GETTING STARTED

CHAPTER

1

In This Chapter...

Introduction

Purpose of this Manual

Thank you for purchasing the AutomationDirect CLICK PLUS PLC family of products. This hardware user manual provides information that will help you install, set up, program, troubleshoot, and maintain your CLICK PLUS PLC system. The manual includes information that is critical to the safety of the personnel who will install and use the PLC, as well as the integrity of the machinery, processes, and equipment controlled by the PLC.

The manual also includes important information about power and signal wiring, mounting of the PLC, and configuring the PLC system.

About Getting Started

If you are familiar with PLCs in general, then following the simple steps in this first chapter may be all you require to start being productive using a CLICK PLUS PLC system. After you have completed these simple steps, your CLICK PLUS PLC will be running a ladder logic project that you programmed. If you are new to the world of PLCs, be sure to read through all of the chapters in this hardware user manual.

Supplemental Manuals and Other Help

The CLICK Programming Software, C0-PGMSW, can be downloaded free from the AutomationDirect web site (link shown below under Technical Support). Both this Hardware User Manual, *C2-USER-M*, and the *Software Installation Guide* are free as a download. **The CLICK Programming Software includes searchable online help topics covering all aspects of the software and instruction set.**

Technical Support

We strive to make our manuals the best in the industry. We rely on your feedback to let us know if we are reaching our goal. If you cannot find the solution to your particular application, or, if for any reason you need technical assistance, please call us at:

<div align="center">

770–844–4200

</div>

Our technical support group will work with you to answer your questions. They are available Monday through Friday from 9:00 A.M. to 6:00 P.M. Eastern Time. We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company.

<div align="center">

http://www.automationdirect.com

</div>

Conventions Used

WARNING: When you see the exclamation point icon in the left-hand margin, the paragraph to its immediate right will be a warning. This information could prevent injury, loss of property, or even death in extreme cases. Any warning in this manual should be regarded as critical information that should be read in its entirety. The word WARNING: in boldface will mark the beginning of the text.

*NOTE: When you see the notepad icon in the left-hand margin, the paragraph to its immediate right will be a special note. Notes represent information that may make your work quicker or more efficient. The word **NOTE:** in boldface will mark the beginning of the text.*

TIP: Whenever the "light bulb" is shown in the left-hand margin, the paragraph to its immediate right will provide a special tip. The word TIP: in boldface will mark the beginning of the text.

Key Topics for Each Chapter

The beginning of each chapter will list the key topics that can be found in that chapter.

Getting Started!

CHAPTER
1

In This Chapter...

Before you begin...

It is recommended that the following items be available to make this short step-by-step introduction to the CLICK PLUS PLC go smoothly.

CLICK PLUS PLC unit

CLICK 24VDC Power Supply
C0-00AC or C0-01AC

Other 24VDC Power Supply
Example: PSP24-60S

or

PC Running
Windows

CLICK
Programming Software
C0-PGMSW

Based on your CLICK PLUS PLC,
One of the cables shown below:

Ethernet Cat5 Cable

Not available from ADC.

USB or Free download @
http://support.automationdirect.com/
products/clickplcs.html

USB A to USB micro B
Programming
Cable Assembly
USB-CBL-AMICB6

Screwdriver
TW-SD-MSL-2

Wire Strippers
DN-WS

Hookup Wire

AC Power Cord

PC Programming Cable
D2-DSCBL

Not available from ADC.

PC requires RS-232 port.

Step 1: Install Software

The CLICK PLC family offers two methods of connecting and configuring the PLCs

1. CLICK PLC mobile app for iOS and Android devices
2. CLICK programming software for Windows-based PCs

Installing the CLICK PLUS Provisioning Mobile App

The CLICK PLUS Provisioning App connects your mobile device to a CLICK PLUS PLC via Bluetooth and offers a quick plug and play way to provision the CLICK PLUS PLC to connect to a wireless LAN.

Install the CLICK PLUS Provisioning mobile app from the Apple App Store or Google Play Store (CLICK PLUS Provisioning, published by Automationdirect.com).
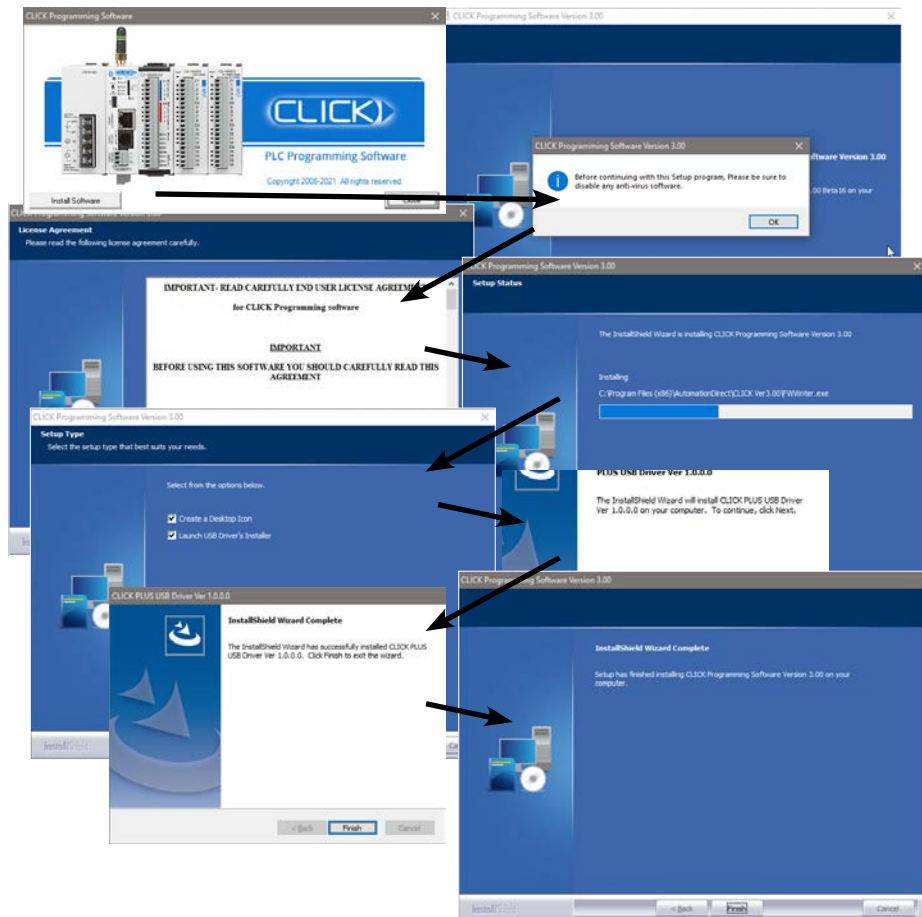
Install the CLICK Programming Software

1. If you have the programming software on USB, insert the USB drive in a USB slot and follow the instructions. Otherwise, download the free CLICK Programming Software, C0-PGMSW, from the following Automationdirect.com web site: **http://support.automationdirect.com/products/clickplcs.html**

2. Unzip the downloaded ZIP file.

3. Double click Install.exe. The CLICK PLC Programming Software splash screen should appear after a short time.

4. Click on the splash screen's Install Software button and follow the dialog boxes.

Silent Install

The silent install feature allows the software to be installed from the Windows command line or deployment management software without further user interaction.

Command for Silent Install: **CLICK_Setup.exe -s**

Step 2: Launch Programming Software

After installing the CLICK Programming Software, C0-PGMSW, choose one of three methods to launch the software. Double click the desktop CLICK icon, or from the PC's Start menu, select Start > AutomationDirect > CLICK Programming Software, or simply click the icon on the Quick Launch bar. See examples below.

Click here

Or here
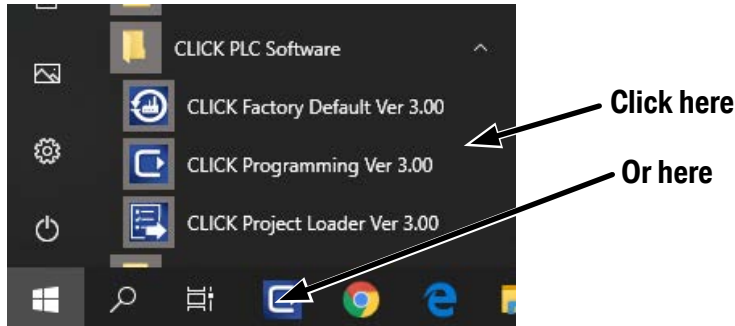
The CLICK Programming Software will start up and display the Main Window as shown on the next page.

The example in this manual use the 'Classic' user interface of the CLICK programming software. If you are starting the software for the first time, you may want to change to this UI to follow the example more easily. To do so, click the Theme button in the upper right of the display, and select Change UI (Classic/Ribbon).
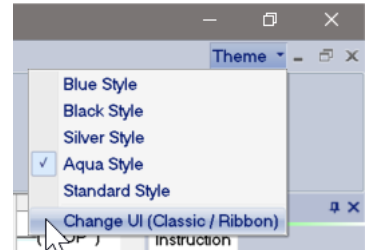

NOTE: The recommended minimum screen size for the CLICK Programming Software is 1024 X 786 pixels.

Step 2: Launch Programming Software (cont'd)

The Main Window is divided into Menus, Toolbars, and Windows that work together to make project development as simple as possible. See the software's online help for additional details.
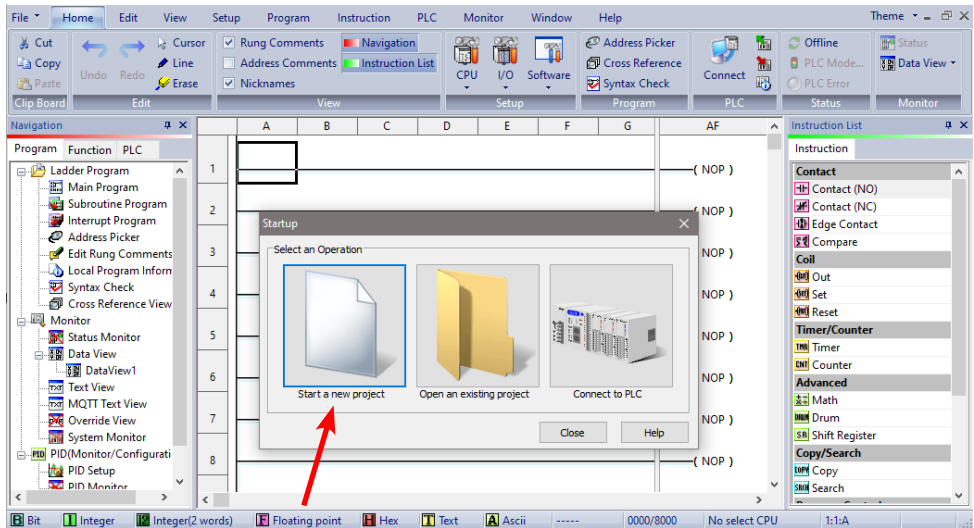
Click on the "Start a new project" graphic in the **Startup** dialog box. The **Select a CPU Module** window opens.
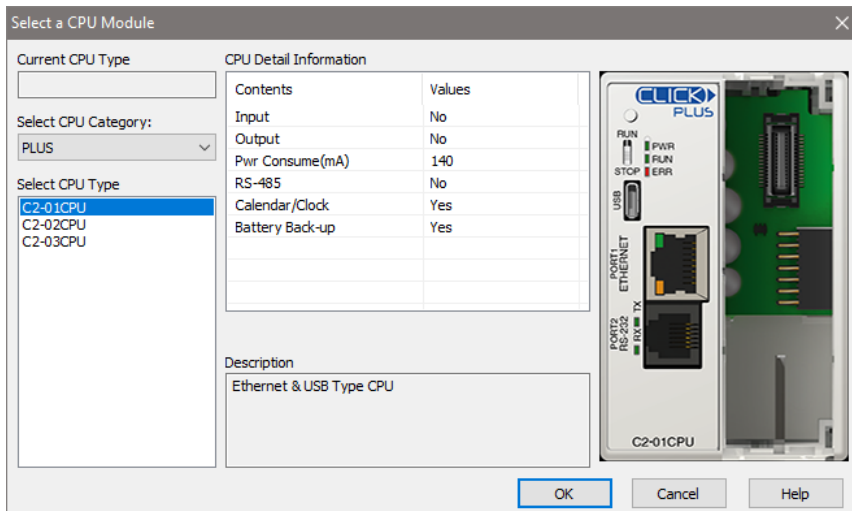

Select from the list on the left for the CLICK PLUS PLC unit that you will use for the ladder logic example that follows.

Step 3: Set Up User Account

A single 'admin' user account exists on the CLICK platform, with the default password set to 'click'. This must be disabled or changed to a unique password in any project for a CLICK CPU with network capabilities before it can be downloaded. This helps greatly reduce the chances of malicious software taking control of the PLC with easy-to-guess or publicly disclosed default login credentials.

The User Account Setup dialog guides you through setting up a strong password and monitoring password activity. This dialog opens when creating a new project, if a CPU with network capabilities is selected, and can also be accessed at any time from the User Account Setup menu option.
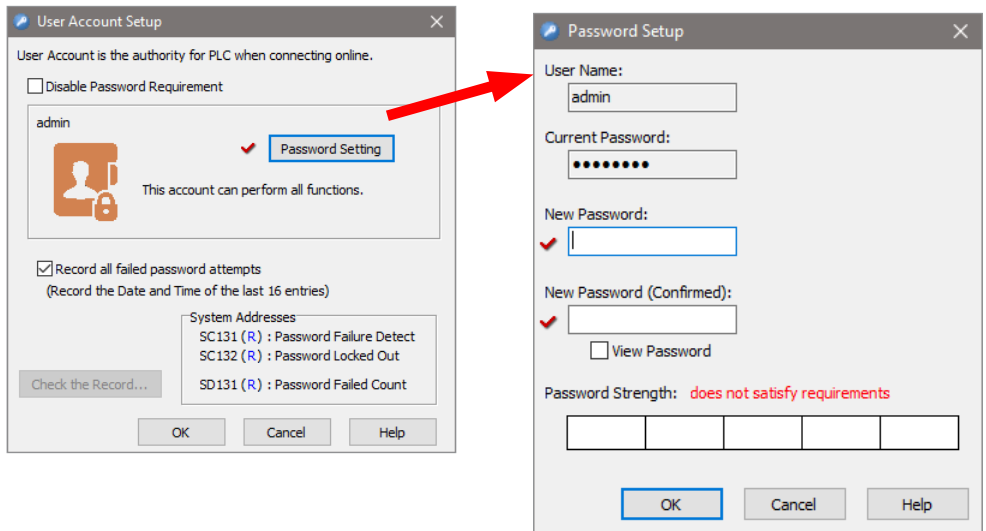
The password must be at least 8 characters long, and the following special characters are not allowed:

$$, \text{ " } < > ` ( ) + - . / : ; = ? [ \backslash ] \wedge ` \{ | \} \sim$$

NOTE: *Make sure you remember your Password. If you forget your Password you will not be able to access the CPU. You can use the Reset to Factory Default command to erase the Password. However, the command erases the Entire Project file. Therefore, you will have to download a project file again.*
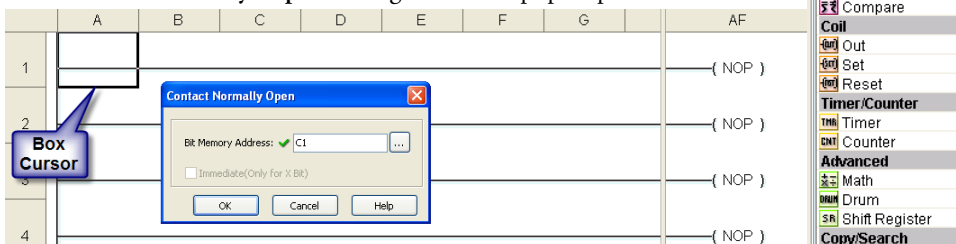
Step 4: Create a Project

In this step, we'll create a simple project. The project assumes the presence of an I/O module with discrete outputs. The project shown below is created by entering the ladder logic program in the order that follows.
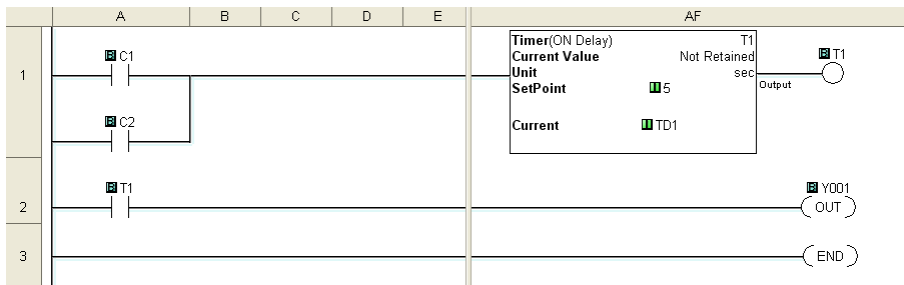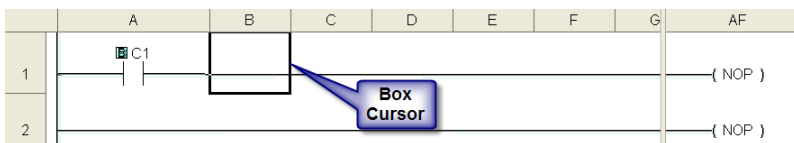

Rung #1

Place the Box Cursor on the first position on Rung #1, as shown below. From the Instruction List, click & drag a Contact (NO) into this box. Enter C1 into the **Bit Memory Address** text box of the **Contact Normally Open** dialog box that pops up and click OK.

A normally open contact labeled C1 will be placed in the beginning of Rung #1.

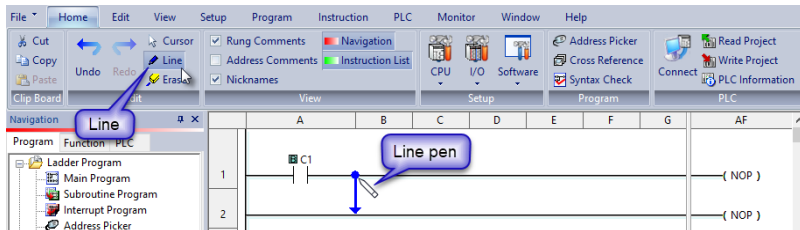The Box Cursor will move to the next available location.

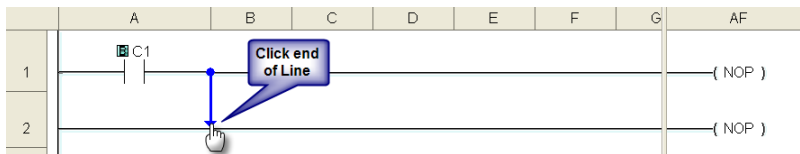**Proceed to the next page to continue construction of Rung #1.**

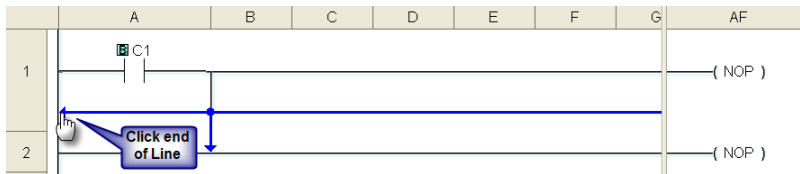## Step 4: Create a Project (cont'd)

Rung #1 (cont'd)

The Line creation tool is used to add a normally open contact in parallel with the C1 contact. Click on the Line creation tool icon located on the Edit toolbar. A blue line will appear, showing the direction of the new line. The Line pen is used to redirect the new line.
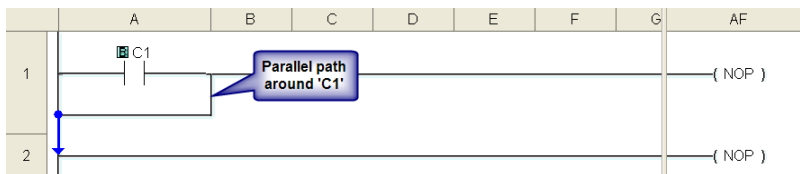

Move the mouse pointer to the end of the new line (arrow) until the mouse pointer becomes a hand with a pointing index finger. Click on the line's arrow.

Additional new lines are shown in blue. Move the mouse pointer to the end of the new line that extends to the left and click.

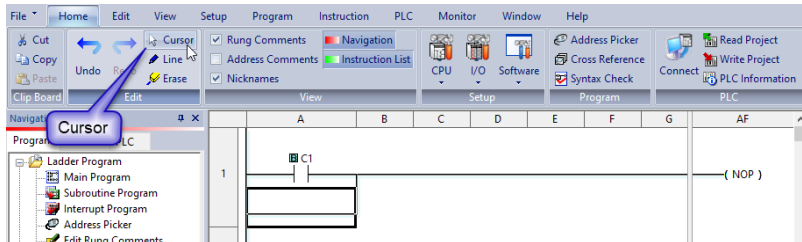There is now a parallel path around the C1 contact that was first entered as shown here.

Proceed to the next page to continue construction of Rung #1.

Step 4: Create a Project (cont'd)

Rung #1 (cont'd)

Next, click on the **Cursor Mode** icon located on the Edit toolbar (Esc key has the same function as the **Cursor Mode**). The Box Cursor will move to the newly created path. If not, position the Box Cursor over the new path to get ready for the next instruction.

NOTE: *There is also a Line Erase tool icon next to the Line tool icon on the Edit toolbar that is used to erase any of the lines that were created using the Line tool. Also, to exit the Line or Line Erase function, click on the Cursor Mode icon on the Edit toolbar. All of the Line type tools are also available under the Edit drop down menu.*

NOTE: *Lines to form parallel paths in the ladder logic can also be created with the use of the cursor keys in conjunction with the CTRL key on the PC's keyboard.*

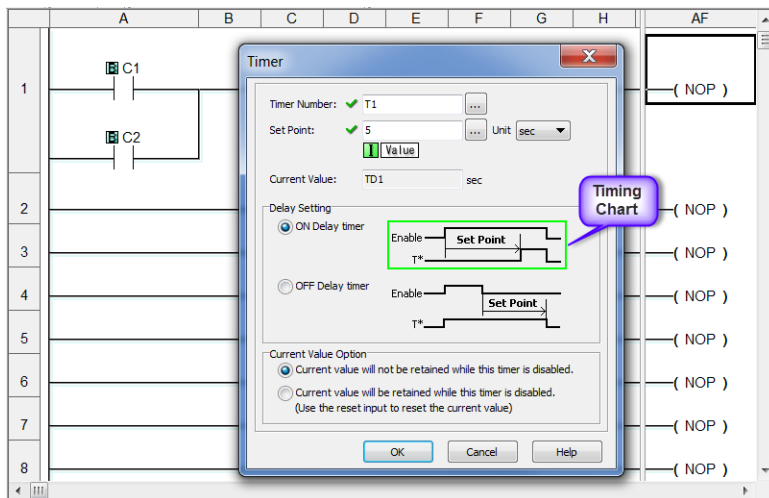**Proceed to the next page to continue construction of Rung #1.**

Step 4: Create a Project (cont'd)

Rung #1 (cont'd)

From the Instruction List, click & drag a Contact (NO) into the Box Cursor. Enter C2 into the Bit Memory Address text box of the Contact Normally Open dialog box that pops up and click OK. A normally open contact labeled C2 will be placed in parallel with the C1 contact.
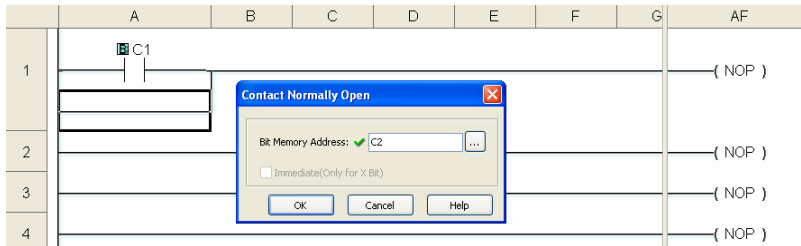
Next, place the Box Cursor on the NOP coil at the far right of Rung #1. NOP stands for No Operation and is a place holder in the ladder logic Coil Area. Click and drag a Timer from the Instruction List into this location. Within the Timer dialog box, enter T1 into the Timer Number text box, the value 5 into the Set Point, and select **sec** for the timing Unit. The Timer dialog box shows a Timing Chart that graphically represents the function of the ON Delay Timer, and also shows a selection for an alternative OFF Delay Timer mode of operation.


Leave the Delay Setting at ON Delay Timer and the Current Value Option set for the first selection. Click OK. A timer labeled T1 will be placed at the end of Rung #1.

Proceed to the next page to enter Rung #2.

Step 4: Create a Project (cont'd)

Rung #2

Place the Box Cursor at the beginning of Rung #2. From the Instruction List, click and drag a Contact (NO) into this box. Enter T1 into the Bit Memory Address text box of the Contact Normally Open dialog box that pops up. Click OK. A normally open contact labeled T1 will be placed in the beginning of Rung #2.
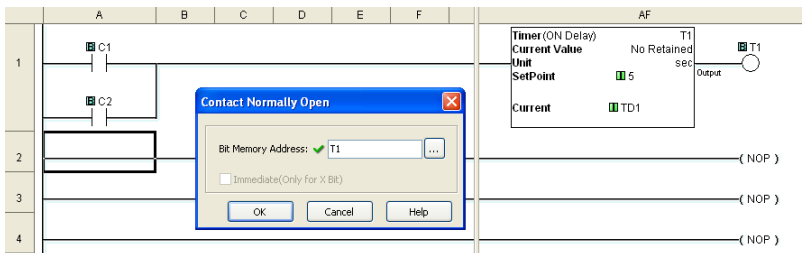

Next, place the Box Cursor on the NOP coil at the far right of Rung #2. Click and drag an OUT from the Instruction List into this location. Within the Out dialog box, enter Y001 into the Bit Memory Address: text box. Click OK. An out coil labeled Y001 will be placed at the end of Rung #2.
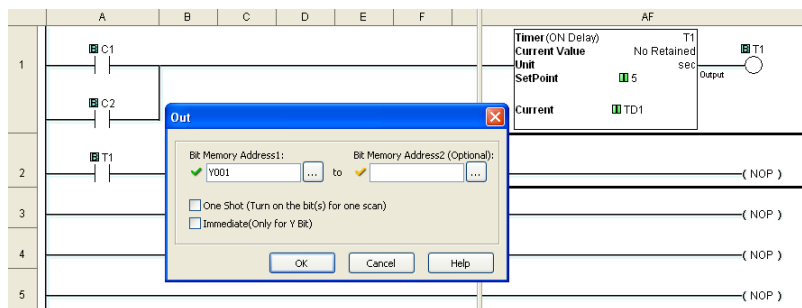

Rung #3

Finally, place the Box Cursor on the NOP coil at the far right of Rung #3. Click and drag an END from the Instruction List into this location. An END instruction indicates the last part of the main ladder logic program. You have created your first project!
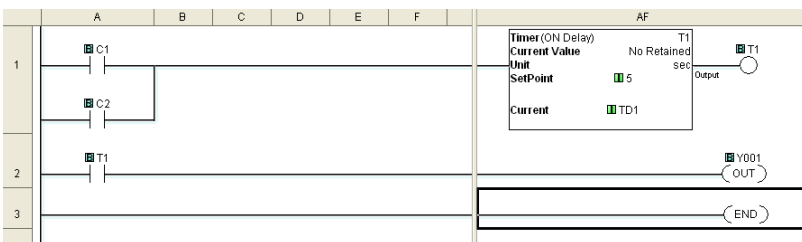
Step 4: Create a Project (cont'd)

Program Execution

The following is an explanation of how the CLICK PLC executes the ladder logic program that was just entered.
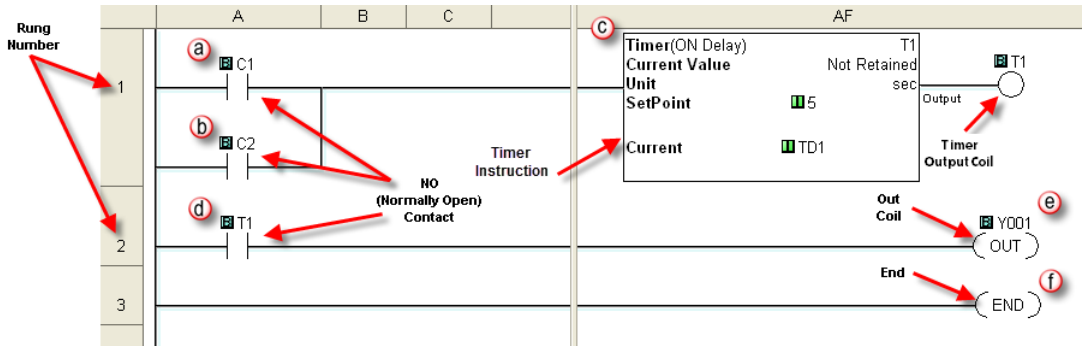
The CLICK PLC executes the ladder logic program instructions, starting with Rung #1, from left to right, and then proceeds to execute the next rung in the same fashion, carrying on through all of the rungs in sequential order. The 6 instructions (a, b, c, d, e, and f) in the above ladder logic program are executed in the following order.
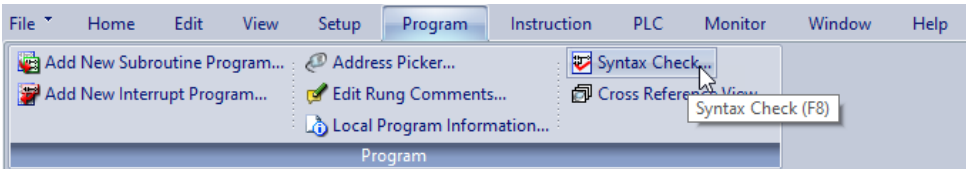

Explanation of the Program Execution

(a) (b) NO (Normally Open) Contact: Address C1 and C2 are assigned to a NO Contact. C1 and C2 are internal control bits. The internal control bits are 1 bit memory and hold the status of ON or OFF. The contacts are enabled when the status of C1 or C2 is ON.

(c) Timer: This instruction is used to delay an action once it is enabled. The CLICK PLC unit can use up to 500 timers (T1 to T500) in a project. In this ladder logic program, timer T1 is assigned. The Timer instruction is set up as an ON Delay Timer with a 5 second set point. That is, the timer status bit T1 output coil turns on 5 seconds after the enable input of the Timer instruction turns on.

(d) This is a NO Contact addressed as T1 and whose status is controlled by Timer T1. The contact is enabled when Timer T1 output coil becomes true after the 5 second delay.

(e) OUT: This is an output coil addressed as real world output Y001, which happens to be the first output on the CLICK PLC unit. It becomes active when the T1 NO Contact in this rung becomes enabled.

(f) END: This is the END of the ladder logic scan, and causes the scan to start at the beginning.

Step 5: Compile and Save Project
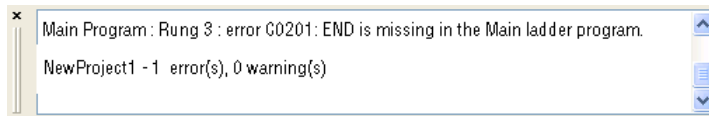
Syntax Check (Compile)

File ▾	Home	Edit	View	Setup	Program	Instruction	PLC	Monitor	Window	Help

Add New Subroutine Program...   Address Picker...   Syntax Check...

Add New Interrupt Program...   Edit Rung Comments...   Cross Reference View

Local Program Information...   Syntax Check (F8)

Program

Next, you will need to compile the ladder logic program. Compiling the program is done with the Syntax Check function. The ladder program is checked for problems and other conditions that may prevent the ladder program from executing correctly. The results of the Syntax Check are displayed in the Output Window at the bottom of the Main Window as shown below.

From the Program drop down menu, select Syntax Check as shown at left, or press the F8 function key on your keyboard, or click on the Syntax Check icon located on the Program Toolbar.
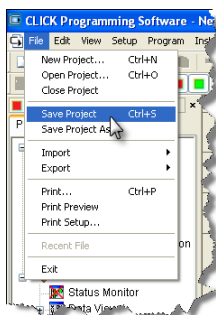
If everything in the program checks out correctly, then the Output Window will indicate 0 error(s) as shown in the following example.

Main Program

NewProject1 - 0 error(s), 0 warning(s)
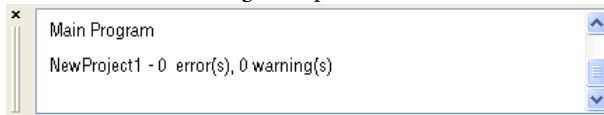
If there are any errors, they will be indicated in the Output Window. For quicker troubleshooting, double click on any particular error in the Output Window and be taken directly to the rung and instruction that may be causing the error. The following is an example of an error.

Main Program : Rung 3 : error C0201: END is missing in the Main ladder program.

NewProject1 - 1 error(s), 0 warning(s)

Save Project

It is always a good practice to save your project at this point. From the File drop down menu, select Save Project, as shown here, or click on the Save Project icon located on the File Toolbar.
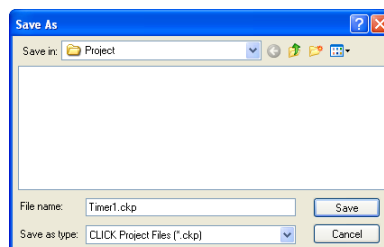
Enter the File Name for your project in the Save As dialog box. You can also browse to the folder that you want the project saved under. Click Save.

Step 6: Apply Power

The CLICK PLUS PLC system works with 24VDC power. There is a small terminal block on the bottom of the CLICK PLUS PLC unit. Wire the 24VDC output from a CLICK power supply, or a properly sized and rated 24VDC power supply such as AutomationDirect's RHINO series, to the bottom terminal block (See Chapter 2: Specifications for power supply specifications.)

EITHER

Using a CLICK
24VDC Power Supply.

24VDC
0V
Power Terminal Block

24VDC
0V
PF
G ⏚
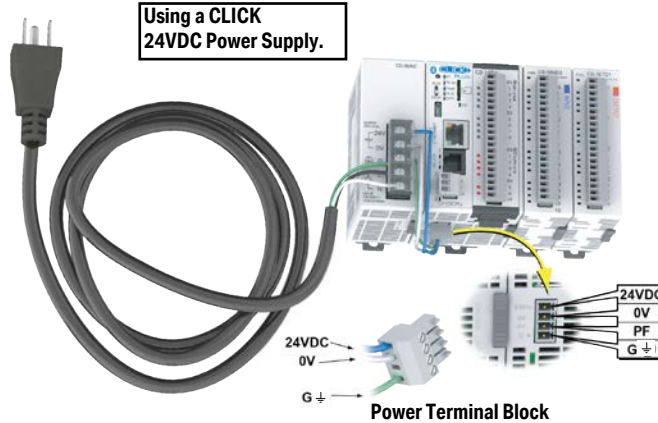
OR
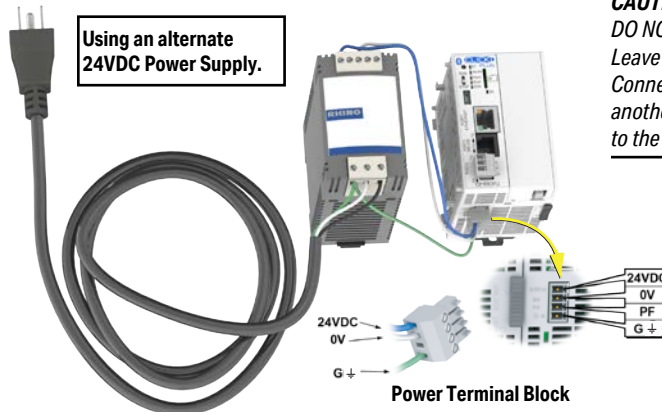
CAUTION:
DO NOT USE the PF connector. Leave this terminal unconnected. Connecting the PF terminal to another device may cause damage to the CLICK PLUS CPU.

Using an alternate
24VDC Power Supply.

24VDC
0V
Power Terminal Block

24VDC
0V
PF
G ⏚

Once you wire and power up the power supply, confirm the PWR indicator (Green LED) on the CLICK PLUS PLC unit is on.

If the PWR indicator is not on, check the voltage on the terminal block with a voltage meter. If you measure 24VDC on the terminal block, the CLICK PLUS PLC unit may be defective. Please try another one or contact us for a replacement.

CLICK▸
PLUS

RUN
STOP
USB

PWR
RUN
ERR

Step 7: Establish PC to PLC Communications

Next, connect a personal computer (PC) to the CLICK PLUS PLC unit. You can use any of the following communication ports on the CLICK PLUS PLC unit for programming, depending on model.


Wireless LAN
(Antenna purchased
separately)

Micro USB Port

Port 1 (Ethernet)

Port 2 (RS-232)
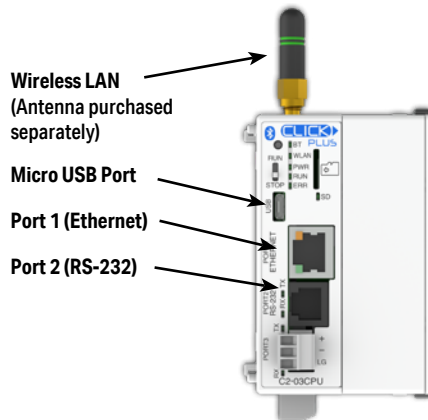
> *NOTE: Connection via wireless LAN requires provisioning the CLICK PLUS PLC onto your wireless LAN. This initial setup can be performed through the CLICK Provisioning mobile app over Bluetooth, as described on page 1-21. It can also be done through the USB connection or wired LAN connection with the CLICK programming software.*

Step 7: Establish PC to PLC Communications (cont'd)

Using a USB or Serial Port for Programming

Connecting to a USB Port

If a USB port is available on the PC, then use an AutomationDirect USB A to USB micro B Programming Cable (P/N - USB-CBL-AMICB6) to connect between the USB port on the PC and the micro-B USB connector on the CLICK PLUS PLC., or use an AutomationDirect PC to Panel Programming Cable Assembly (P/N - EA-MG-PGM-CBL) to connect between the USB port on the PC and the RJ12 serial port on a CLICK PLC.
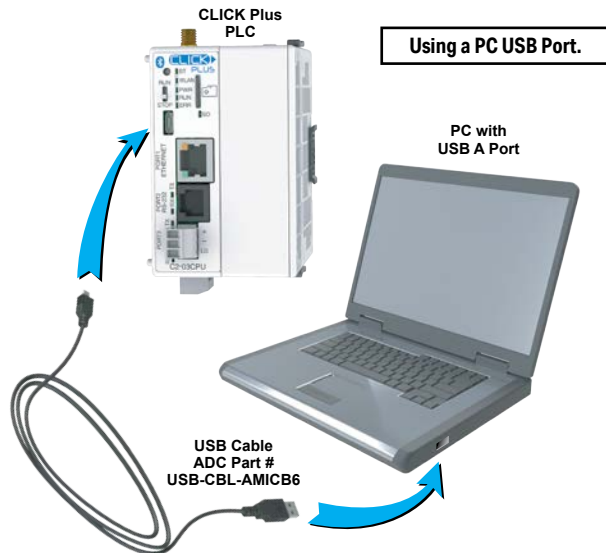
Connecting to an RS-232 Port

If a 9-pin RS-232 serial communications port is available on the PC, then use an AutomationDirect PC Serial Programming Cable (P/N - D2-DSCBL) to connect between the 9-pin port on the PC and the RJ12 connector on the PLC's RS-232 Port.
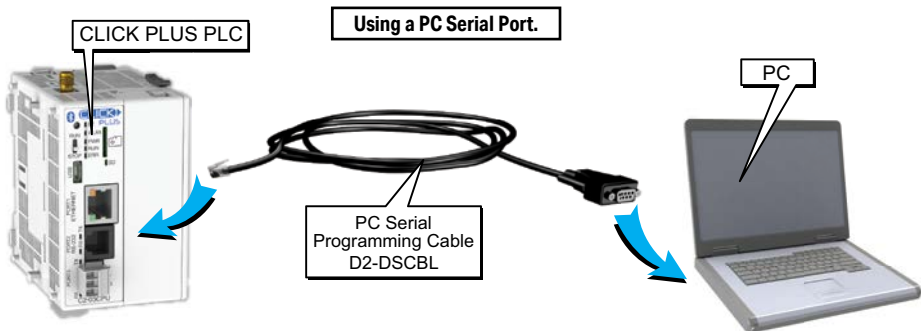
Step 7: Establish PC to PLC communications (cont'd)

Configuring the USB or RS-232 Serial Connection

Once we have a communications cable connected between a port on the PC and either the USB port or PORT2 on the CLICK PLUS PLC,


we need to select the PC COM port that is connected to the PLC. From the PLC ribbon, select Connect as shown to the right, or click on the Connect icon (left) located on the PLC Toolbar. The Connect to PLC dialog box will be displayed. Under the **COM Port No.:** drop down list, select the communications port that is connected to the PLC.
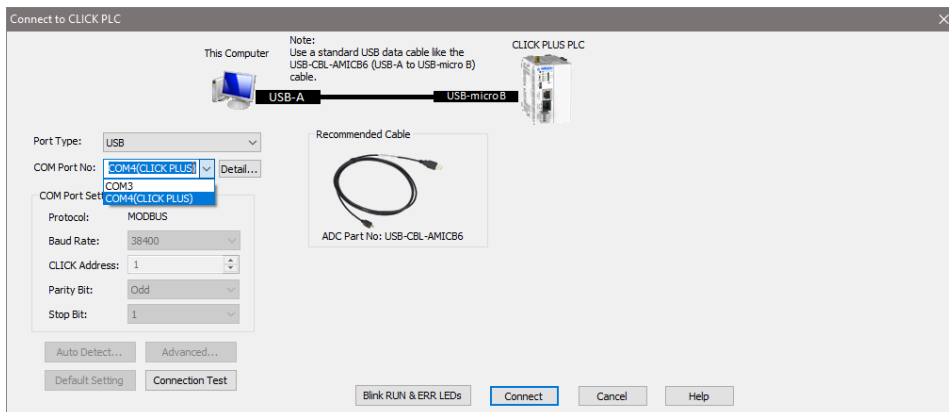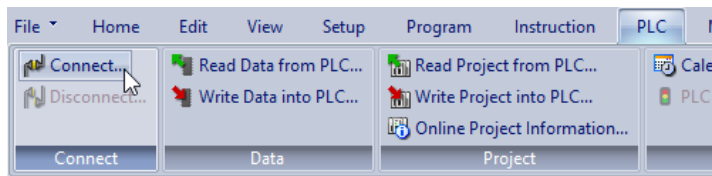
You do not need to change any of the parameters, just click the Connect button. The software should start to immediately connect to the PLC.

If you cannot connect the software to the CLICK PLUS PLC, try the above procedure one more time and keep watching the TX and RX indicators on the unit if using the RS-232 port.

If the RX is not blinking, it means the CLICK PLC unit is not receiving any data from the programming software. Check to make sure you have selected the correct PC COM Port, and also check the cable connections.
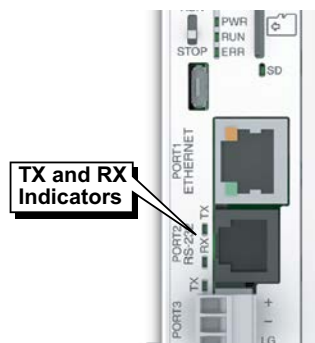
NOTE: If you are not sure to which PC COM Port the USB port is assigned, click the Detail button next to the COM Port drop down list to identify it. Select it and click OK.

Step 7: Establish PC to PLC Communications, (cont'd)

Provisioning your Wireless CLICK PLUS PLC via Bluetooth
(C2-02CPU Series and C2-03CPU Series only)

To improve the out-of-box experience, a new CLICK PLUS C2-02CPU, C2-02CPU-2, C2-03CPU or C2-03CPU-2 has Bluetooth enabled by default and allows the user with the CLICK PLUS Provisioning App to connect and configure the needed Wi-Fi and network settings. This removes the need for cables with a new CLICK PLUS. Once the Wi-Fi is configured to connect to the local network access point, the user can then connect the Click Programming software via Wi-Fi to load and edit the project. The Temporary settings used for provisioning are stored in temporary memory and will be overwritten by the project settings when written to the PLC.

Install an external antenna

In order to connect to the CLICK PLUS PLC over Bluetooth or WLAN, you will need to install an external 2.4 GHz antenna. We recommend the remote-mounted AutomationDirect P/N SE-ANT250 for a permanent installation. The direct-mounted AutomationDirect P/N SE-ANT210 will also work, but is not intended for use inside a closed metal enclosure.

Prepare a Mobile Device for Connection

If you haven't already done so, install the CLICK PLUS Provisioning mobile app from the Apple App Store or Google Play Store (CLICK PLUS Provisioning, published by Automationdirect.com).
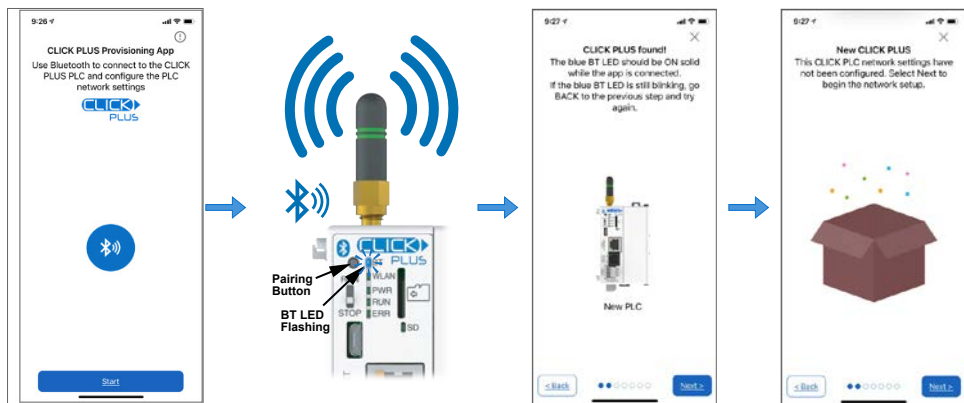
Step 7: Establish PC to PLC Communications, (cont'd)

Provisioning your Wireless CLICK PLUS PLC via Bluetooth, (cont'd)

Find the New CPU

Connect to the CPU, as follows:

1. Open the CLICK PLUS Provisioning App.

2. Tap *Start* in the App.

3. Press the pairing button on the CLICK PLUS CPU for 1 second. The BT (Bluetooth) LED will start flashing. If the PLC is factory new, or you have Reset Factory Defaults, the BT LED will flash for 30 seconds after power up.

4. The App will find the CLICK PLUS PLC that is in Provisioning mode. The blue BT LED will be ON solid when the App is connected to the PLC. Tap *Next* in the App to continue.

5. If the App detects that the PLC is factory new and the network settings have not been configured, it will prompt you to Tap *Next* to begin the provisioning process.

NOTE: *If you find that you need to change the settings in order to connect to the network. The PLC can be placed in pairing mode and the provisions app can be used to make needed changes.*

Step 7: Establish PC to PLC Communications, (cont'd)

Provisioning your Wireless CLICK PLUS PLC via Bluetooth, (cont'd)

Name the CPU and select port to configure

6. You will be requested to assign a name to the PLC. This name will be used to identify it on the network when using the programming software connection Ethernet browse tool. It is good practice to choose a unique name if there are other CLICK PLCs on the network. Enter a name for the PLC and tap *Next*.

7. Choose which network port to provision. This will configure the CLICK PLUS network address settings for the purpose of connecting the programming software.
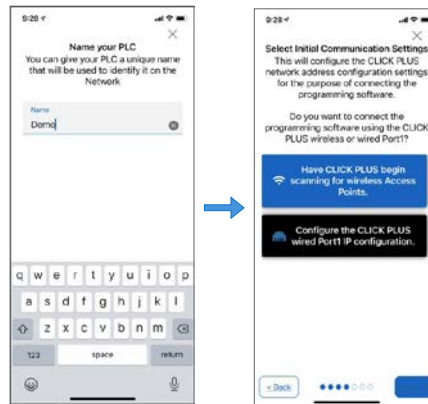
Setup the Wireless LAN Connection (Skip for Wired Connection)

For this option you will need an active Network Access point available within range of the CLICK PLUS PLC, and know the password to allow the PLC to connect to the Network.

8. The CLICK PLC will scan for any access point within range and then display all access points that are available (you may need to scroll the list to find the desired Access Point). Select an Access Point and type in the correct password that the PLC will need to connect. If the incorrect password is entered, you will be prompted to correct it after the CLICK PLUS fails to connect.
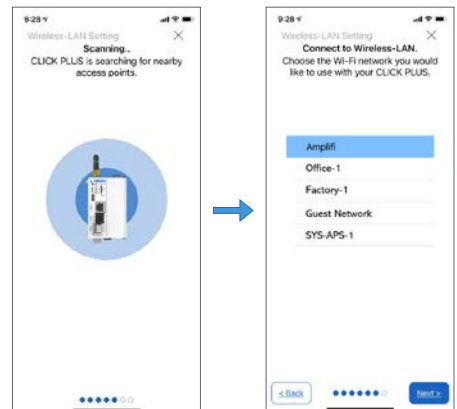
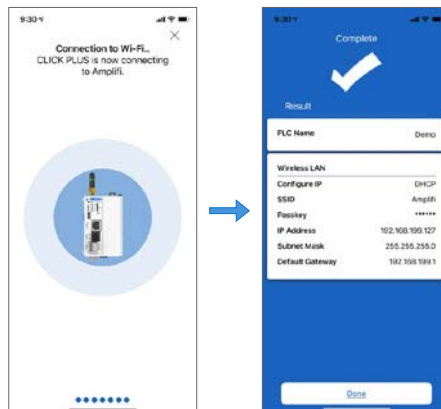## Step 7: Establish PC to PLC Communications, (cont'd)

Provisioning your Wireless CLICK PLUS PLC via Bluetooth, (cont'd)

Setup the Network Parameters

9. Once the PLC is connected to the wireless access point or wired network, choose which IP address configuration to use.

    i. Use DHCP: Automatically assign a network IP address to the CLICK PLUS PLC. This is often the simplest way to connect. Tap *Next* to continue.

    ii. Use Default Fixed Address: The CLICK PLUS wireless LAN default IP address is 192.168.0.11. This can be selected if it is a valid IP address for your wireless network. Tap *Next* to continue.

    iii. Use the following IP address: Choose this option if you need to input a valid IP address for your network. Tap *Next* to continue
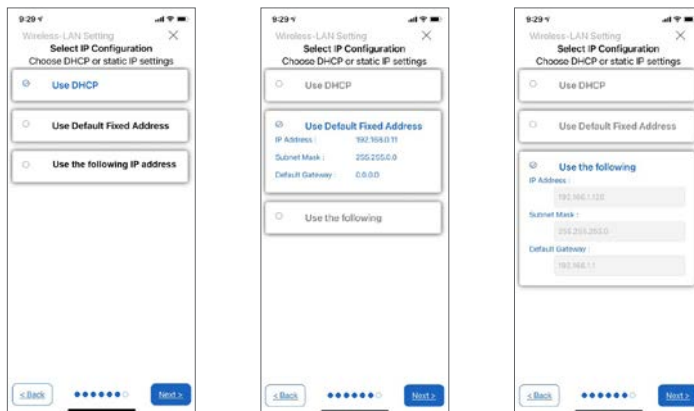
10. The CLICK PLUS will connect to the access point and exchange configuration information. If the settings are correct, the App will show the Completion screen and the network settings of the CLICK PLUS can be viewed. If using a wireless connection, the CLICK PLUS WLAN LED will also be ON. The PLC is now connected to the network and accessible to PC's running the CLICK Programming Software and connected to the same network.

Step 7: Establish PC to PLC Communications, (cont'd)

Connecting to a Wired LAN (Models C2-01CPU and C2-03CPU only)

You can connect your PC to the CLICK PLC via an Ethernet switch/hub or directly to the Ethernet port. You can use a straight or crossover Ethernet cable.

Once we have communications cable(s) connected between the Ethernet port on the CLICK PLUS PLC and the Ethernet port on the PC, we are ready to configure the Ethernet connection and connect the CLICK Programming Software to the PLC.
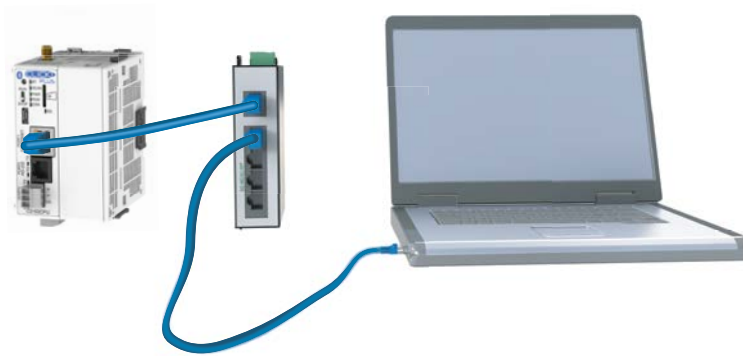
Step 7: Establish PC to PLC Communications, (cont'd)

Using a Wired or Wireless Network Connection for Programming

Configure the Ethernet Connection

From the PLC ribbon, select Connect as shown to the right, or click on the **Connect** icon located on the PLC Toolbar.
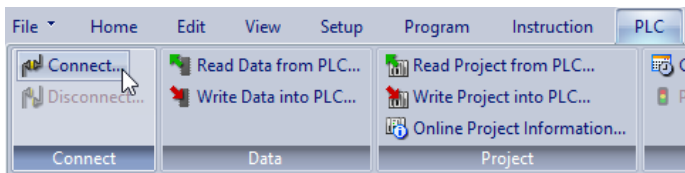
Select Ethernet as the Port Type. Select the network adapter that you want to connect to the CLICK PLUS PLC, if you have more than one network adapter on your PC. The selection of wired or wireless network adapter here is independent of the type of network connection you set up on the PLC. Choose the adapter that is on the same subnet as the PLC. The CLICK programming software automatically scans the CLICK and CLICK PLUS PLC units in the LAN connected to the network adapter and displays them in the list as shown below, or you can click the **Refresh** button to update the list.
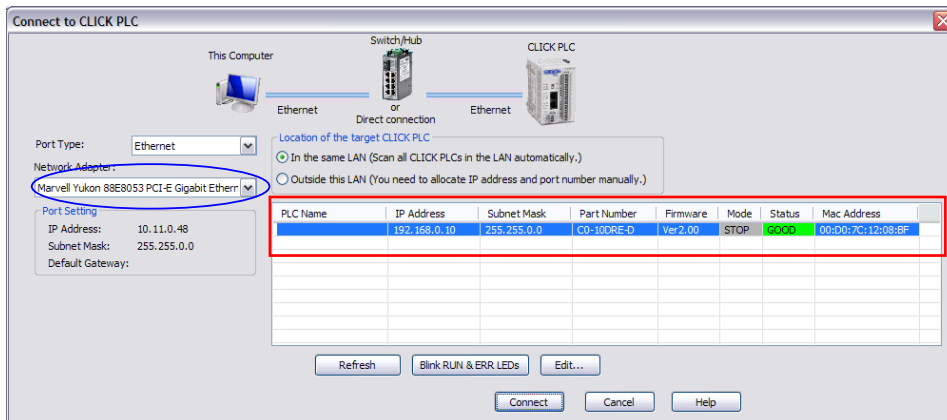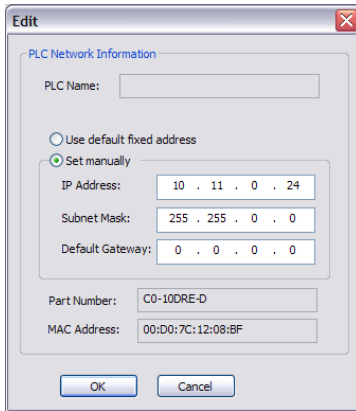
The PLC Port 1 Ethernet Port is configured by default for DHCP. If there is a DHCP server on the network then the CLICK PLC will get an IP Address compatible with the network. If there is no DHCP server on the network then the CLICK PLC will be assigned an APIPA IP Address. This will be in the form of 169.254.xxx.xxx.

To connect the CLICK programming software to the CLICK PLUS PLC, both the PC and the PLC must be in the same subnet. In the above **Connect to CLICK PLC** window, the IP Address of the PC is '10.11.0.48' and the Subnet Mask is '255.255.0.0'. You can determine the subnet that your PC is located in by applying the logical AND operation between the IP Address and the Subnet Mask.

Example: **(IP Address = 10.11.0.48) AND (Subnet Mask = 255.255.0.0) = (Subnet = 10.11.0.0)**

Step 7: Establish PC to PLC Communications, (cont'd)
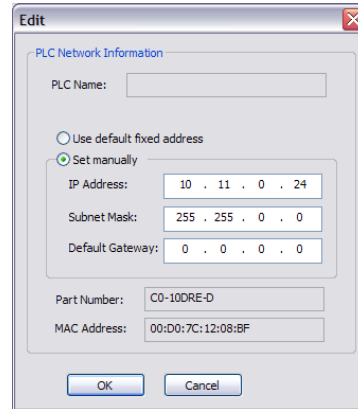
To match the subnet setup of the CLICK PLUS PLC to the subnet that your PC locates in, select the PLC unit in the list and click the **Edit** button under the list. The Edit window opens.
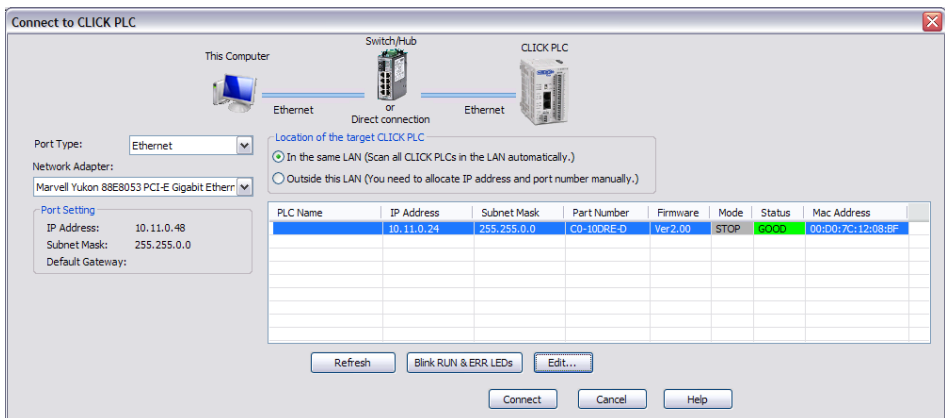
Next, the new IP Address needs to start with '10.11' to match the subnet of the PC. The following 2 numbers however, can be any number between 1 and 254 as long as the new IP Address is unique in the LAN. In the window here, the IP Address was changed to '10.11.0.24'.

Click the OK button to continue. The new IP Address setup is sent to the CLICK PLUS PLC.

Your PC and the CLICK PLUS PLC should be in the same subnet now. Click the Connect button on the bottom to connect the CLICK programming software to the PLC.
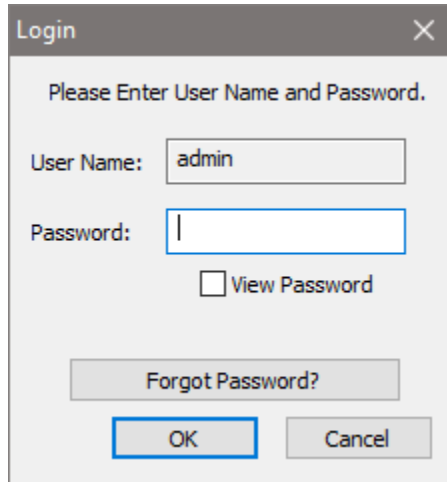
Step 7: Establish PC to PLC Communications, (cont'd)

If you are trying to connect the CLICK Programming Software to a new CLICK PLUS PLC or an existing CLICK PLUS PLC that was reset to the factory default, you will be prompted to enter the default password, as follows:

- User: admin

- Password: click

When you download your first project, the admin account password must be set to something other than the default before the project can be downloaded.

Step 7: Establish PC to PLC Communications, (cont'd)

If you are trying to connect the CLICK Programming Software to a new CLICK PLUS PLC or an existing CLICK PLUS PLC that was reset to the factory default, you will see the following pop-up message once communication has been established with the PLC. This is because there is no user project in the PLC currently. Click the OK button to close the message and proceed to the next step.
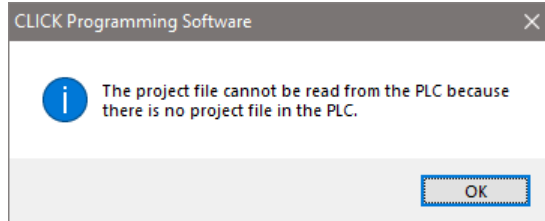
If you are trying to connect the CLICK Programming Software to a CLICK PLUS PLC that already has a user project, the following Connect dialog box will appear.
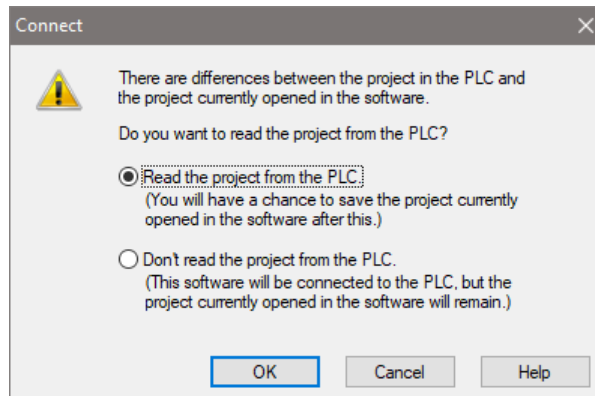
It is not unusual that the project opened in the programming software will not match the project that resides in the PLC. The dialog box gives you a choice to either read the PLC's project for viewing purposes, but at the same time allowing the project opened in the software to still be saved, or not read the project in the PLC.

For the Getting Started exercise, click the radio button for the "**Don't read the project from the PLC**" and click OK. Proceed to the next step which will allow the created project to be written into the CPU memory.
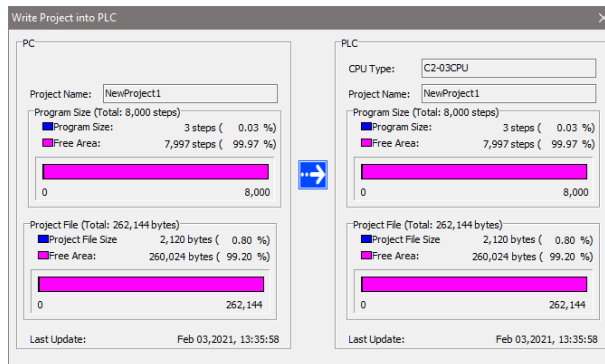
Step 8: Write Project into PLC

The next step is used to transfer the project that was created into the CLICK PLUS PLC. From the PLC ribbon, select Write Project into PLC as shown below, or click on the Write Project into PLC icon located on the PLC Toolbar.
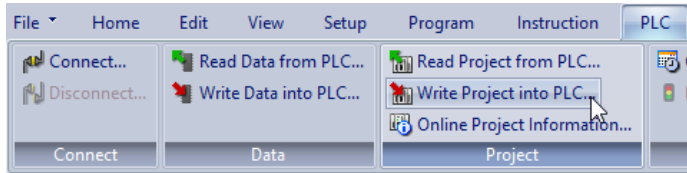
The following dialog box is displayed.

The dialog box displays the information for the Project that is currently opened in the programming software (PC) on the left side. The dialog box also displays the information for any Project that may be stored in the CLICK PLUS PLC unit (PLC) on the right side.

Click **OK** to write the project data from the **PC** to the **CLICK** PLUS PLC unit.

The **Writing...** progress window will open to allow verification that the Project is being written to the CPU. When finished, a Transfer Completed message will be displayed. Click OK to continue.

Step 9: Place PLC in RUN Mode

The next step is to place the CLICK PLUS PLC into its Run mode so that the ladder logic program will execute.

If the PLC Mode Switch was in the STOP position when the project was written to the PLC, now move the switch to RUN. The CLICK PLUS PLC is now in RUN mode and executing your ladder logic program.

If the PLC Mode Switch was in the RUN position when the project was written, the PLC Modes dialog is displayed. Click the radio button for RUN and then click the OK button. The CLICK PLUS PLC is now in RUN mode and executing your ladder logic program..
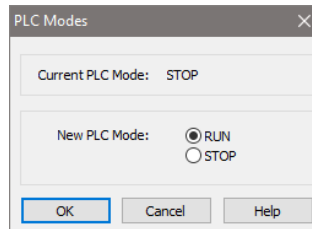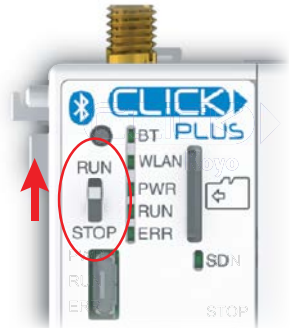
Click the radio button for RUN and then click the OK button. The CLICK PLUS PLC is now in Run mode and executing your ladder logic program.

NOTE: The PLC Modes dialog box can also be accessed by clicking on the Connection status (Offline/Run/Stop, USB Power) indicator button that is located on the toolbar.
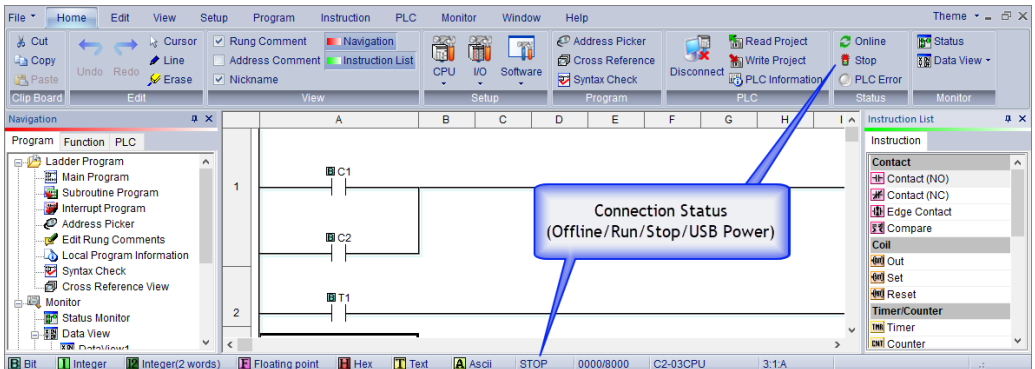
Step 10: Test Project using Data View Monitor

In this next step, use the Data View Monitor to test the ladder logic program by manually overriding the status of the internal C1 bit that was programmed. The purpose of this will be to have the C1 bit enable Timer T1. From the Navigation window on the left side of the development screen, select the Program tab, open the Data View folder under Monitor and double click on DataView1.
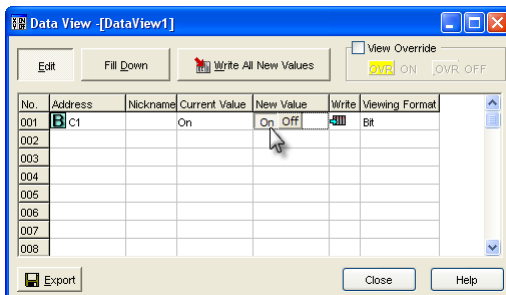
The Data View window is displayed.
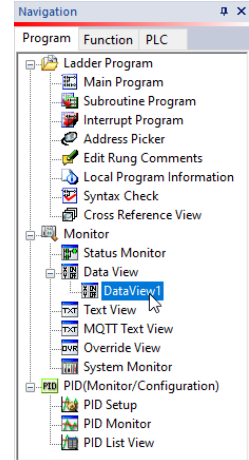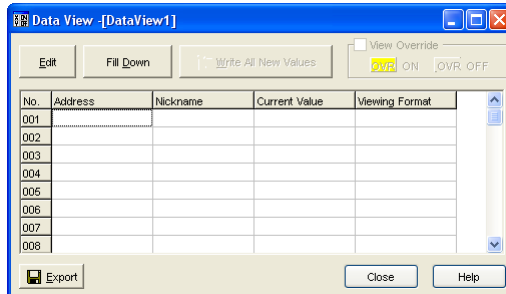
Click the Edit button and type in C1 as the Address as shown below.
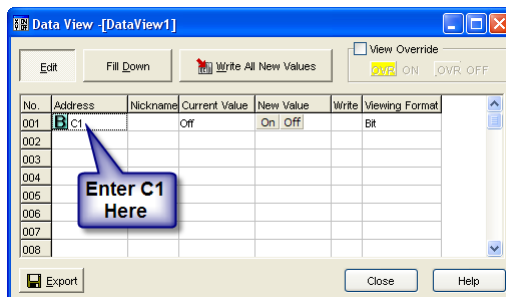
Double click the ON button in the New Value column. The Current Value of the C1 bit changes from OFF to ON. Go to Step 10: "Y001 Output On?"

Step 11: Y001 Output On?

CLICK PLC output Y001 will turn on 5 seconds after you write the ON state to the C1 bit using Data View in the Edit mode. The location and labeling of this output will depend on your installed output modules.
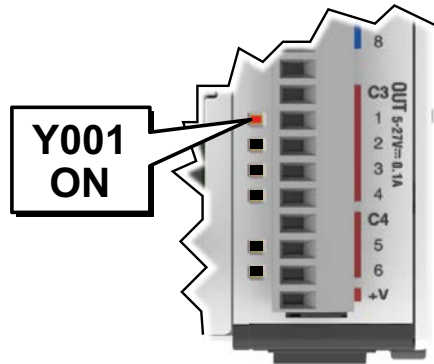
If you missed viewing the transition of the Y001 status LED from OFF to ON, write an OFF state to the C1 bit and then an ON state in the Data View Monitor to do it again.

NOTE: *Also, try changing the status of the internal C2 bit. The results should be the same because the C2 bit is in parallel with the C1 bit. The ladder logic reads: "Enable timer T1, if either C1 or 'C2 is true."*

Step 12: Test Project Using Remote PLC App

This step is optional. If you have one of the following CPUs, it can be remotely monitored using the CLICK Remote PLC App:
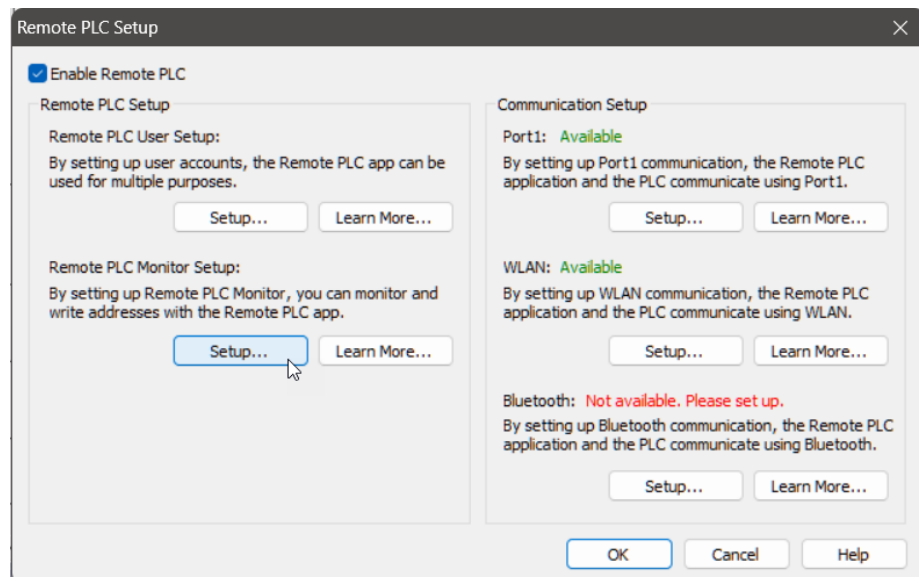
- C0-10xxx-x
- C0-11xxx-x
- C0-12xxx-x
- C2-01CPU(-2)
- C2-02CPU(-2)
- C2-03CPU(-2)

Configure your PLC for Remote Monitoring

1. From the Remote PLC menu, open the Remote PLC Setup.

2. Check the Enable Remote PLC box, then click Setup under Remote PLC Monitor Setup.

Step 12: Test Project Using Remote PLC App, (cont'd)

3. Click the Add button to create a new monitor.

4. Give the monitor a name, and add the addresses used in the project.

5. From the previous Remote PLC Setup dialog, set up Port 1 or WLAN for connection to a LAN with a wireless access point, or enable Bluetooth for use with Remote PLC.

6. Save the project and write it to the PLC.

Step 12: Test Project Using Remote PLC App, (cont'd)

Set Up the Remote PLC App

1. Search for the free "Remote PLC" app by Automationdirect.com on the Apple App Store or Google Play Store, or use one of the QR codes below to install it on your mobile device.

Apple App Store	Google Play (Android)

2. Open the Remote PLC app and select Bluetooth (BLE) or Wi-Fi.

3. Select your PLC from the list of CLICK PLCs found using that connection and tap it to open the login screen for that PLC. By default log in with username "admin" and no password. We didn't set up user logins in this test project, but any production project should use user accounts with passwords.

4. Once connected to the PLC, Choose **Remote PLC Monitor** and select the monitor name you created earlier.

5. In the Remote PLC Monitor screen, you can switch between View Mode and Edit Mode, as shown below. View Mode will show you the real-time values of the monitored addresses, and Edit Mode will let you change any writable addresses.
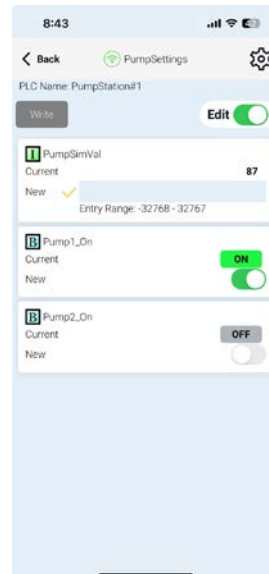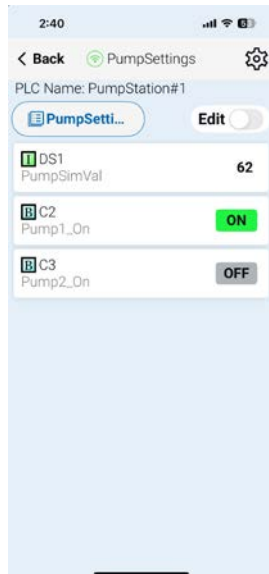
Congratulations!

You have now learned how to create, compile and transfer a ladder logic project to a CLICK PLUS PLC, and then run and test the project. There are additional instructions available for the CLICK PLUS PLC. Please refer to the programming software online help topics for details on these instructions.

Again, thank you very much for using the CLICK PLUS PLC system.

Additional Training Resources

In addition to this Getting Started chapter, there are other resources we recommend, for both the novice and pros, that will aid you in learning more about using the CLICK PLC system.

Automationdirect.com Online Video Site - http://automationdirect.com/videos/home is an online video tutorial site offering free on-demand video tutorials on a wide range of practical industrial products, including the CLICK PLC system.

From the Automationdirect.com home page, select (a) "Video Tutorials". When the page opens select (b) "Programmable Controllers" on the top, lefthand topic bar for Video Filter list. Select (c) "CLICK series PLCs". A page of CLICK specific videos will open. A search for CLICK (d) will pull up all the CLICK videos as well. The videos cover all aspects of the CLICK PLC system, from an introductory video, to communications, and programming.

Interconnecting Automation Online Training Courses offered at-

http://www.interconnectingautomation.com/onlinecourses

Interconnecting Automation offers inexpensive subscription-based online training, including CLICK PLC training.
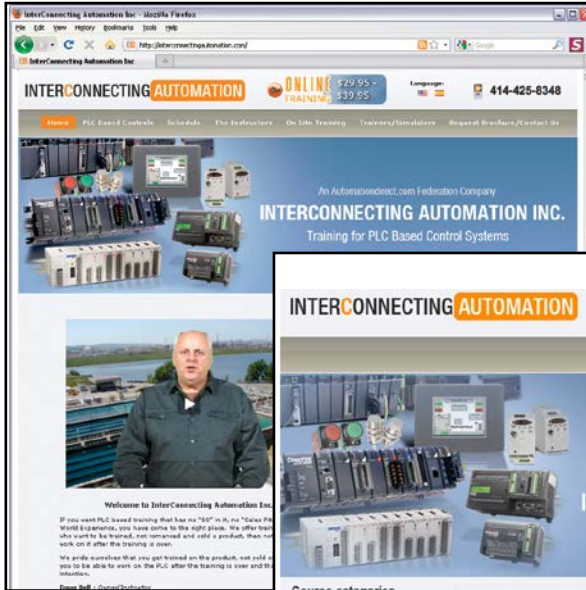
Also, a CLICK PLC Trainer is available from this web site.