

# CONNECTING TO PROLON

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REV 7.5.0  
PL-INSTL-CONNECTPROLON-EN



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# Table of Contents

<b>1 - General</b> .....	<b>3</b>
<b>2 - Types of Connections</b> .....	<b>3</b>
2.1 - Connecting directly to a PL-NC2000 Network Controller .....	3
2.1.1 - Ethernet/IP .....	3
2.1.2 - Serial Port .....	4
2.1.2 - Bluetooth .....	4
2.2 - Connecting directly to a PL-M2000 or PL-C1050 Controller .....	5
<b>3 - Ethernet/IP Connection (PL-NC2000 only)</b> .....	<b>6</b>
3.1 - Connect PL-NC2000 to computer with ethernet cable (CAT5e) .....	6
3.2 - Change communication setting from DHCP to Static IP using Reset Button on the PL-NC2000 .....	6
3.3 - Change IP Settings on Computer to match PL-NC2000 IP Settings .....	7
3.4 Connecting with Focus over TCP/IP .....	10
<b>4 - PL-485-BT Serial Port Connection (PL-NC2000, PL-M2000, PL-C1050, PL-VC2000, PL-T1100)</b> .....	<b>12</b>
4.1 - Identifying the Dedicated COM Port on Windows .....	12
4.2 - Updating Driver of the PL-485-BT .....	14
4.2.1 - Finding the “unknown” PL-485-BT in Device Manager .....	14
4.2.2 - Updating Driver Software .....	16
4.2.3 - Identifying the COM port Number .....	18
4.3 Focus Serial COM .....	18
<b>5 - USB Serial Port (PL-NC2000 only)</b> .....	<b>20</b>
5.1 - Focus Serial COM .....	20
5.2 - Identifying the “unknown” PL-NC2000 in Device manager .....	21
5.3 - Updating Driver of the PL-NC2000 .....	22
5.4 - Confirming the Driver was successfully installed .....	24
<b>6 - Cloud Communication</b> .....	<b>25</b>



## 1 - General

The ProLon system of controllers offer an array of communication methods. Some are specific to our Network controller and others that can be used right across the board. In this document we will explore them and provide the easy steps to utilize them.

It is recommended to always have the latest version of Focus software. For the purposes of this guide, Focus v.7.5.0 was used as a reference. If you have a previous version installed, some screenshots or methods may differ slightly.

Along with our FREE ProLon Focus software for PC/Mac or with the Mobile application for Android/IOS, the viewing/configuration of the devices are made simple by using the following means of connections.

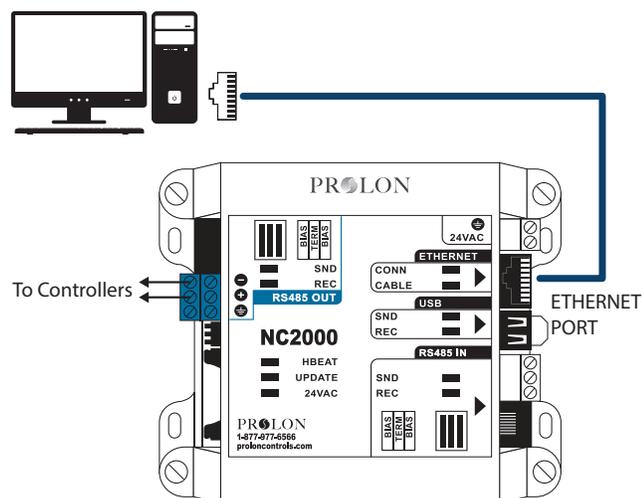
## 2 - Types of Connections

### 2.1 - Connecting directly to a PL-NC2000 Network Controller

#### 2.1.1 - Ethernet/IP

Method of connection: Cat5e cable (standard ethernet).

- See Section 3 for IP connection details

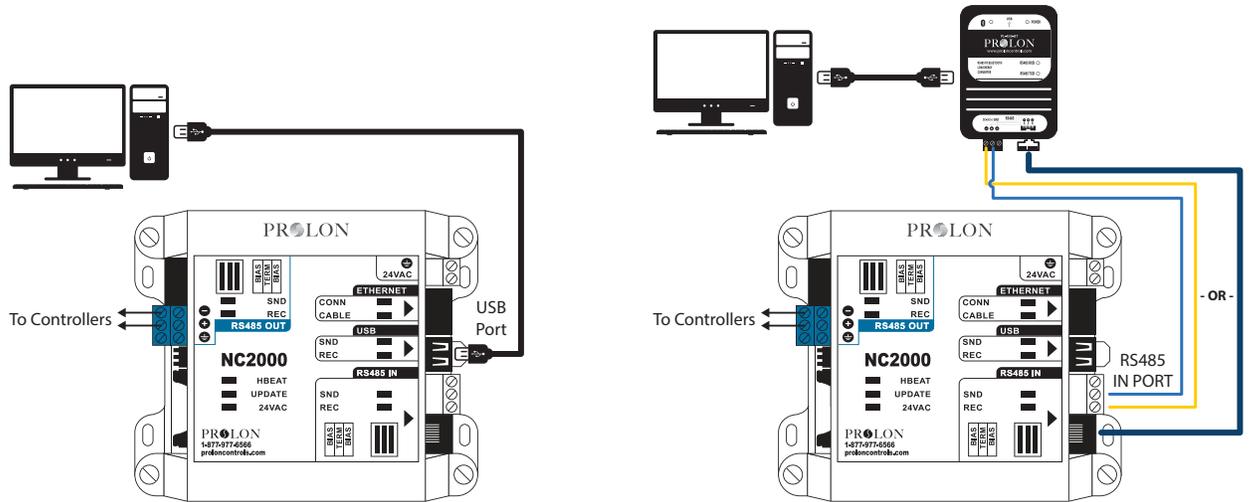




## 2.1.2 - Serial Port

Method of connection: USB Cable (USB Type A to Type A) or PL-485-BT adaptor.

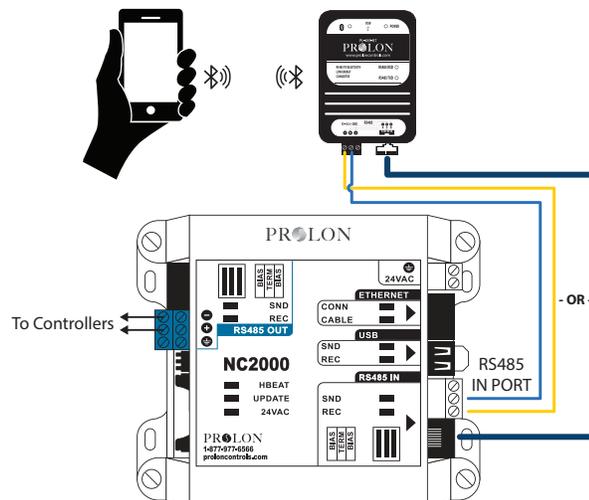
- See Section 5 for USB cable details
- See Section 4 for PL-485-BT details



## 2.1.2 - Bluetooth

Method of connection: Mobile device (smartphone or tablet) paired with the PL-485-BT.

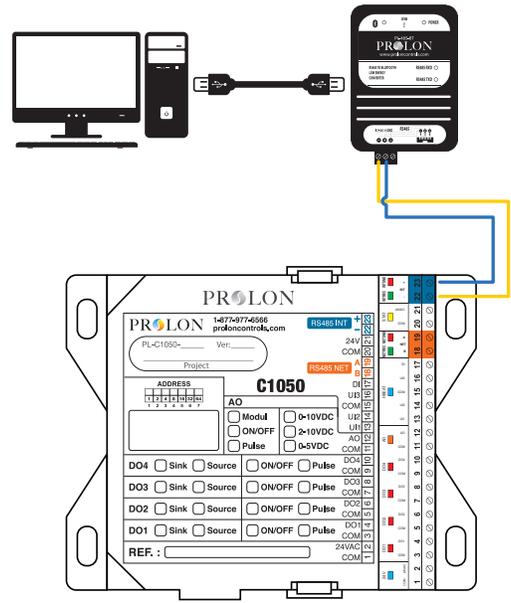
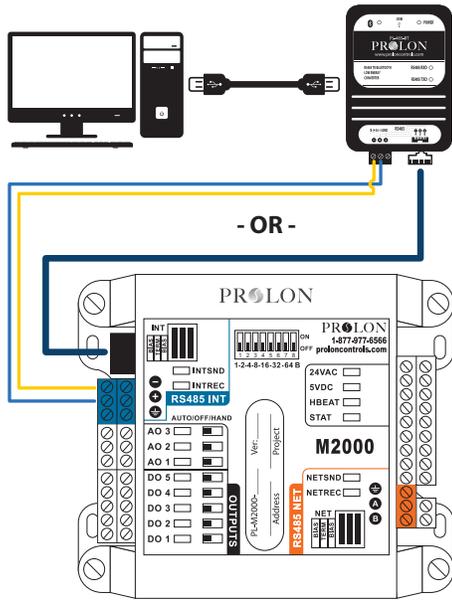
- See Section 4 for PL-485-BT details



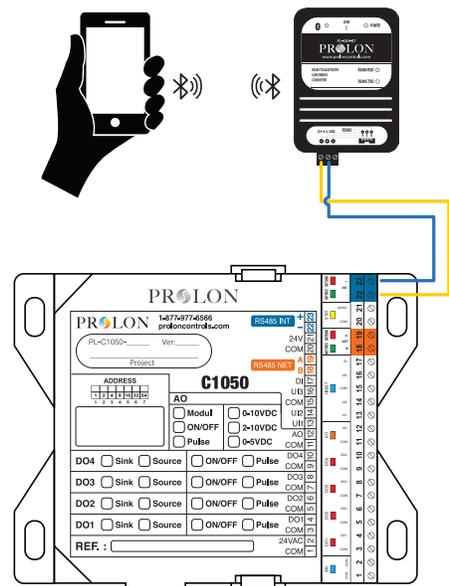
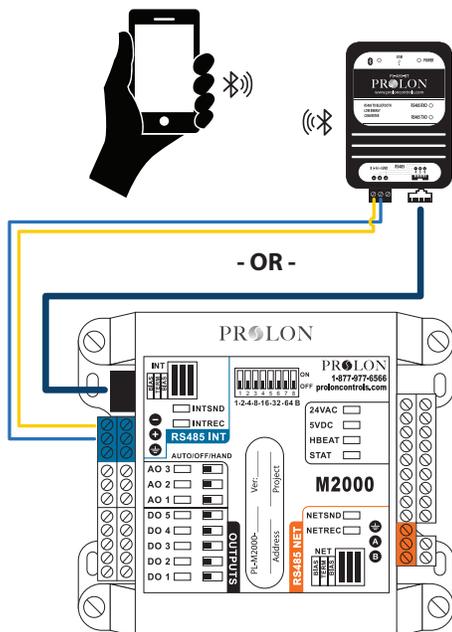


## 2.2 - Connecting directly to a PL-M2000 or PL-C1050 Controller

- Serial Port (PL-485-BT adaptor)



- Bluetooth (IOS/Android app paired with the PL-485-BT adaptor)





## 3 - Ethernet/IP Connection (PL-NC2000 only)

The PL-NC2000 allows a direct connection from it to the computer using a CAT5 cable. However, the internal IP settings of the PL-NC2000 (see table below) will likely be different than that of the computer. These IP settings will possibly have to be changed on the computer in order to interface with the PL-NC2000 to view and/or configure.

**Default Static IP PL-NC2000**

IP Address	192.168.1.99
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

**NOTE:** As of Focus 7.5, the PL-NC2000 default IP settings are set to DHCP. In order to facilitate direct communication between the PL-NC2000 and a computer using a CAT5 cable, we must change this to a Static IP address. Follow section 3.2 to change from DHCP to Static IP.

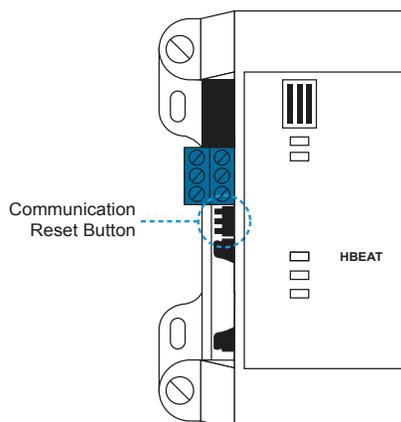
### 3.1 - Connect PL-NC2000 to computer with ethernet cable (CAT5e)

Plug one end of the Ethernet cable into the computer and the other into the silver/gray port labeled ETHERNET on the upper right-hand side of the Network Controller ([see section 2.1.1](#)).

### 3.2 - Change communication setting from DHCP to Static IP using Reset Button on the PL-NC2000

The PL-NC2000 has a button located on the left side of the controller that can be used to reset the IP address settings, as well as other important settings related to communication, in case they are forgotten or lost. After following the procedure described below, IP mode will be switched from DHCP to Static.

**To reset the communication settings of the PL-NC2000, follow these steps:**



1. Power up the NC2000 and wait for the blue heartbeat LED (HBEAT) to start blinking.
2. Hold down the Communications Reset Button for approximately 8 seconds, at which point the heartbeat LED will stop blinking and the NC2000 will self-reset. Release the button.
3. After approximately 5 seconds, the NC2000 will resume normal operation (HBEAT LED blinking) but will have the new communication settings as described above.



### 3.3 - Change IP Settings on Computer to match PL-NC2000 IP Settings

1. Perform a search in Windows for "Control Panel". (Figure 1)

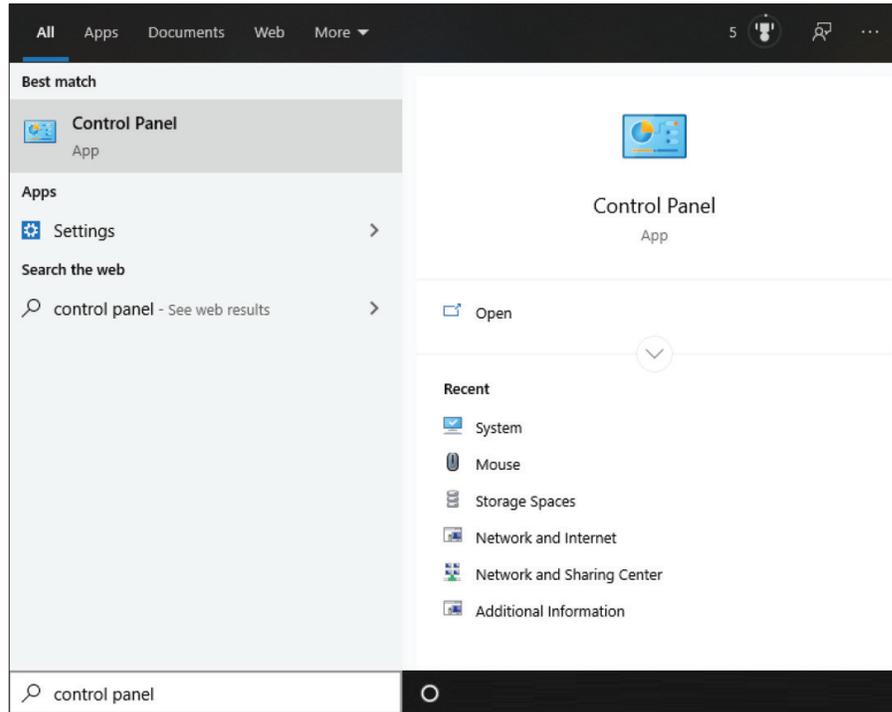


Figure 1

2. The Control Panel may be set to View by: "Category" in the upper right. Change this to View by "Small" or "Large icons" and then select "Network and Sharing Center". (Figure 2)

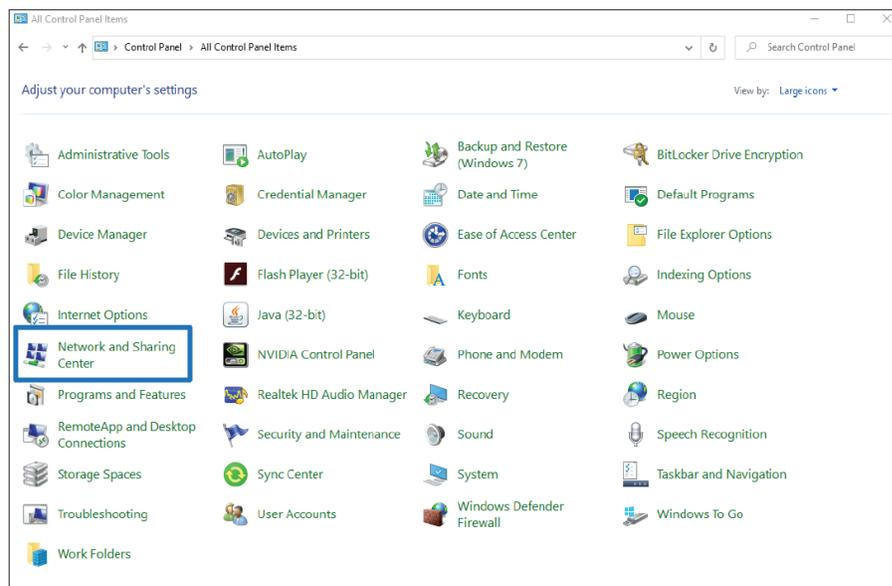


Figure 2



3. Select “Change Adaptor Settings”. (Figure 3)

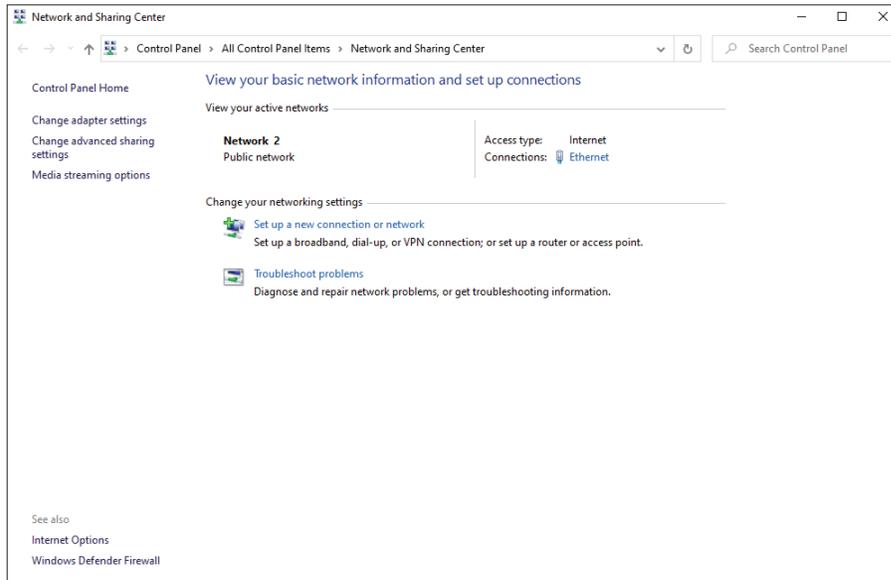


Figure 3

4. Right click on Ethernet Icon and select “Properties”. (Figure 4)

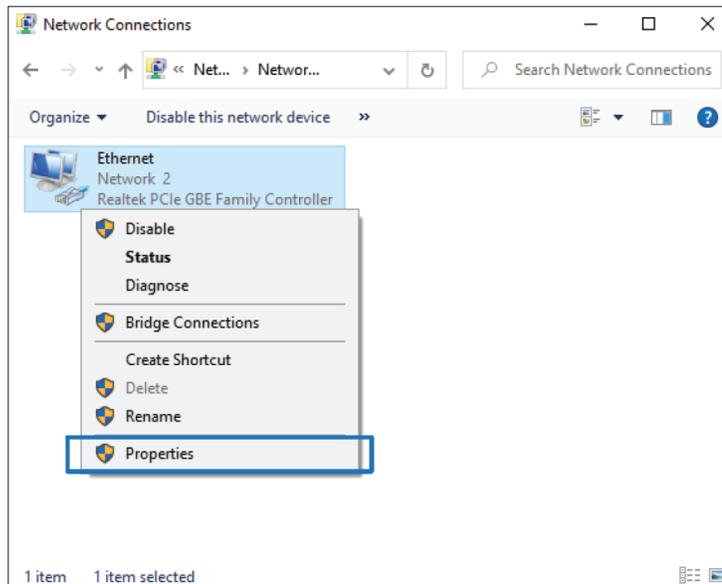


Figure 4



5. Highlight “Internet Protocol Version 4 (TCP/IPV4)” and click on Properties. (Figure 5)

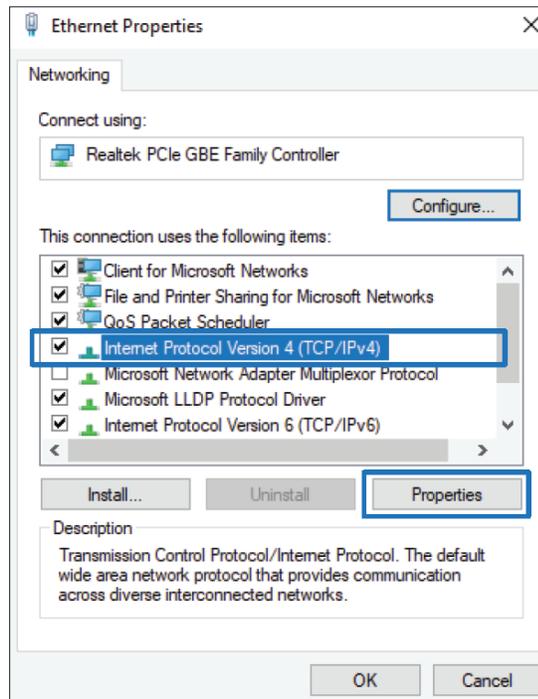


Figure 5

6. Select “Use the following IP address”. (Figure 6)

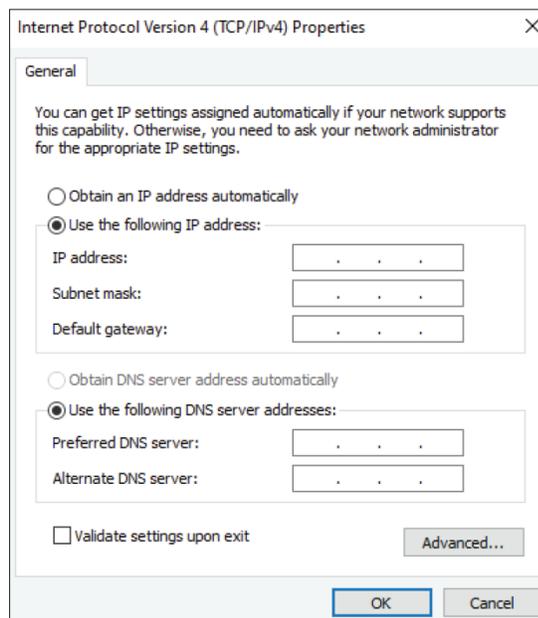


Figure 6



7. For the IP tab, enter the same values as the default setting for the Network Controller 192.168.1.99 except for the last set "99". The number entered in its place must be anything else i.e.: 100,101...etc. (Figure 7)
8. Click ok.
9. Close "Ethernet Properties" page.

IP Address	192.168.1.100
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

Figure 7

### 3.4 Connecting with Focus over TCP/IP

1. Launch the Focus Software.
2. Upon first opening the Focus software, it will prompt the user to either. (Figure 8)
  - Create a new project
  - Open a project saved on this computer
  - Open last project

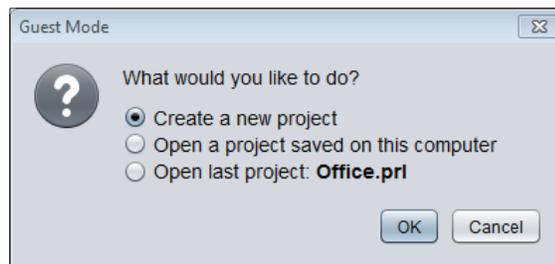


Figure 8

3. Select "Create a new project".  
Upon selecting to create a new project, Focus will ask the user how to connect to the system. (Figure 9)

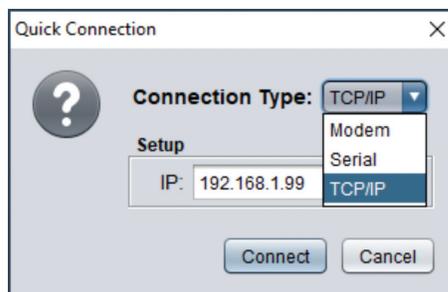
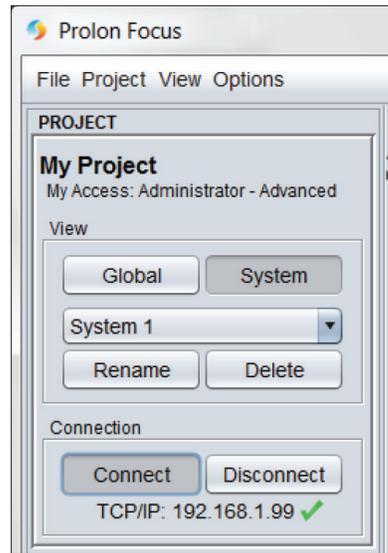


Figure 9



4. Click the drop-down tab next to "Connection Type" and choose "TCP/IP".
5. Enter the IP address of the Network Controller 192.168.1.99 and click "Connect".
6. Upon a successful connection, a green checkmark will appear as seen in Figure 10.



**Figure 10**

7. On the PL-NC2000 Network Controller itself, the "CONN" LED (RED) and "CABLE" LED (GREEN) will both be ON. (Figure 11)



**Figure 11**



## 4 - PL-485-BT Serial Port Connection

(PL-NC2000, PL-M2000, PL-C1050, PL-VC2000, PL-T1100)

The Serial Port connection requires the PL-485-BT adaptor to interface between the controller and the computer.

**Step 1:** connect the PL-485-BT adaptor into the computer using the provided USB cable.

**Step 2:** Turn the adaptor ON (ON/OFF switch located on the adaptor).

### 4.1 - Identifying the Dedicated COM Port on Windows

This type of connection will utilize one of the COM ports of the computer. To verify exactly which one, a search on the computer is needed.

1. Search in Windows for “Device Manager” and open. (Figure 12)

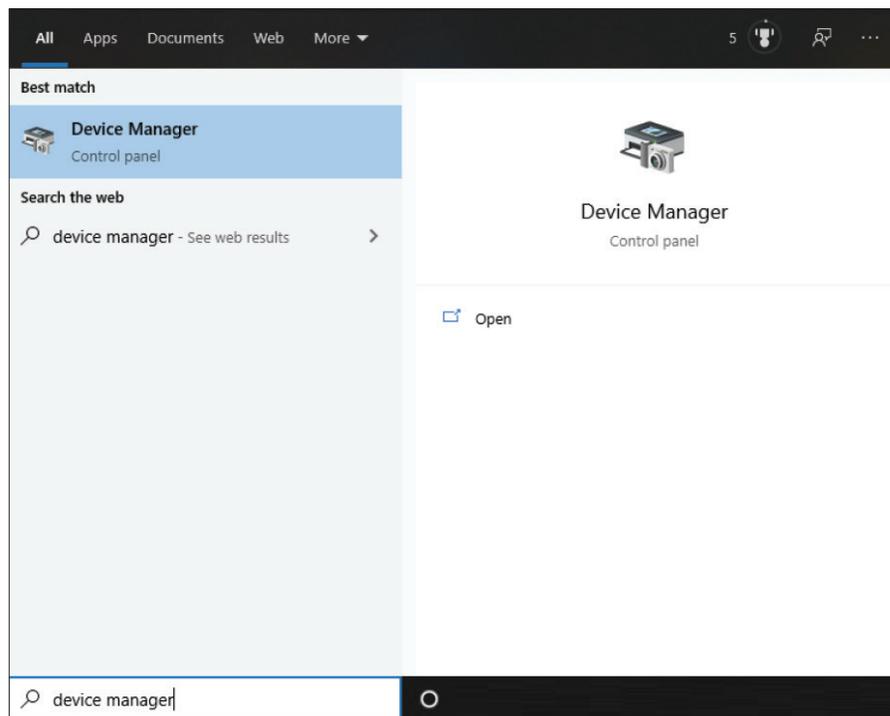


Figure 12



2. Look for “Ports (Com & LPT)”. (Figure 13)

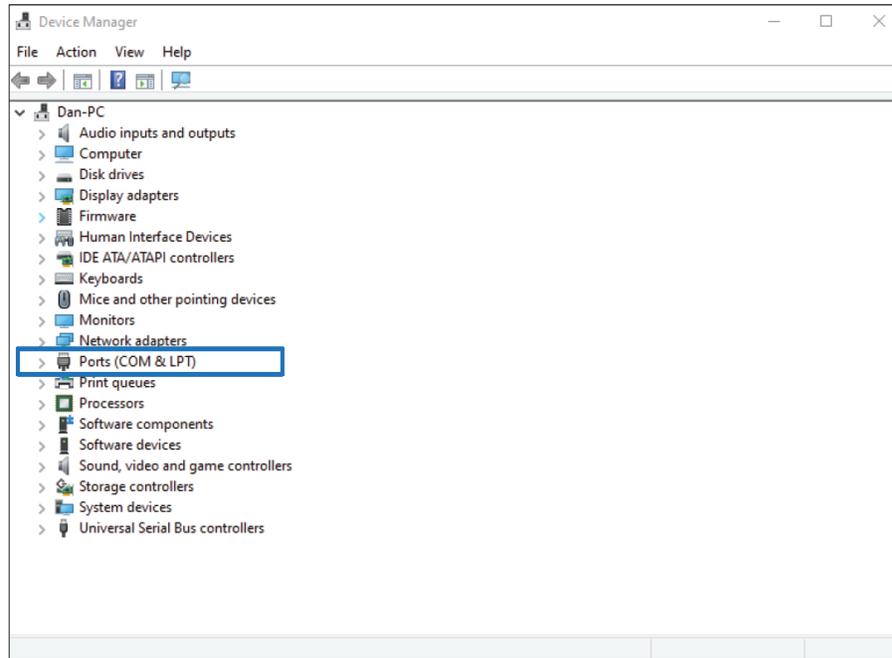


Figure 13

3. Expand the Ports tab by clicking on the “>” or “+” located to the left. Look for “Silicon labs CP210X USB to UART Bridge (COM #)”. (Figure 14)

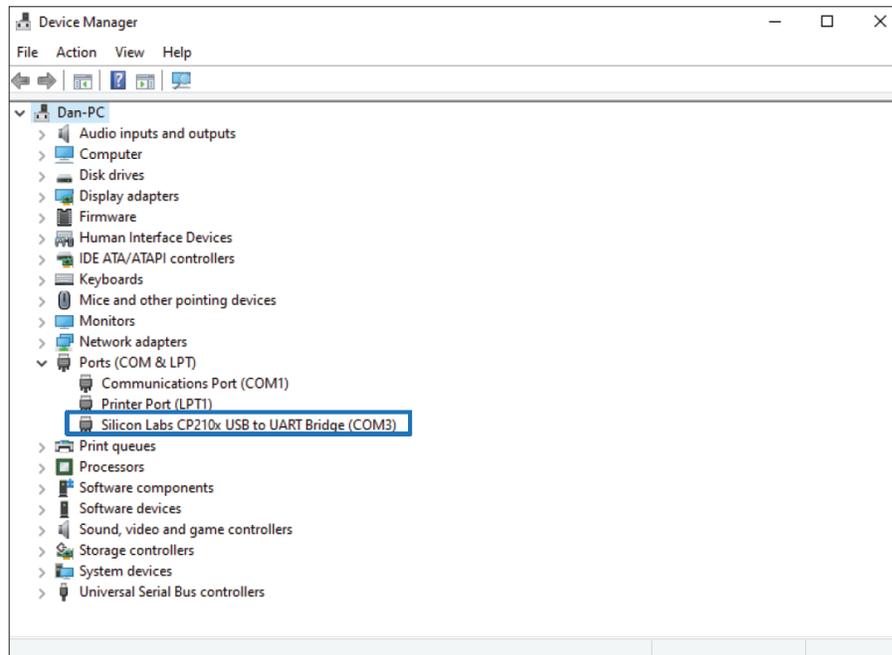


Figure 14



The COM number that is in parentheses is the serial port that is associated to the connection of the PL-485-BT and that will need to be selected in the Focus software.

If this device is visible and a number has been associated to the COM port, then please proceed to Section 4.3 Focus Serial Com.

If this device is NOT visible, then it is likely the driver has not been properly installed. See Section 4.2 Updating Driver of the PL-485-BT for further instructions.

## 4.2 - Updating Driver of the PL-485-BT

There may be instances where the computer does not recognize the device. In this situation, the driver of the PL-485-BT must be updated.

**NOTE:** Ensure the latest version of the Focus software has been downloaded on the computer. As of Version 6.2.0 the required drivers have been included in the Proton folder.

### 4.2.1 - Finding the “unknown” PL-485-BT in Device Manager

In the “Device Manager” menu

1. Look for “Other Devices” or “Universal Serial Bus Controllers” expand either tab by clicking “+” or “>”.
2. If there is a YELLOW question or exclamation mark, usually next to “Unknown Device” or “CP2104 USB to UART Bridge Controller” (see images below), then it is likely that device is the PL-485-BT.
3. To confirm that this is indeed the PL-485-BT:
  - 3.1. While the Device Manager window is open, disconnect and reconnect the USB cable of the adaptor from the computer.
  - 3.2. The “Unknown Device” should disappear and reappear on the list, hence confirming that it is indeed the PL-485-BT adaptor. (Figure 15 and 16)

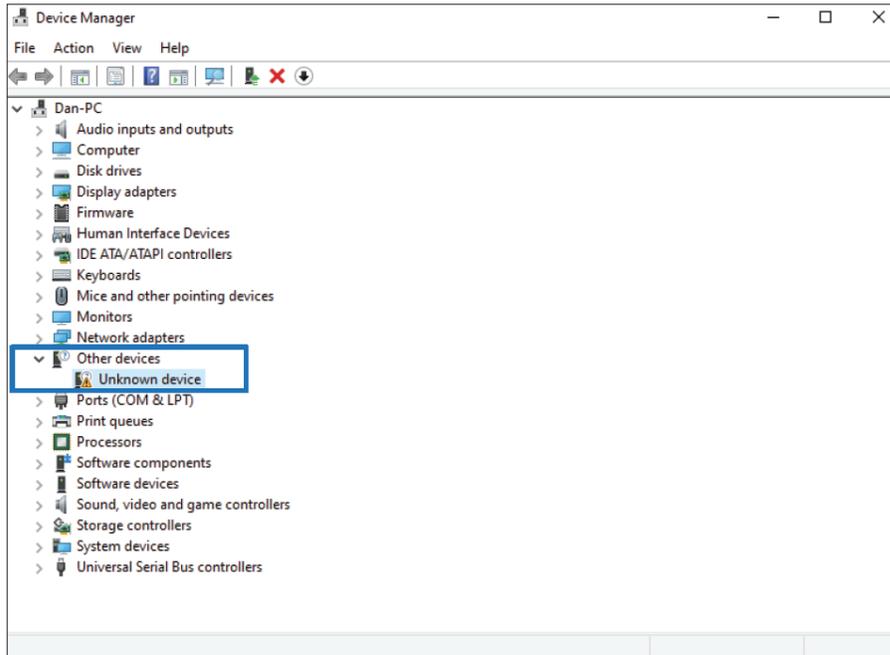


Figure 15

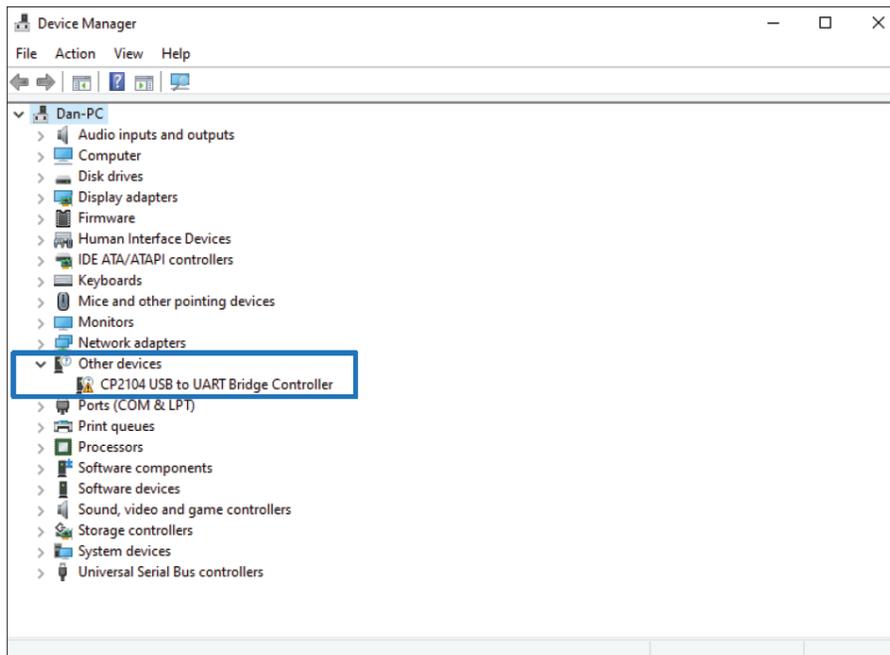


Figure 16



## 4.2.2 - Updating Driver Software

1. Right click on the “Unknown Device / CP2104 USB to...” and select “Update Driver” or “Update Driver Software”. (Figure 17)

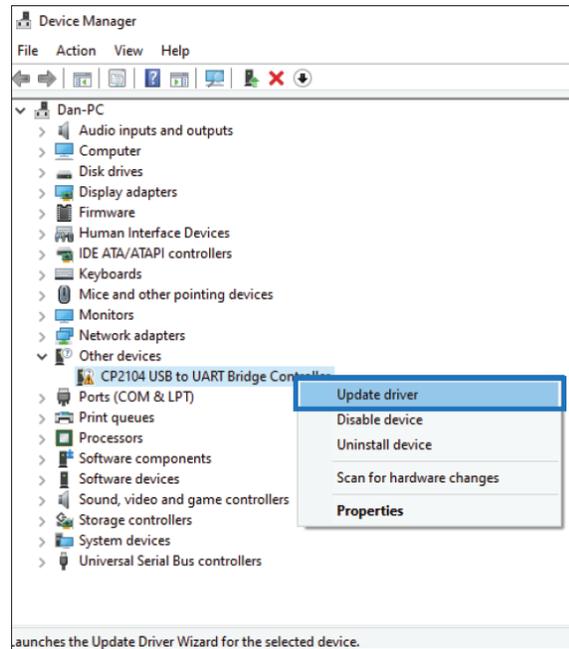


Figure 17

2. Two options will be presented, choose “Browse my computer for driver software”. (Figure 18)

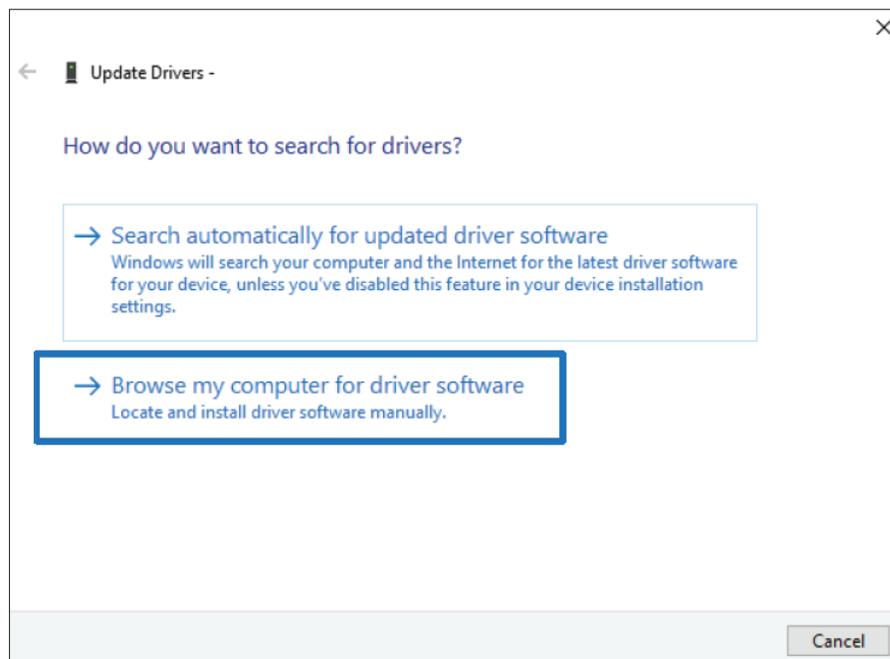


Figure 18



3. The location should point to the driver folder. (Figure 19)
  - 3.1. Standard File location: C:\ProLon\Drivers\PL-485-BT\_Windows\_7\_8\_10\
    - 3.2. Ensure the “Include subfolders” option is checked
4. Click next.
5. The driver update process is complete.

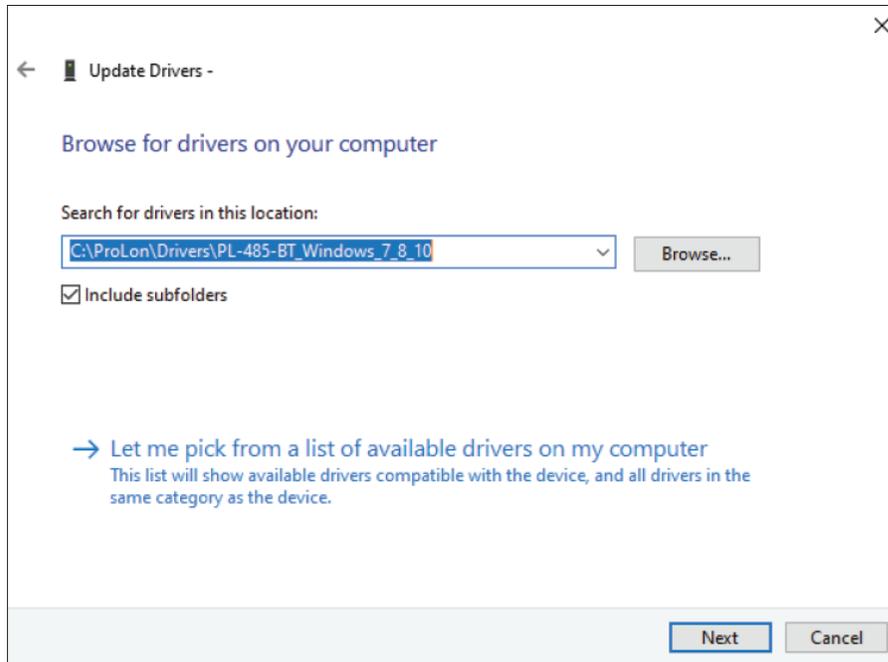


Figure 19



### 4.2.3 - Identifying the COM port Number

1. After the restart open, "Device Manager".
2. Look for "Ports (Com & LPT)".
3. Look for "Silicon labs CP210X USB to UART Bridge (COM #)". (Figure 20)
  - 3.1 The COM number that is in parentheses is the serial port that is associated to the connection of the PL-485-BT and that will need to be selected in Focus.

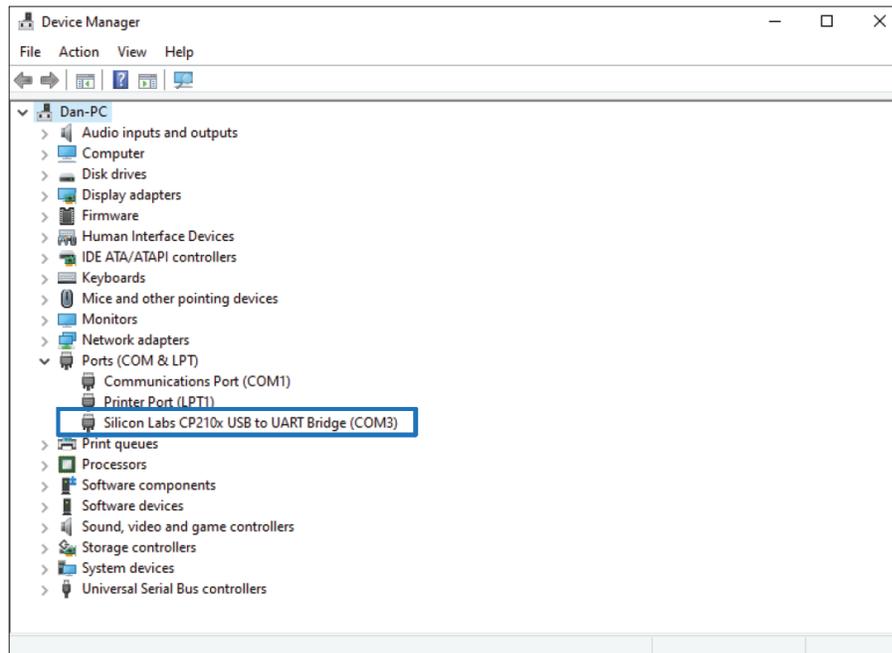


Figure 20

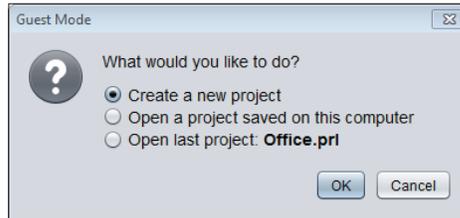
## 4.3 Focus Serial COM

1. Launch the Focus Software.

Upon first opening the Focus software in "Guest Mode", it will prompt the user to either (Figure 21):

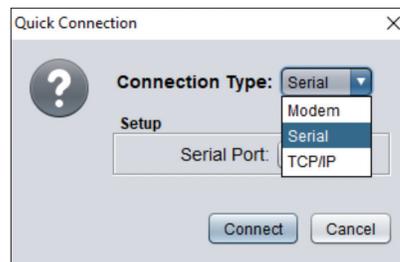
  - Create a new project
  - Open a project saved on this computer
  - Open last project

Select "Create a new project".



**Figure 21**

2. Upon selecting to create a new project, Focus will ask the user how to connect to the system. (Figure 22)  
Click the drop-down tab next to "type" and choose "Serial". (Figure 22)



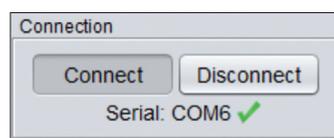
**Figure 22**

3. Select the correct Serial COM port that was associated to the PL-485-BT in Device Manager and click Connect. (Figure 23)



**Figure 23**

4. In the Gray left column of Focus under Connection "Serial: COM#" with a GREEN check mark will be visible. (Figure 24)



**Figure 24**



## 5 - USB Serial Port (PL-NC2000 only)

This alternate Serial Port connection does not need an adaptor, the computer can be connected to the PL-NC2000 using a MALE type A to MALE type A USB cable.

The Serial Port connection requires the PL-485-BT adaptor to interface between the controller and the computer.

**Step 1:** Plug one end into the USB connection of the PL-NC2000 and the other end into the computer.

**Step 2:** Launch the Focus Software (if the Focus Software was already open upon connecting the cable, then relaunch the software).

### 5.1 - Focus Serial COM

1. Upon first opening the Focus software, it will prompt the user to either (Figure 25):

- Create a new project
- Open a project saved on this computer
- Open last project

Select "Create a new project".

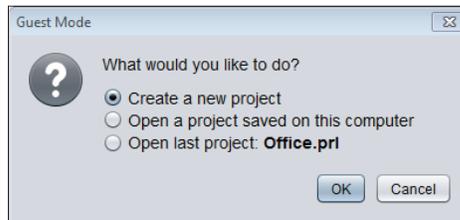


Figure 25

2. Upon selecting to create a new project, Focus will ask the user how to connect to the system. Click the drop-down tab next to "type" and choose "Serial". (Figure 26)

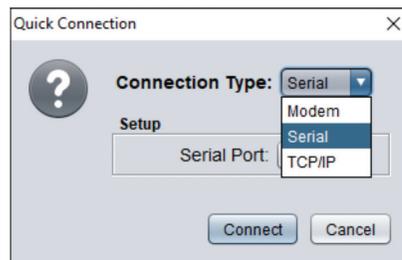


Figure 26



3. Choose "USB" as the serial port connection and click Connect. (Figure 27)



Figure 27

4. In the Gray left column of Focus under Connection "Serial: USB" with a GREEN check mark will be visible. (Figure 28)

**Note:** If the "USB" option DOES NOT APPEAR in the Serial Port dropdown list, then it is likely the driver did not install properly. See Sections 5.2 to 5.4 to update the driver.



Figure 28

## 5.2 - Identifying the "unknown" PL-NC2000 in Device manager

There may be instances where the computer does not recognize the device. In this situation, the driver of the PL-NC2000 must be updated.

**NOTE:** Ensure the latest version of the Focus software has been downloaded on the computer. As of Version 6.2.0 the required drivers are included in the Proton folder.

To verify and update the driver for the PL-NC2000, follow these steps:

1. In the "Device Manager" menu.
  - 1.1 Look for "Other Devices" or "Universal Serial Bus Controllers" expand either tab by clicking "+" or ">".
  - 1.2 If there is a YELLOW question or exclamation mark, usually next to "Unknown Device" (see images below) or similar, then it is likely that device is the PL-NC2000.
2. To confirm that this "Unknown Device" is the PL-NC2000.
  - 2.1 While the Device Manager window is open, disconnect and reconnect the USB cable of the controller from the computer.
  - 2.2 The "Unknown Device" should disappear and reappear on the list, hence confirming that it is indeed the PL-NC2000 controller.

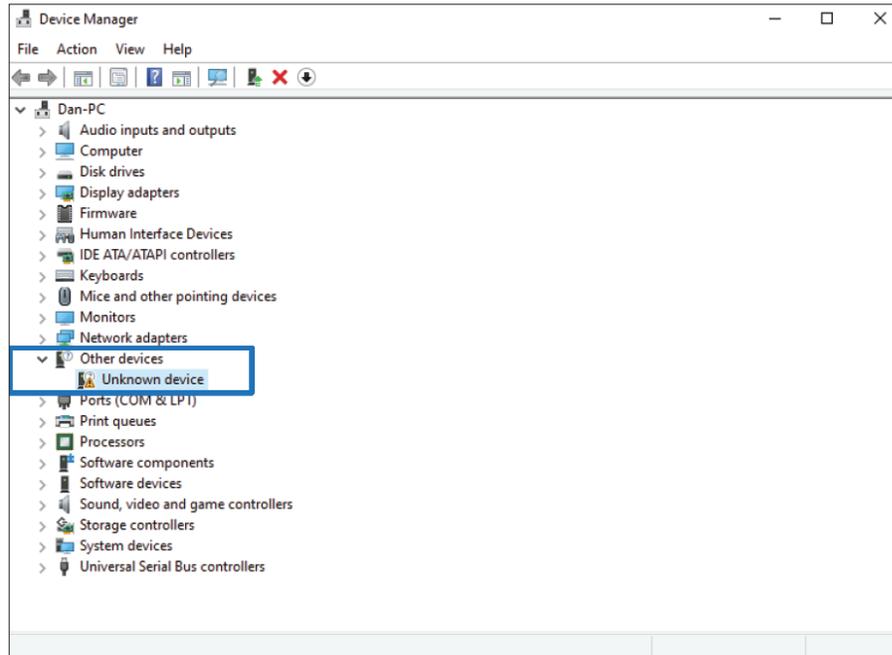


Figure 29

## 5.3 - Updating Driver of the PL-NC2000

1. Right click on the “Unknown Device “and select “Update Driver” or “Update Driver Software”. (Figure 30)

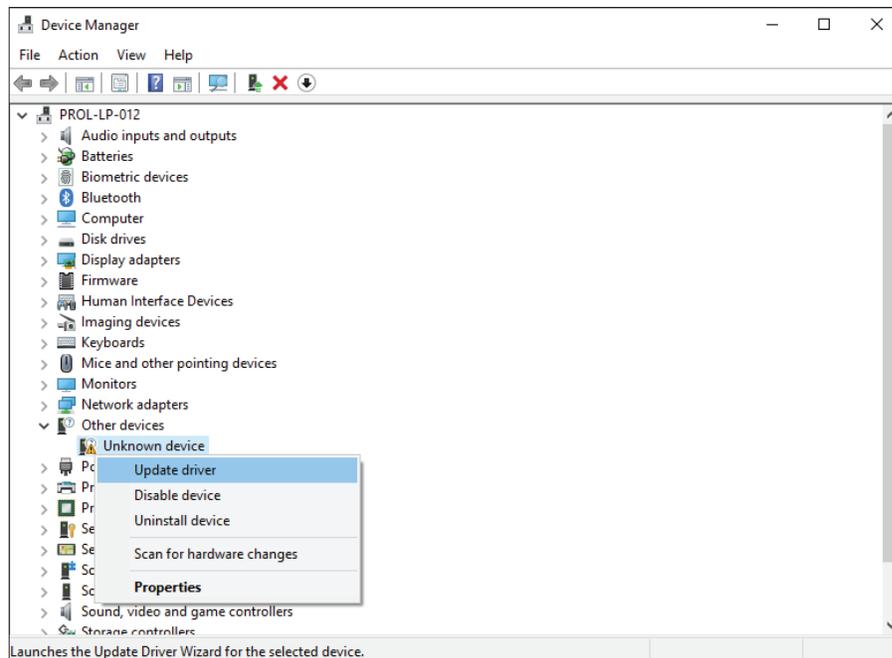


Figure 30



2. Two options will be presented, choose “Browse my computer for driver software”. (Figure 31)

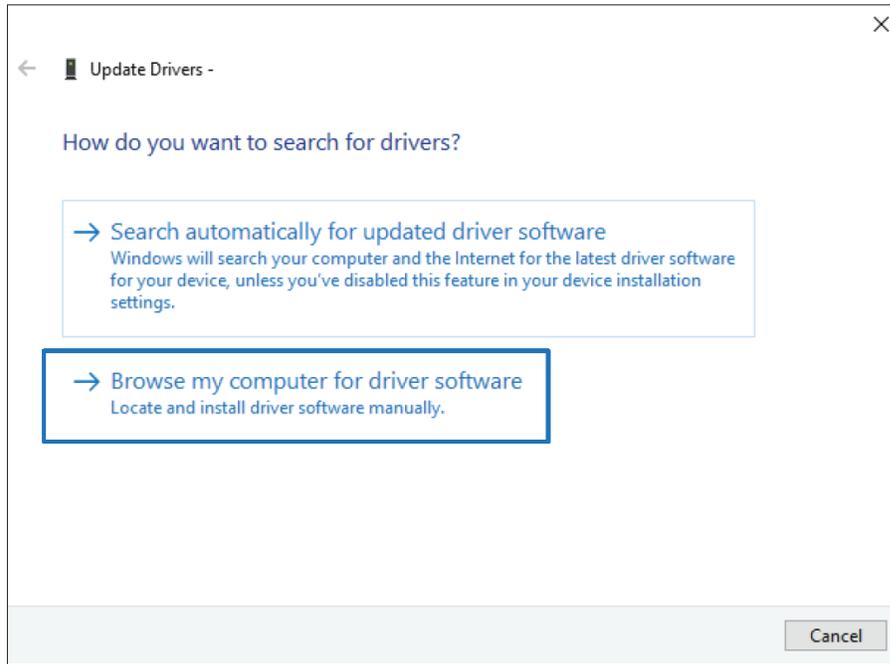


Figure 31

3. The location should point to the driver folder. (Figure 32)

3.1. Standard File location: C:\ProLon\Drivers

3.2. Ensure the “Include subfolders” option is checked

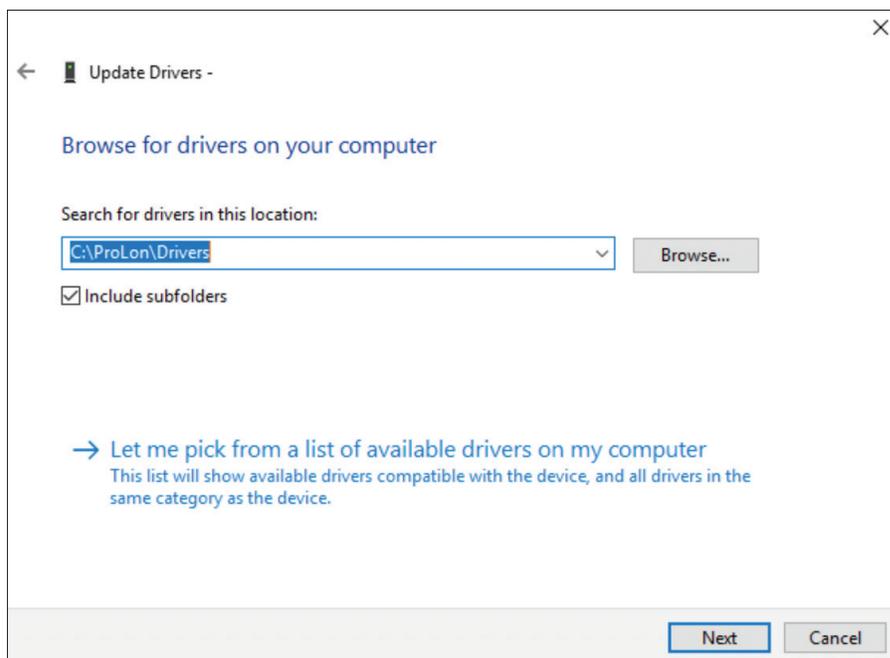


Figure 32



4. Click next.
5. The driver update process is complete.  
Now relaunch the Focus Software to view “USB” in the Serial Port dropdown list.

## 5.4 - Confirming the Driver was successfully installed

1. Open “Device Manager”.
2. Look for “Interface”.
3. Look for “USB CH372/CH375”. (Figure 33)

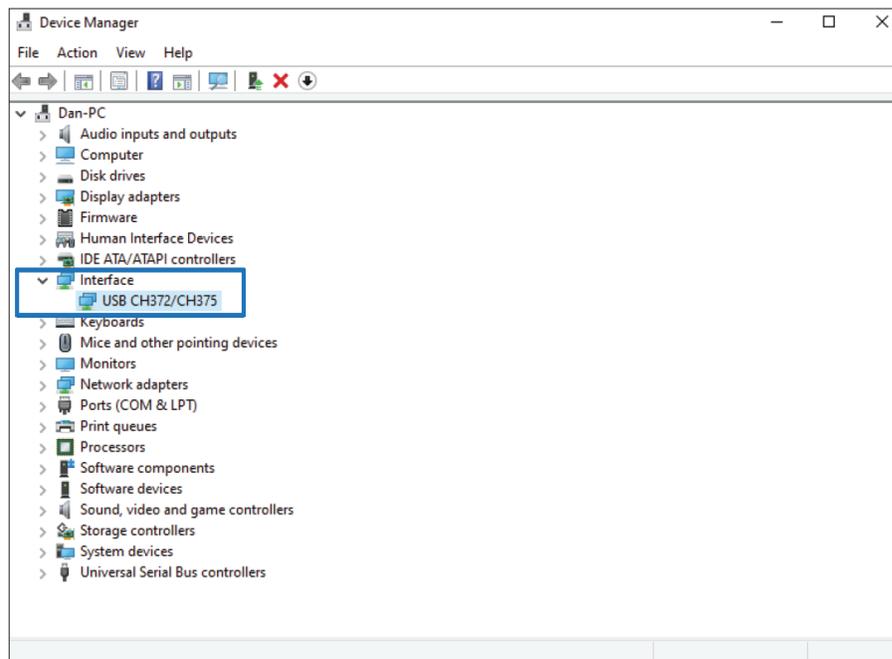


Figure 33



## 6 - Cloud Communication

### BEFORE GETTING STARTED

1. Although not required, it is highly recommended to have a PL-485-BT converter handy in case a direct connection must be made.
2. To enable cloud communication, there must be an internet connection available to:
  - The computer via WiFi or network cable.
  - The PL-NC2000 Network Controller via network cable.
3. To setup and access the cloud communication, the user must have previously created a free ProLon account in Focus and must be logged into the account.

**STEPS 1, 2 & 3 are required if the existing PL-NC2000 Network Controller is not running version 7.5 or higher. If the PL-NC2000 is already running this version, PROCEED TO STEP 4.**

1. Install or update the ProLon Focus software to Focus 7.5 or higher. ([www.proloncontrols.com](http://www.proloncontrols.com))
2. Locate Network Controller firmware file (BIN file)
  - Ensure that the BIN file is located in the ProLon Controls folder.
  - File path on desktop: C:\ProLon\Focus v.7.5.0\NC2000\_V710\_ISP.bin
  - The BIN file can also be downloaded from ProLon's FTP site: [Click here to download.](#)
3. Update the PL-NC2000 Network Controller firmware to Version 7.5 or higher (Figure 34-35)
  - Connect to PL-NC2000 Network Controller via serial or TCP/IP
  - Double-click the Network Controller icon
  - Config → Device
  - Press on "Reprogram" button
  - Select the BIN file from Step 2, and press on "Start" button to update the Network Controller.



Figure 34

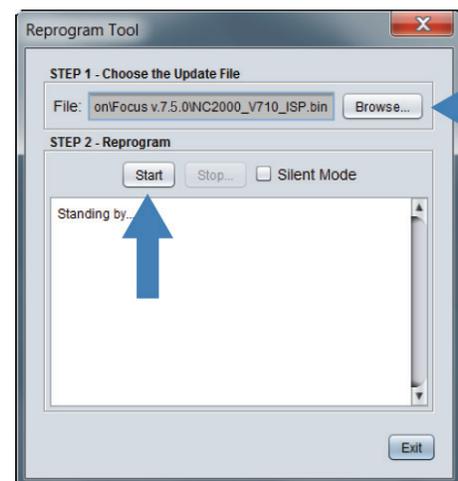


Figure 35



#### 4. Set Network Controller IP Settings (Figure 36)

- Connect to PL-NC2000 Network Controller via USB, serial or TCP/IP
- Double-click the Network Controller icon
- Config → Communication
- Ensure the “Allow Cloud Communication” box is checked
- Set the IP mode to DHCP – OR – Static IP + enter valid Local Area Network settings (IP Address, Subnet Mask, Default Gateway)
- Press Apply
- Reset the PL-NC2000 Network Controller

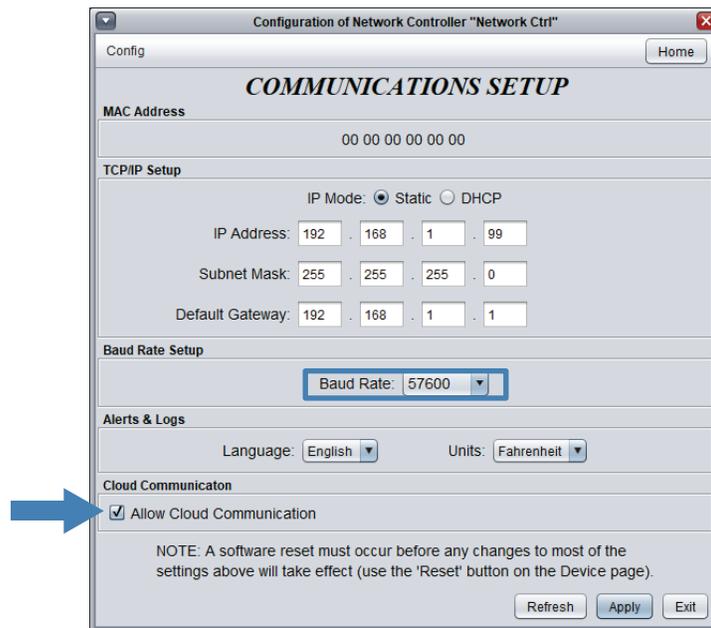


Figure 36

#### 5. Retrieve NCID (Figure 37-38)

- Connect to PL-NC2000 Network Controller via USB, serial or TCP/IP
- Right-click the Network Controller icon
- Select “View NCID”
- Select “Copy to Clipboard”

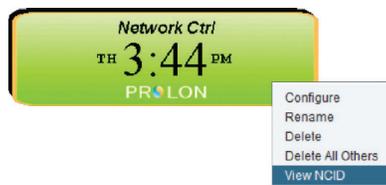


Figure 37

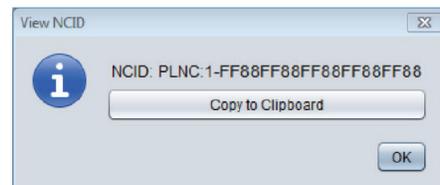


Figure 38



6. Disconnect communication with the PL-NC2000 Network Controller
  - Click on the “Disconnect” button in the Connection side panel
7. Claim the PL-NC2000 Network Controller (Figure 39-40)
  - Access Connection menu: Project → Setup → Connection tab
  - Select Type: “Cloud”
  - Below, click on “Claim NC”
  - Right click and “Paste” NCID. Press “Claim” button.
  - Click on Save
  - Click on the “Connect” button in the Connection side panel

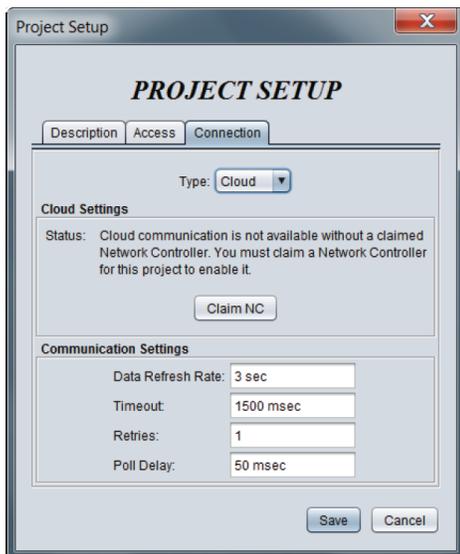


Figure 39



Figure 40

8. Confirmation Cloud communication is active (Figure 41)
  - Upon clicking on the “Connect” button, a green checkmark will appear thus confirming the communication is now active.

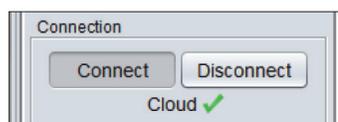


Figure 41

REV 7.5.0

PL-INSTL-CONNECTMETHODS-EN

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