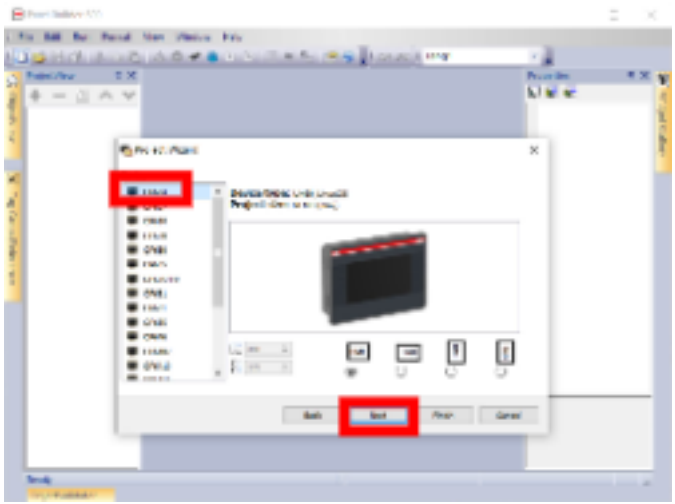


Step 4 / 17

In the Project Wizard window, type the name of the project (e.g. **Project1**) in the Project Name field, and then click on **Next**.

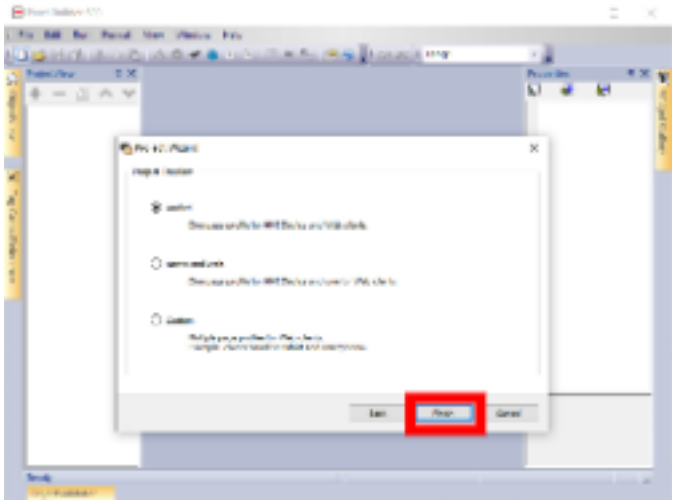
Step 5 / 17

In the Project Wizard window, click on a control panel (e.g. **CP604**) in the left field, and then click on **Next**.



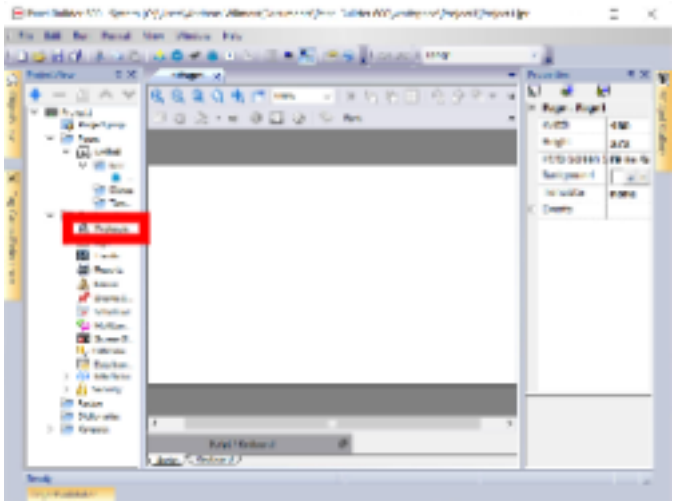
Step 6 / 17

In the Project Wizard window, click on **Finish**.



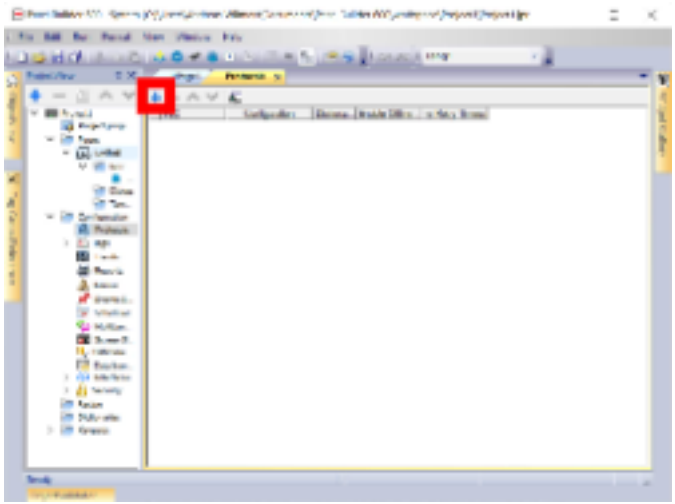
Step 7 / 17

In the ProjectView tree, double-click on **Protocols**.



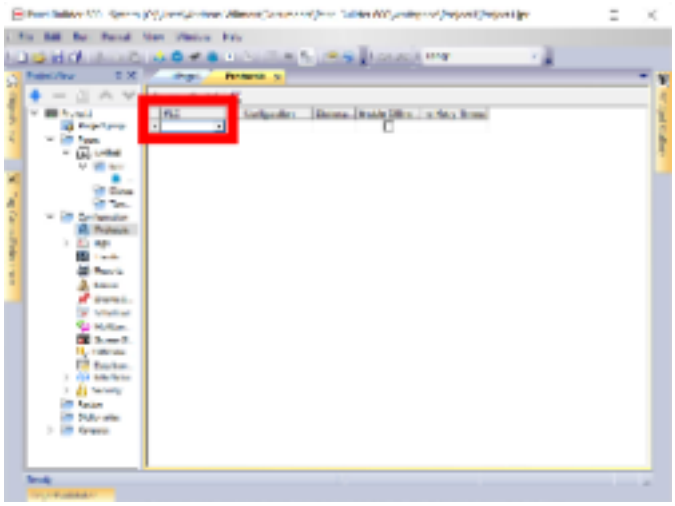
Step 8 / 17

In the Protocols tab, click on **[+]** (i.e. Add Protocol).



Step 9 / 17

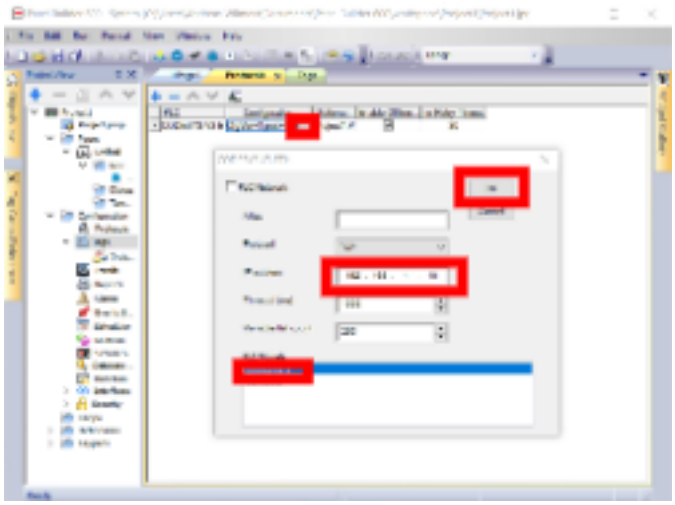
In the Protocols tab, click on first field in the column **PLC**, and click on **V3 CODESYS ETH** in the drop-down menu.



Step 10 / 17

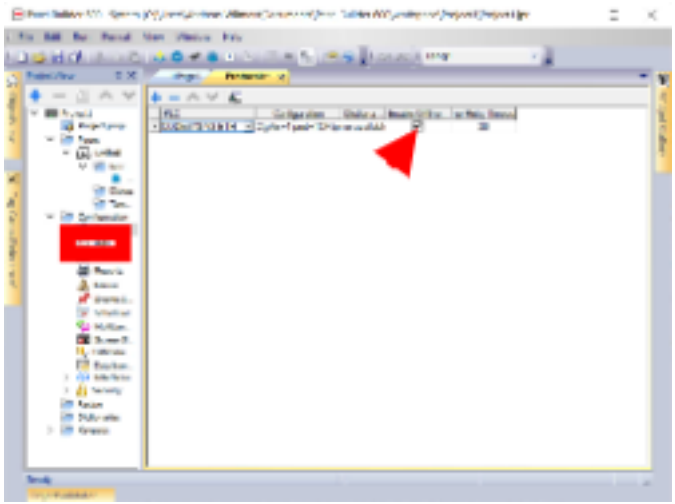
In the Protocols tab, click on right side of the field in the Configuration column. Do the following in the CODESYS V3 ETH window:

1. Click on **CODESYS 3** in the PLC Models field,
2. Type the IP address of the Ethernet connection of the PLC CPU (e.g. **192.168.1.10**) in the IP address field,
3. Click on **OK**.



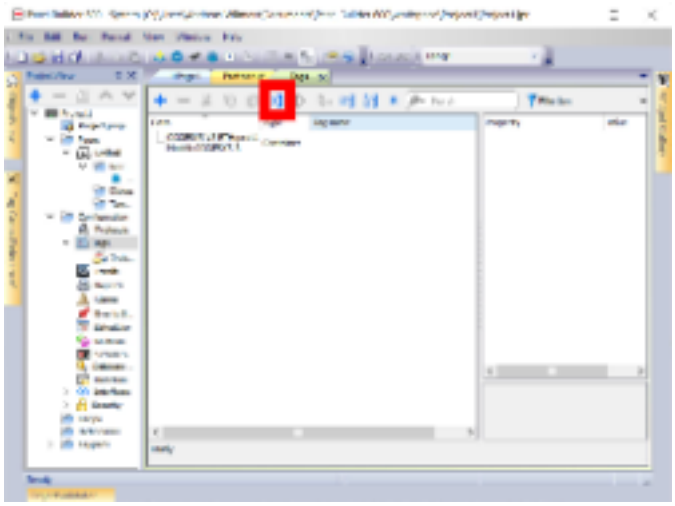
Step 11 / 17

In the Protocols tab, ensure that the box in the **Enable Offline...** column is ticked. Next, double-click on **Tags** in the ProjectView tree.



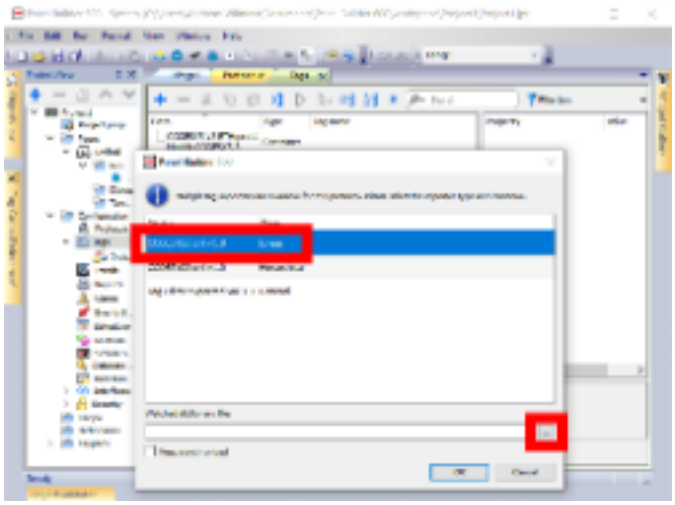
Step 12 / 17

In the toolbar in the Tags tab, click on **>]** (i.e. Import Dictionary).



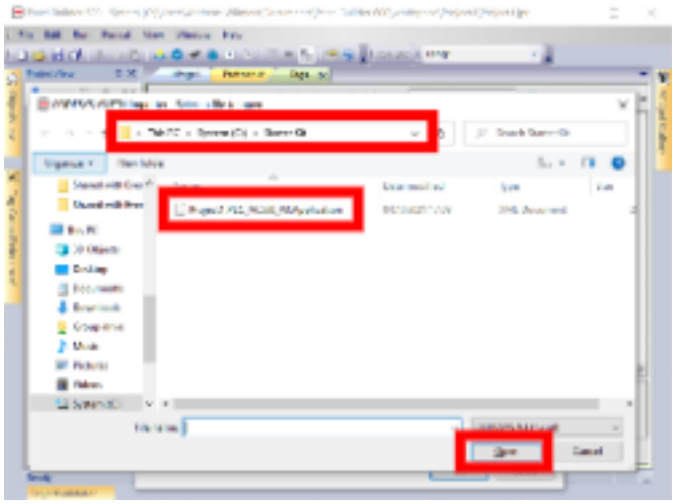
Step 13 / 17

In the Panel Builder 600 window, click on **Linear**, and then click on **[...]** near the Watched dictionary file field.



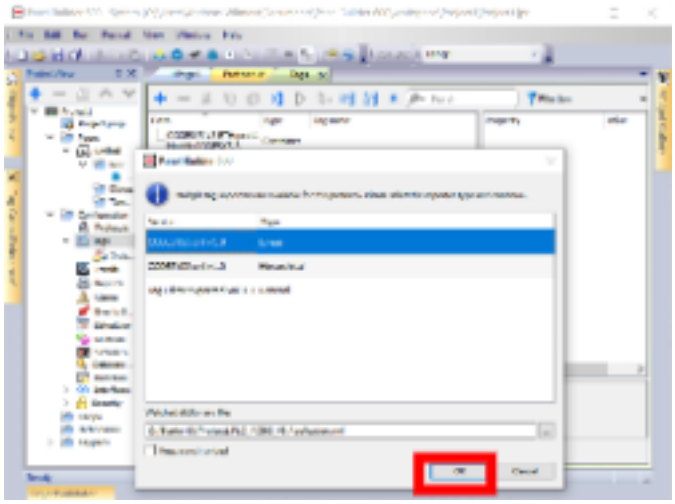
Step 14 / 17

In the CODESYS V3 ETH importer window, type the name of the directory of the PLC CPU project file (e.g. **C:\Starter Kit**) in the address file. Click on the project file name (e.g. **Project1.PLC_AC500_V3.Application**), and then click on **Open**.



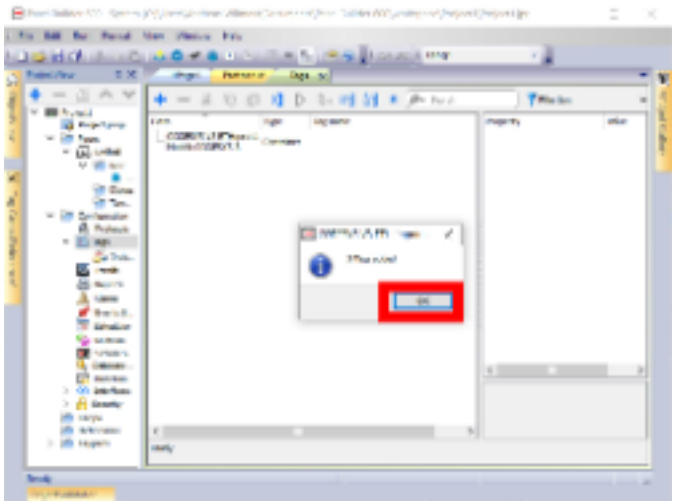
Step 15 / 17

In the Panel Builder 600 window, click on **OK**.



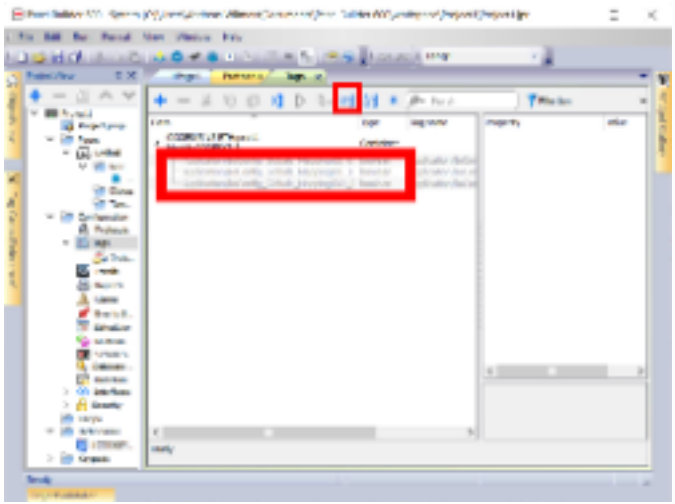
Step 16 / 17

Click on **OK** in the pop-up window.



Step 17 / 17

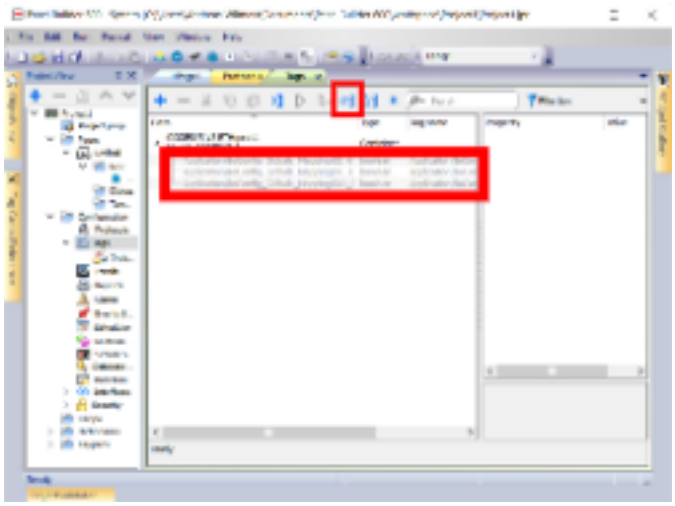
All imported tags are listed in the left field of the Tags tab. In the toolbar in the Tags tab, click on **>]** (i.e. Import Tags).



AC500-eCo V3 Starter kit, Creating a panel visualization

Step 1 / 8

After having created a panel builder project (see Creating a Panel Builder project [1]), click on the **Page1** tab.



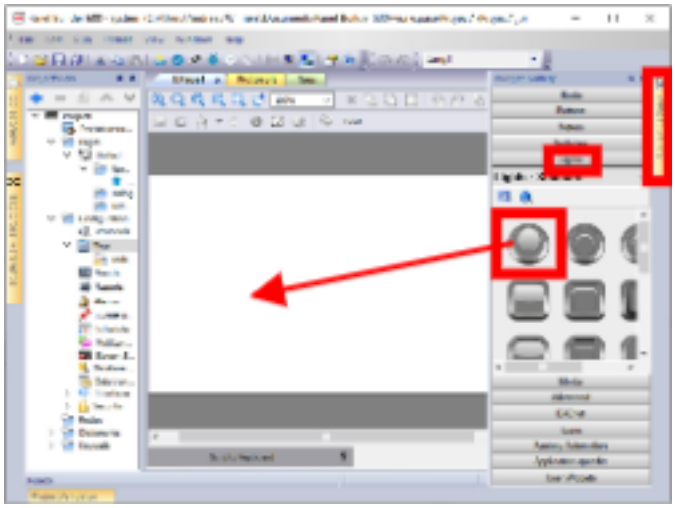
External references

[1] Go to: AC500-eCo V3 Starter kit, Programming the control panel › AC500-eCo V3 Starter kit, Creating a Panel Builder project

Step 2 / 8

Follow these steps to add an element to your control panel visualization:

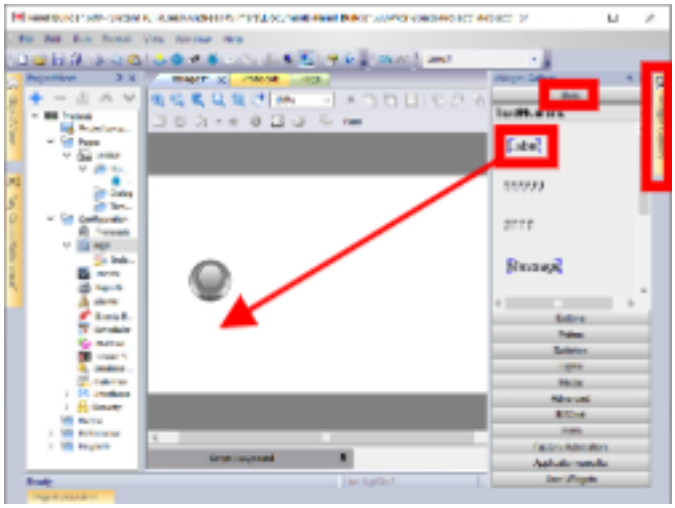
1. Click on **Widget Gallery** in the right side of the Panel Builder 600 window.
2. Click on an a tab (e.g. **Lights**) in the Widget Gallery.
3. Click and hold onto an element (e.g. a round light)
4. Move the element onto the white drawing area of the Page1 tab and release it.



Step 3 / 8

Follow these steps to add a label:

1. Click on the **Basic** tab in the Widget Gallery.
2. Click and hold onto **[Label]**.
3. Move the label onto the white drawing area of the Page1 tab and release it.



Step 4 / 8

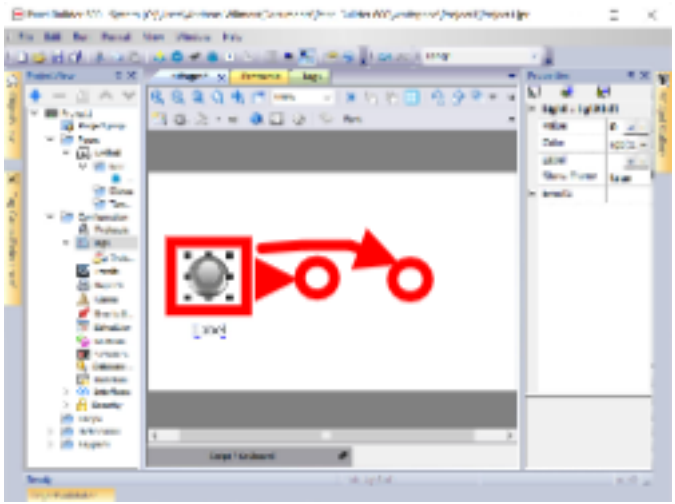
To change the color of an element, click on the element (e.g. a round light) and then click on **[+]** next to the **Color** field in Properties. Select colors for index 0 (inactive) and index 1 (active) in the pop-up window and click on **OK**.

Step 5 / 8

Follow the following steps to duplicate an element. These steps can also be used to duplicate a label.

1. Right-click on the element and click on **Copy** in the pop-up menu.
2. Right-click on the white field and click on **Paste** in the pop-up menu.
3. Move the new element to its desired position.

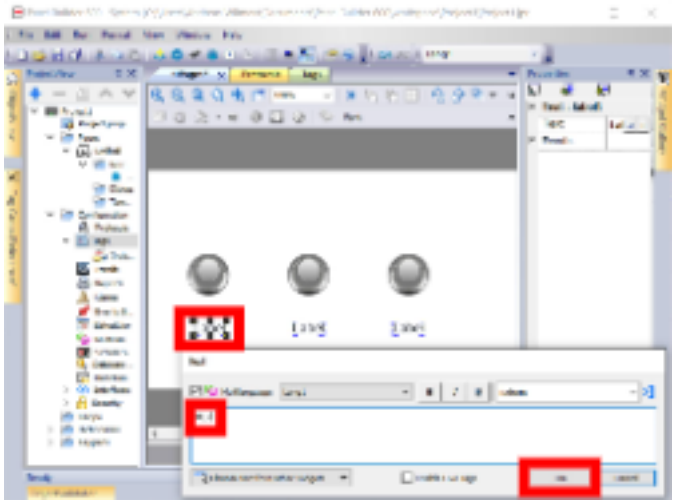
In the example program illustrated here, the round light element is duplicated twice.



Step 6 / 8

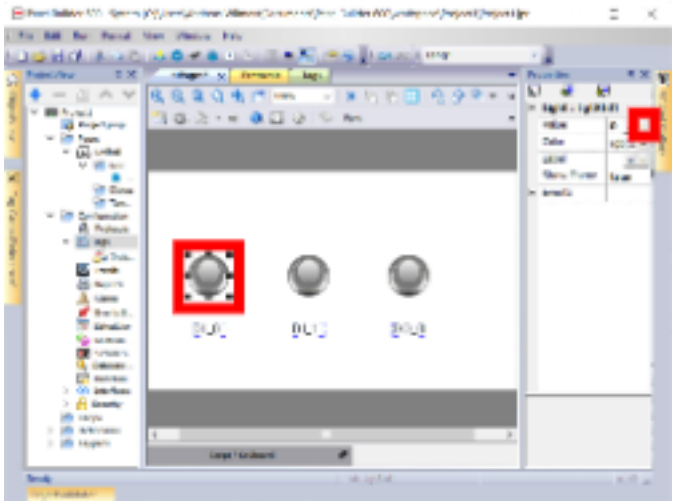
To assign text to a label, double-click on **[Label]**, type label in the text field, and then click on **OK**.

In the example program illustrated here, the three labels are set to DI_0, DI_1, and DO_0.



Step 7 / 8

To assign tags to an element, click on the element (e.g. a round light), and then click on **[+]** next to the **Value** field in Properties.

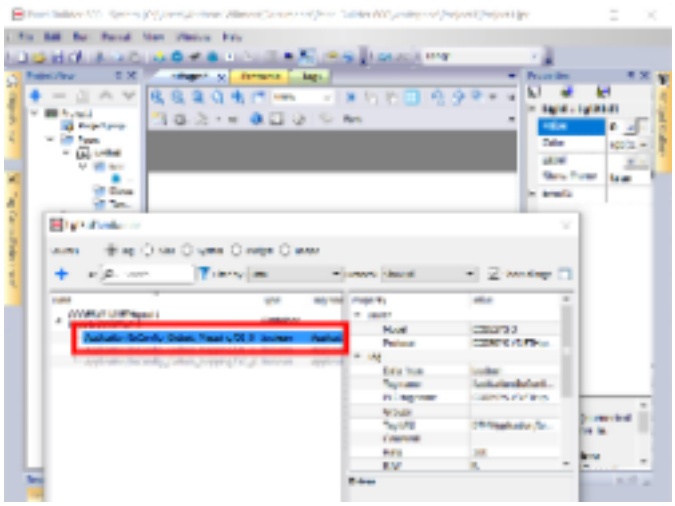


Step 8 / 8

Select a tag in the LgtStd1.ind.value window and click on **OK**.

In the example program illustrated here, the three elements are given the following tags:

- DI_0: Application/IoConfig_Globals_Mapping/DI_0
- DI_1: Application/IoConfig_Globals_Mapping/DI_1
- DO_0: Application/IoConfig_Globals_Mapping/DO_0

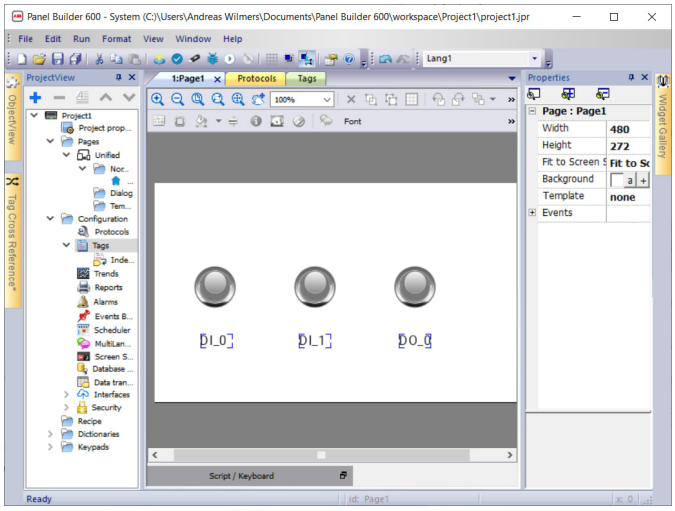


AC500-eCo V3 Starter kit, Downloading a panel visualization to the control panel

Step 1 / 7

To follow the instructions for the example program presented in the following steps, make sure that:

- You have created a panel builder project (see Creating a Panel Builder project 1) • You have created a visualization for your panel builder project (see Creating a panel visualization 2) • You have set the IP address of your control panel (see Setting the IP address of a control panel 3)



External references

1 Go to: AC500-eCo V3 Starter kit, Programming the control panel › AC500-eCo V3 Starter kit, Creating a Panel Builder project

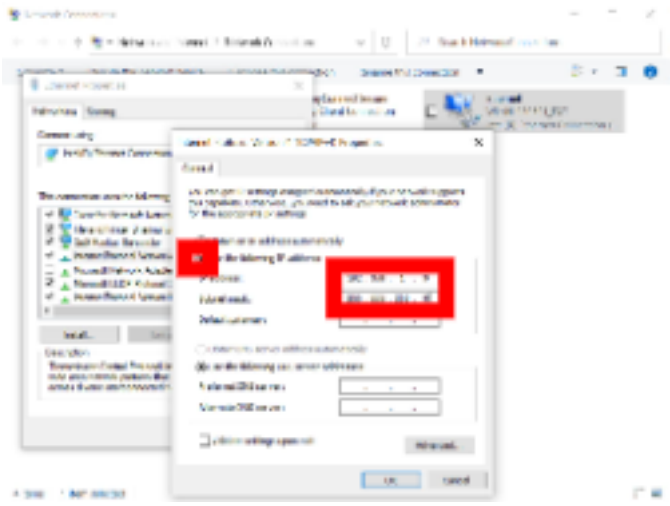
2 Go to: AC500-eCo V3 Starter kit, Programming the control panel › AC500-eCo V3 Starter kit, Creating a panel visualization

3 Go to: AC500-eCo V3 Starter kit, Preparing for commissioning › AC500-eCo V3 Starter kit, Setting the IP address of a control panel

Step 2 / 7

Open the Internet Protocol Version 4 (TCP/IPv4) Properties window (see Setting the Ethernet communication parameters [1]) and edit the following values:

1. Click the round select box near Use the following IP address.
2. Type **192.168.1.9** in the IP address field.
3. Type **255.255.255.0** in the Subnet mask field.
4. Click on **OK**.



External references

[1] Go to: AC500-eCo V3 Starter kit, Commissioning the PLC CPU › AC500-eCo V3 Starter kit, Setting the Ethernet communication parameters

Step 3 / 7

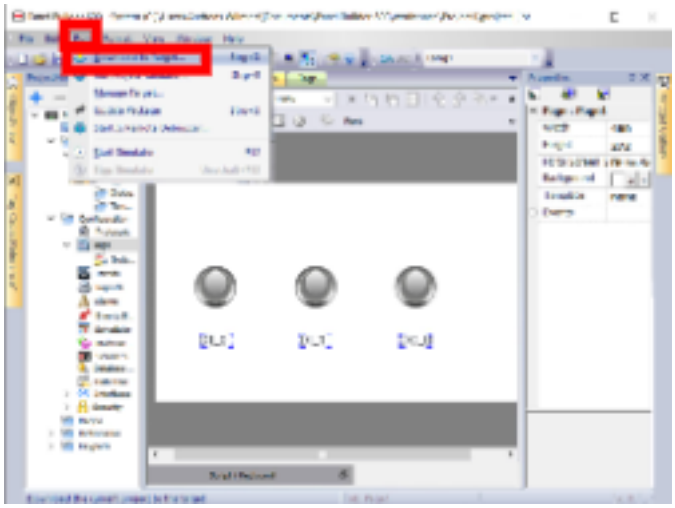
Connect the control panel (see Connecting the control panel [1]) and power it up. If the boot sequence is empty and Runtime has not yet been installed, the panel display the IP address (e.g. 162.168.1.20).

External references

[1] Go to: AC500-eCo V3 Starter kit, Preparing for commissioning › AC500-eCo V3 Starter kit, Connecting the control panel

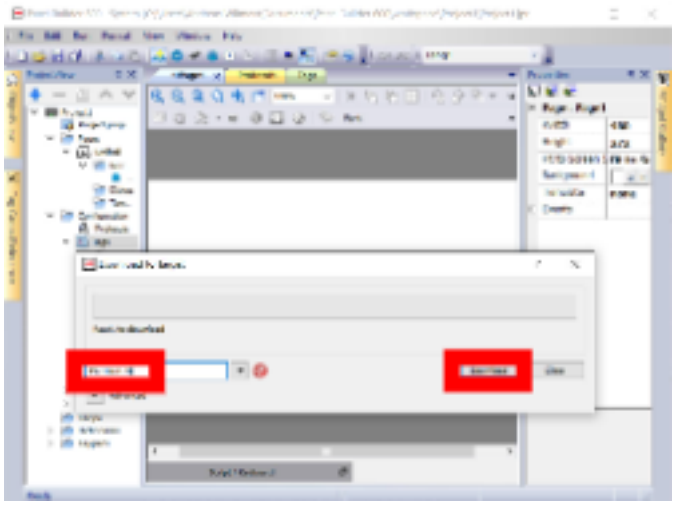
Step 4 / 7

In the Panel Builder 600 menu bar, click on **Run**, and then click on **Download To Target** in the pull-down menu.



Step 5 / 7

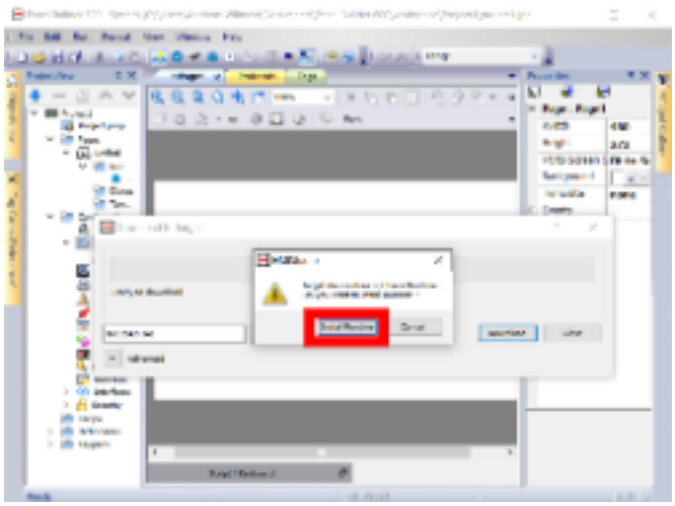
In the Download to Target window, type the IP address of the control panel (e.g. **162.168.1.20**) in the field, and press **[Enter]** on the keyboard. Next, click on **Download**.



Step 6 / 7

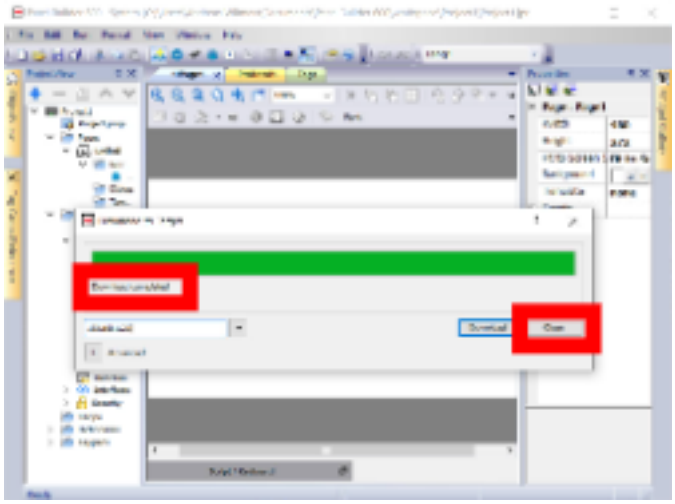
If the Runtime has not yet been installed on the control panel, a HMIStudio pop-up window appears. Click on **Install Runtime**.

Wait until the installation is completed and the control panel shows a visualization on the screen.



Step 7 / 7

When the message "Download completed" appears in Download to Target window, click on **Close**.

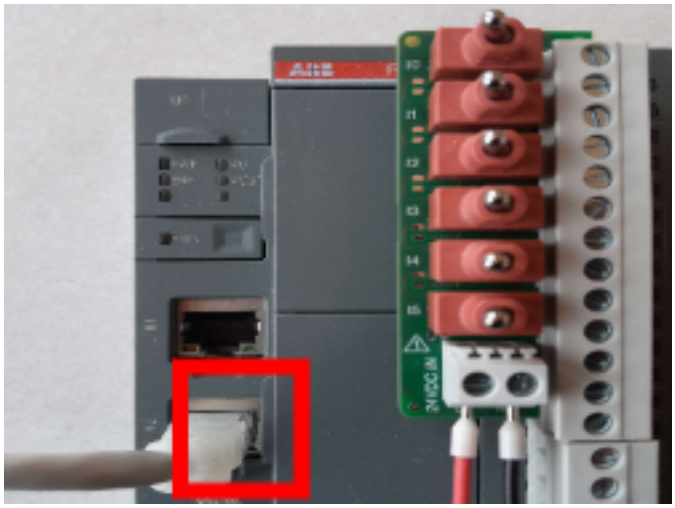


AC500-eCo V3 Starter kit, Running a panel visualization on the control panel

Step 1 / 3

To follow the instructions for the example program presented in the following steps, make sure that:

- Your program contains a symbol configuration (see Creating the symbol configuration 1)• Your program has been downloaded to the PLC CPU (see Downloading a PLC program 2)• You have used an Ethernet cable to connect your control panel (**LAN**) to your PLC CPU (**ETH2**)



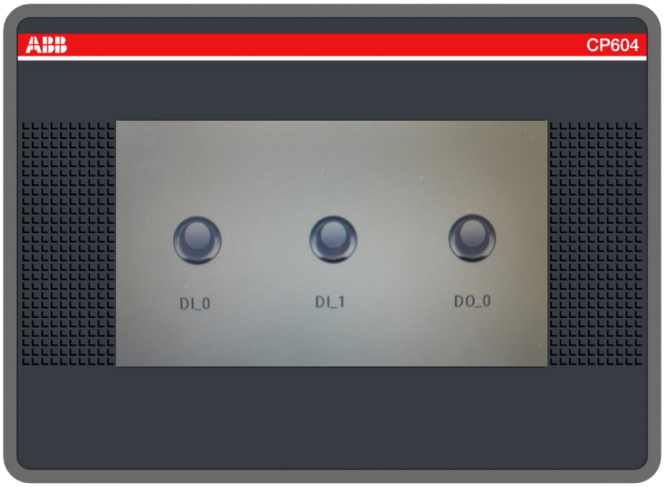
External references

1 Go to: AC500-eCo V3 Starter kit, Programming the control panel › AC500-eCo V3 Starter kit, Creating the symbol configuration

2 Go to: AC500-eCo V3 Starter kit, Programming the PLC CPU › AC500-eCo V3 Starter kit, Downloading a PLC program

Step 2 / 3

Make sure that the control panel has been programmed using a tag list that matches the symbol configuration of the program in the PLC CPU (see Downloading a panel visualization to the control panel 1). Next, power up the PLC CPU and the control panel.

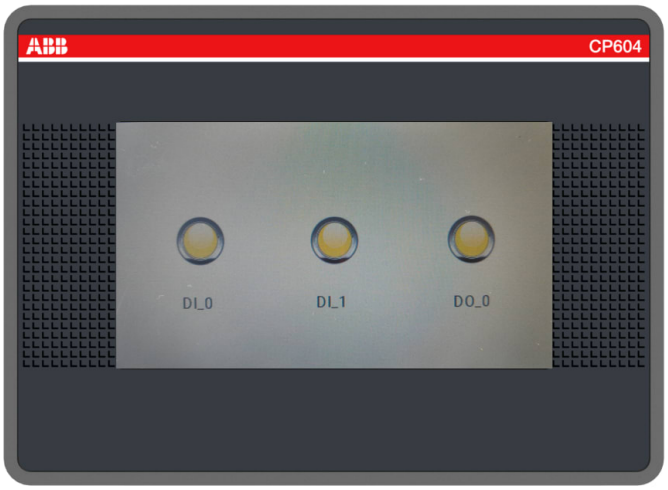


External references

1 Go to: AC500-eCo V3 Starter kit, Programming the control panel › AC500-eCo V3 Starter kit, Downloading a panel visualization to the control panel

Step 3 / 3

Set the switches **I0** and **I1** on the simulator board to 1 (see Running a PLC program 1). The status LED of the input on the PLC CPU should be lit, and the round light elements on the control panel screen should change color.



External references

1 Go to: AC500-eCo V3 Starter kit, Programming the PLC CPU › AC500-eCo V3 Starter kit, Running a PLC program