USB-Link 2 Technical Guide

USB-Link 2 Code: SS0073 Version 4.11 and up

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AAON P/N: G019140, Rev 01H

USB-Link 2 Overview

The OE366 USB-Link 2 (AAON Part No. T38010) is a portable device that is used as an interface to connect your computer to AAON controllers without the need for a CommLink.

The USB-Link 2 provides a direct link to enable you to view the status and configure and adjust the setpoints of any controller on the control system communications loop using Prism 2 software.

The USB-Link 2 is small in size and is powered by the USB port of the computer it is plugged into, making it completely portable and allowing connection to the system from any controller.

The USB-Link 2 is supplied with a USB cable, a mini-DIN male communication cable, and two mini-DIN to terminal adapters. The communication cable allows you to walk up to any controller that has a communication socket and plug in the USB-Link 2 to gain access to the system. The adapters are used for boards that do not have a female mini-DIN plug connection.

CAUTION: The USB-Link 2 will not work with Prism software. It will only work with Prism 2 software.

System Requirements

To enable the USB-Link 2 to work with Prism 2, you will need:

- USB-Link 2 with USB cable, mini-DIN male communication cable, and adapters for terminal and modular connections (cables and adapters provided)
- USB drivers on CD-ROM (supplied with USB-Link 2 but also downloadable from orioncontrols.com). **Make sure to install the drivers before connecting the USB-Link 2 to your computer.**
- PC with USB 1.1 or 2.0 port (supplied by others)
- Microsoft® Windows® 2000, Vista, 7, 8 & 10
- Prism 2 software version 4.0.4 or later (supplied with USB-Link 2 but also downloadable from orioncontrols.com)

Networked Systems Only

- CommLink(s) and/or MiniLink(s)

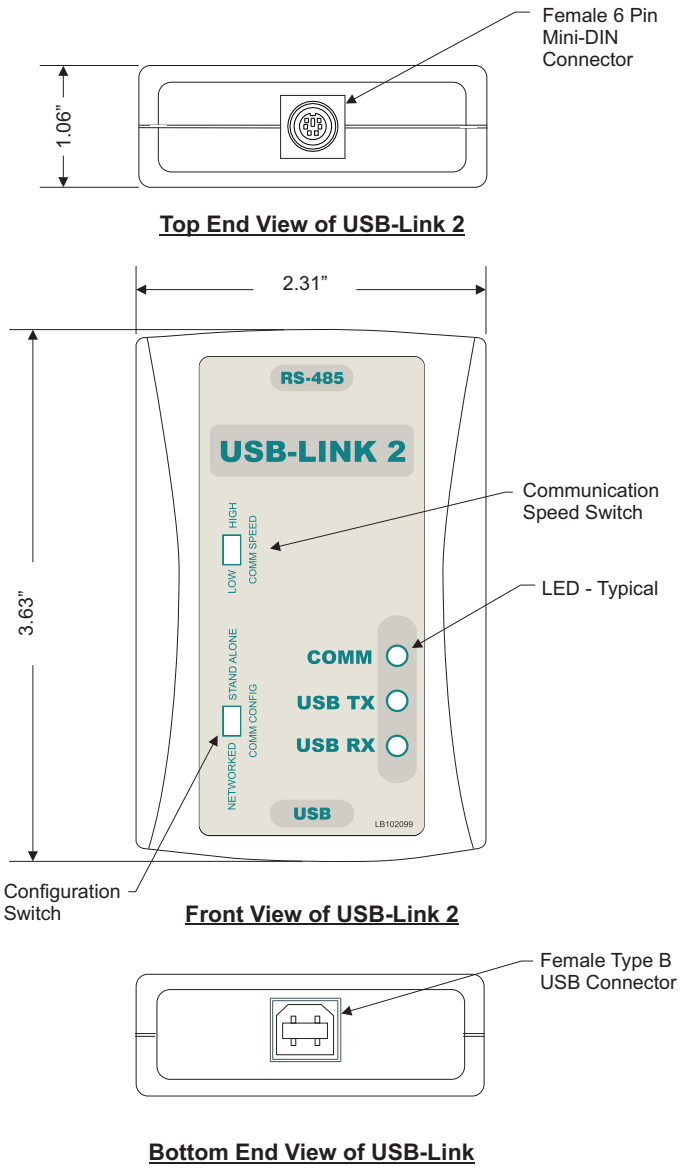


Figure 1: Top, Front, and Bottom Views of the USB-Link 2

Quick Guide

Important Notes

- Follow the included USB-Link 2 driver installation instructions (**page 5**).
- Follow the connection and wiring instructions (**Figure 2**, **page 6**) to connect and configure the USB-Link 2.
- If you use your USB-Link 2 on a network and after installation you cannot view all controllers, you may need an EPROM upgrade in your CommLink(s) and/or MiniLink(s). *See* Troubleshooting in the back of this guide on **page 10** for further instructions.
- Familiarize yourself with all system components and review all documentation. Pay special attention to "Cautions," "Notes," and "Warnings" since these may keep you from experiencing unnecessary problems.
- If you encounter any problems, please refer to the Troubleshooting section of this guide first. If you can't resolve the problem, please call AAON Controls Support at our toll free number—1-866-918-1100.

Quick Guide

Follow the five steps below to get your USB-Link 2 up and running in no time.

WARNING: You must install the USB drivers (Step 3 below) before connecting the USB-Link 2 to your computer (Step 4 below).

Step 1: Set your USB-Link 2's configuration switch to Stand Alone or Network (**Figure 3**, **page 10**).

Step 2: Set your USB-Link 2's communication speed switch to Low Speed or High Speed (**Figure 3**, **page 10**).

Step 3: Install the USB drivers from the included CD-ROM onto your computer.

Step 4: Attach the USB cable to your USB-Link 2 and plug the other end of the cable into your computer's USB port (**Figure 2**,**page 6**).

Step 5: Attach the communication cable to your USB-Link 2 and connect the other end of the cable to the Controller's communication port (**Figure 2**,**page 6**).

Step 6: Install the included Prism 2 software on your computer (**page 8**).

USB Serial Converter and Serial Port Driver Installation

The internal USB communication port of the USB-Link 2 uses a specialized driver that must be installed on your Windows PC before communication to the device can be established.

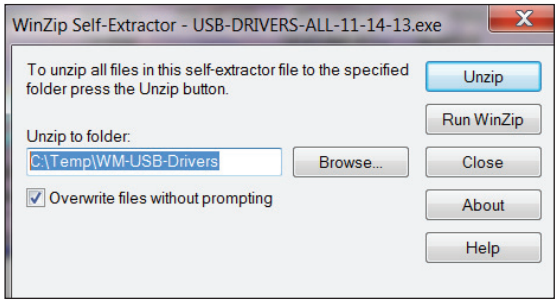
NOTE: You may already have this driver installed on your PC if you are using a CommLink 5.

1. Before you begin, you must determine if your computer is running 32-bit or 64-bit Windows. Open the System information by *clicking* the **<Start>** button, *clicking* **<Control Panel>**, and *clicking* **<System>**. Under System, you can view the system type. Based on what type of system you have, you will choose 32_Bit.exe or 64_Bit.exe from the list of files shown in **Step 10**.

2. *Insert* the USB Drivers CD-ROM into your CD-ROM drive or *download* the USB Drivers file from orioncontrols.com. If using the CD-ROM, go to **Step 7**. If downloading the file, you will need to scroll down the page until you find "USB Drivers For All Products" to download the driver files.

3. *Right click* on "**Click Here.**" *Then click* **<Save Link As>** or **<Save Target As>** and *select* Desktop as the destination.

4. *Go to* the "USB-DRIVERS-ALL.exe" file on your desktop. *Double-click* on this file and choose "Run" from the options list. The following window will appear:



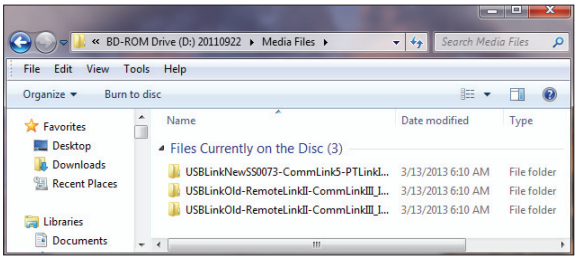
5. *Select* **<Unzip>** and the file will be unzipped to the folder C:\Temp\WM-USB-Drivers folder by default.

6. Next, *go to* the C:\Temp\WM-USB-Drivers folder and now *go to* **Step 9**.

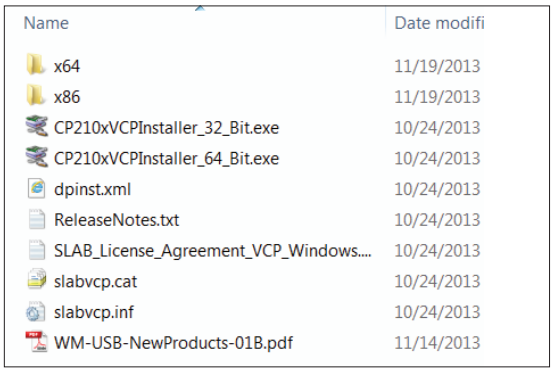
7. *Click* your **<Start>** button and then *click*, **<Computer>**.

8. *Double-click* on your CD-ROM drive. Open the Media Files Folder.

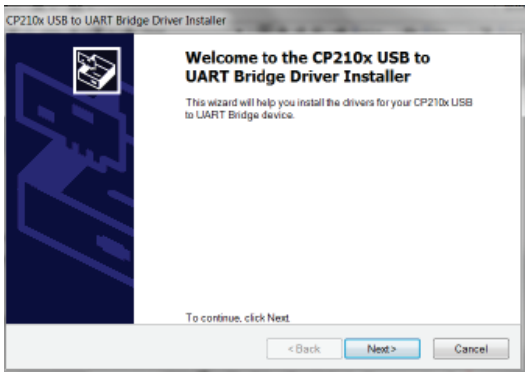
9. *Double-click* the folder "USBLink NewSS0073".



10. The following list of files will display. Choose 32_Bit. exe or 64_Bit.exe based on what type of system you determined you have in **Step 1**.



11. In the window that pops up, shown below, *click* **<Next>** and the installation program will walk you through the rest of the steps.

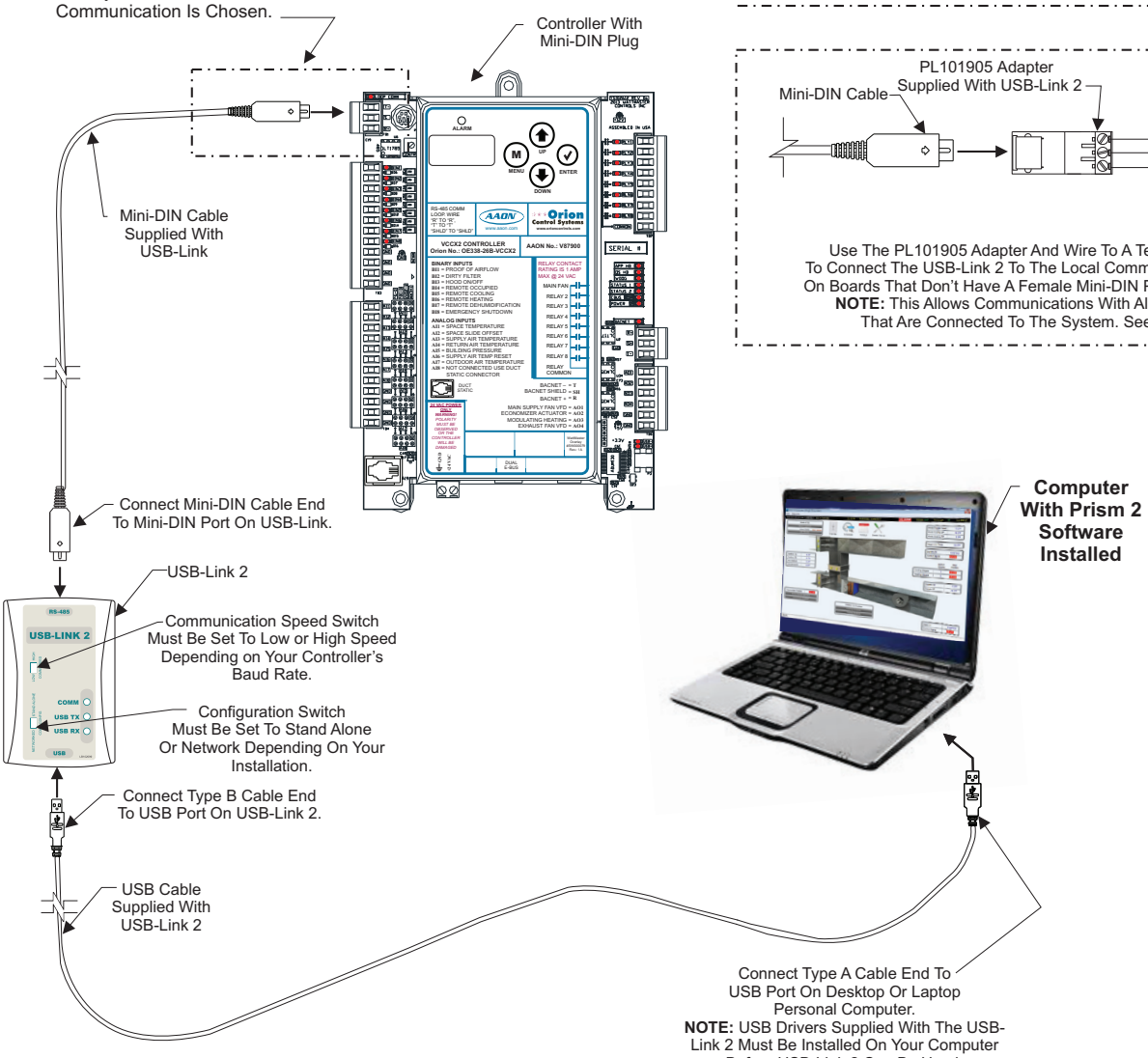


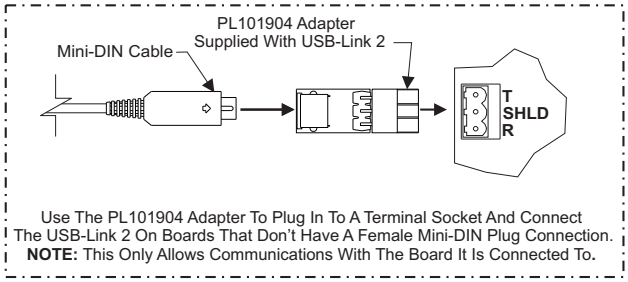
12. When successful installation has occurred, connect the USB cable between the PC and the USB-Link 2. The PC will automatically recognize the device and a COM port will be assigned. Follow the procedures on **page 7** to verify the Comm Port.

Connection and Wiring

Notes:
1. In Order To View A Single Controller Using Prism 2, You Must Disconnect The Communication Loop From The Controller Your USB-Link Is Plugged Into, Set The USB-Link Configuration Switch To Stand Alone, Set The Type Of CommLink In Prism 2 To USB Link Stand Alone, And Cycle Power By Disconnecting And Reconnecting the USB Power Supply Cable.

Connect The USB-Link 2 Mini-DIN Cable To The Female Mini-DIN Plug Connector On Controllers That Are Supplied With Them. **NOTE:** This Allows Communications With All Controllers That Are Connected To The System When Network Communication Is Chosen.





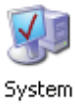
Use The PL101904 Adapter To Plug In To A Terminal Socket And Connect The USB-Link 2 On Boards That Don't Have A Female Mini-DIN Plug Connection. **NOTE:** This Only Allows Communications With The Board It Is Connected To.

Use The PL101905 Adapter And Wire To A Terminal Block To Connect The USB-Link 2 To The Local Communications Loop On Boards That Don't Have A Female Mini-DIN Plug Connection. **NOTE:** This Allows Communications With All Controllers That Are Connected To The System. See Note 1.

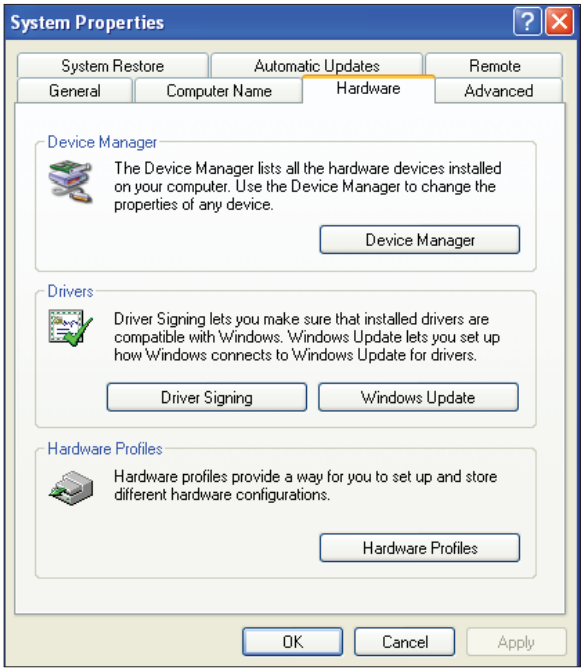
Figure 2: USB-Link 2 Connection & Wiring

Finding What COM Port Number the USB-Link 2 is Using

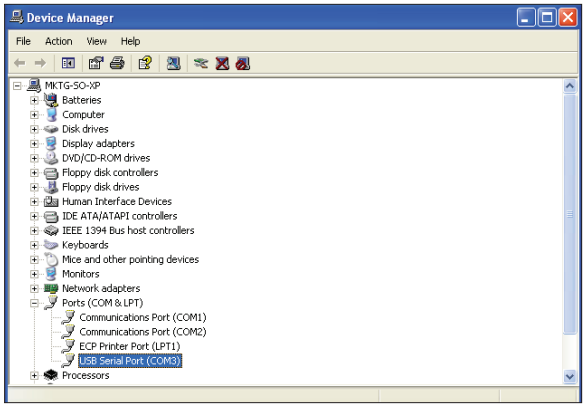
1. *Left-click* on **<Start>**, located on the bottom left of the Windows toolbar. *Select* **<Control Panel>**. *Double-click* the **<System>** icon.



2. *Click* the **<Hardware>** tab. *Click* the **<Device Manager>** button.



3. *Click* on the plus sign next to Ports to see all of the COM ports.



4. *Locate* the USB Serial Port (COM#). The COM# in parentheses is the port it is located on. *Write* this COM port number down. You will need to know this when setting up the Prism 2 software.

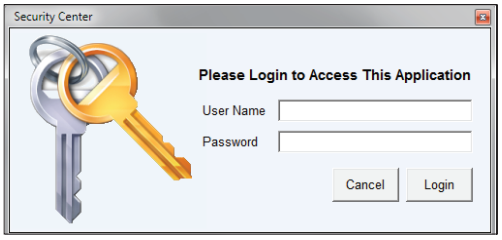
Configuring Prism 2 for the USB-Link 2

1. *Insert* your Prism 2 software CD and follow the steps in the readme.txt file to install the software.

2. 
The instructions will tell you to create a Prism 2.exe shortcut on your desktop. *Click* on this icon to *open* your Prism 2 software.

3. 

Click the **<Login>** button and *type in* the level 3 User Name and password (default is "admin, admin"). *Click* **<Login>**.



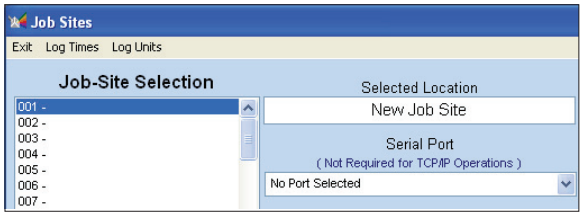
4. 

If Prism 2 is online, *click* the **<ON LINE>** button to make it go **<OFFLINE>**.

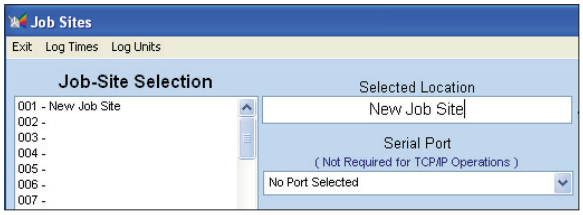
5. 

Click the **<Job-Site>** button to open the *Job Sites Window*.

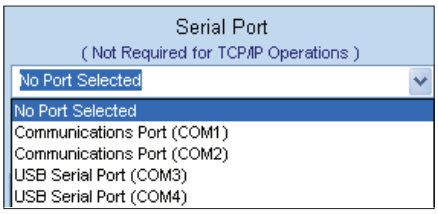
6. *Click* on any empty location in the *Job-Site Selection Window* and *type in* a job name in the Selected Location field. *Press* **<Enter>**.



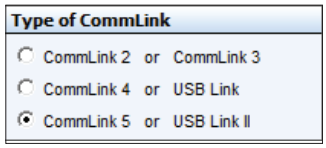
Your job site name will now appear in the *Job-Site Selection Window.*



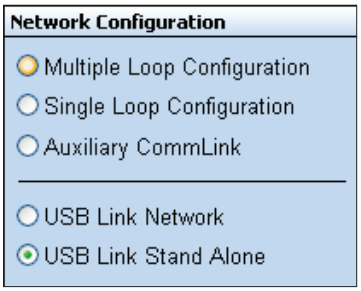
7. In the Serial Port field, *click* on the pull down box and *select* the COM port number that the USB-Link 2 is using.



8. In the Type of CommLink selection box, *select* the radio button next to "CommLink 5 or USB Link II".



9. In the Network Configuration selection box, *select* the mode for the USB-Link 2 you are using. If using stand alone mode, *select* USB Link Stand Alone. If using network mode, *select* USB Link Network. The position of the slide switch on the USB-Link 2 must also be set to the mode you are using (*See* **Figure 3**, **page 10** for help in setting this switch).



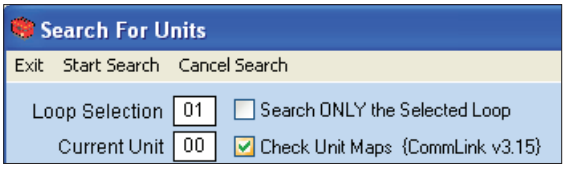
10. *Click* **<Exit>** to close out of the *Job Sites Window*.

11. 

Click the **<OFFLINE>** button to go **<ON LINE>**.

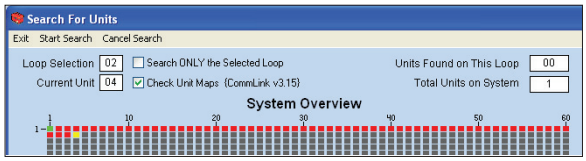
12. From the **<Communications>** menu on the main toolbar, *select* **<Search for Units>**.

13. The *Search For Units Window* will appear. If you haven't performed a previous search, the **Loop Selection** field will read 01 and the **Current Unit** will read 00. You can perform a selective search by entering the loop number you would like to search and checking **Search ONLY the Selected Loop**. The **Check Unit Maps** box will already be checked. Do not deselect this box. Deselecting it will cause the search not to work.



14. *Click* **<Start Search>** to initiate an automatic detection of all installed controllers on your system.

15. If everything is working correctly, **Units Found on this Loop** should increase. You will also see green boxes indicating units that have been found.



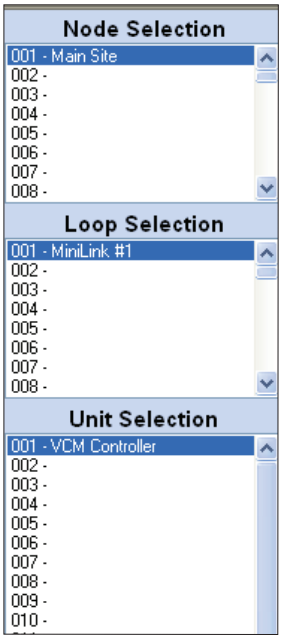
16. If **Units Found on this Loop** stays at zero, check the wiring to the USB-Link 2 and the controller and/or read through these directions again to make sure all steps were followed. Refer to the Troubleshooting Section in the back of this guide for further help.

17. To stop a search, *click* **<Cancel Search>**.

18. Once you are done searching for units, *close* out of the window or *click* **<Exit>**.

19. A window will pop up that asks, "Do you want to save the search results?" *Click* **<Yes>** if you wish to save the results. *Click* **<No>** if not.

20. You can now access any installed unit from the *Main Prism 2 Screen* by selecting a loop from the *Loop Selection Window* with a *single-click* and by selecting the unit from the *Unit Selection Window* with a *double-click*.



Communication Settings and LED Descriptions

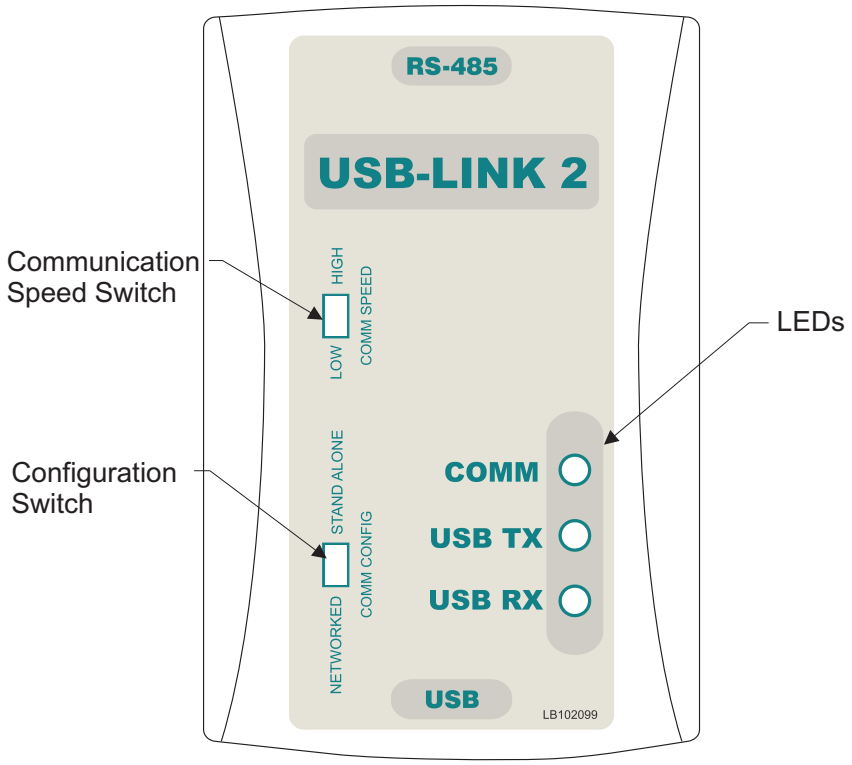


Figure 3: USB-Link 2 Configuration Switch, Communication Speed Switch, and LEDs

NOTE: Whenever you change the configuration or communication speed setting on the USB-Link 2, you must cycle the power to the USB-Link 2 by disconnecting and reconnecting the USB power supply cable.

USB-Link 2 Switch Settings

Configuration Switch

The configuration switch for stand alone or network mode is found to the left of the LEDs. *See* **Figure 3** above. To set the configuration switch, insert a pen tip to move the switch up or down.

Stand Alone - No MiniLink or CommLink - The slide switch on the USB-Link 2 should be set to "Stand Alone" when you are trying to talk to a stand alone controller or multiple controllers on a loop without a CommLink or a MiniLink wired to the communications loop.

Network - MiniLink or CommLink connection - The slide switch on the USB-Link 2 should be set to "Network" any time there is a CommLink or MiniLink wired to the communications loop.

Communication Speed

The communication speed switch for low or high speed is found to the left of the LEDs. *See* **Figure 3** above. To set the communication speed switch, insert a pen tip to move the switch up or down.

Low Speed - The switch should be set to LOW if using VCM-X or older generation Orion Controllers, older generation Auto-Zone Controllers, or VCB-X or GPC-XP Controllers set to Low Speed.

High Speed - The switch should be set to HIGH if using AZ2 Controllers, VCCX2/VCC-X Controllers, or VCB-X and GPC-XP Controllers set to High Speed.

USB-Link 2 LED Descriptions

COMM - Indicates communication activity between the USB-Link 2 and the controller(s) that the USB-Link 2 is connected to. When this LED is flashing, data is being exchanged.

USB TX & USB RX - Indicates communication activity between the USB-Link 2 and the computer that the USB-Link 2 is connected to. The LEDs will flash only when data is sent from Prism 2 to the USB-Link via USB.

Troubleshooting Tips

Problems with Prism 2 Software

- Verify that the correct USB serial port created by the USB connection is selected in the *Job-Sites Window*. Verify the COM port number in **<Control Panel>**, **<System>**,**<Hardware>**,**<Device Manager>**, **<Ports>**.
- Verify that USB-Link 2 is selected for Type of CommLink in the *Job Sites Window*.
- Verify that the correct USB-Link 2 mode is selected under Network Configuration in the *Job-Sites Window*.

Problems with USB Connection

- Verify that the USB-Link 2's USB LEDs blink when you perform a Search for Units or try to open a status screen in Prism 2.
- If the USB-Link 2's USB LEDs fail to blink, disconnect and reconnect the USB connection.
- If the problem persists, check that the USB drivers have been installed properly

Problems with RS-485 Wiring

- Make sure T connects to T, R to R, and Shld to Shld if multiple boards are wired together on a loop.
- Make sure that the USB-Link 2 mini-DIN communication cable is plugged into a controller or wired to the local side of the loop.

Problems Viewing Controllers on a Network

- Make sure that in Prism 2, USB Link Network is selected under Network Configuration in the *Job-Sites Window.*

NOTE: AAON Controls Support cannot troubleshoot internal PC and/or Windows®-based operating system problems.

NOTE: AAON Controls Support cannot troubleshoot firewalls, routers, and/or problems on a customer's internal or external network. An IT professional may need to be consulted.

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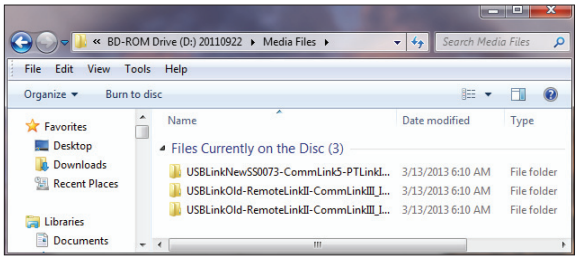
USB Serial Converter and Serial Port Driver Installation

The internal USB communication port of the USB-Link 2 uses a specialized driver that must be installed on your Windows PC before communication to the device can be established.

NOTE: You may already have this driver installed on your PC if you are using a CommLink 5.

1. Before you begin, you must determine if your computer is running 32-bit or 64-bit Windows. Open the System information by *clicking* the **<Start>** button, *clicking* **<Control Panel>**, and *clicking* **<System>**. Under System, you can view the system type. Based on what type of system you have, you will choose 32_Bit.exe or 64_Bit.exe from the list of files shown in **Step 5** .

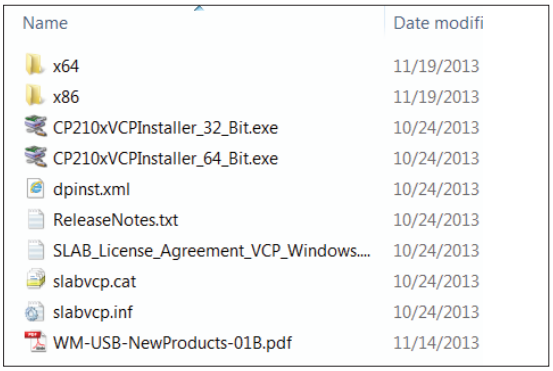
2. Open the WM USB Drivers folder.



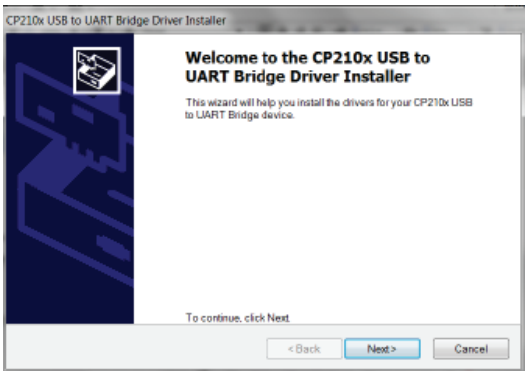
3. Copy and paste the folder “USBLink NewSS0073” to a location on your computer’s hard drive.

4. Locate the folder “USBLink NewSS0073” on your hard drive and *double-click* on it.

5. The following list of files will display. Choose 32_Bit. exe or 64_Bit.exe based on what type of system you determined you have in **Step 1**.



6. In the window that pops up, shown below, *click* **<Next>** and the installation program will walk you through the rest of the steps.

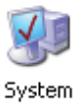


7. When successful installation has occurred, connect the USB cable between the PC and the USB-Link 2. The PC will automatically recognize the device and a COM port will be assigned. Follow the procedures on the **next page** to verify the Comm Port.

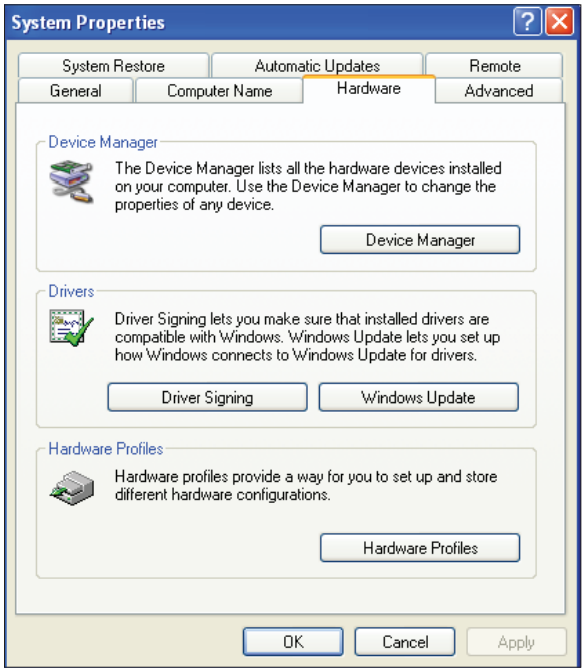
Finding the COM Port Number

Finding What COM Port Number the USB-Link 2 is Using

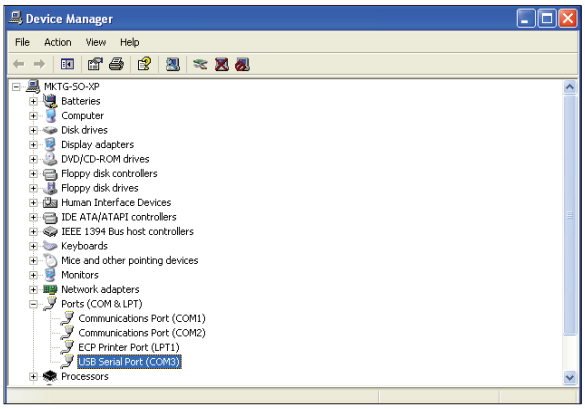
1. *Left-click* on **<Start>**, located on the bottom left of the Windows toolbar. *Select* **<Control Panel>**. *Double-click* the **<System>** icon.



2. *Click* the **<Hardware>** tab. *Click* the **<Device Manager>** button.



3. *Click* on the plus sign next to Ports to see all of the COM ports.



4. *Locate* the USB Serial Port (COM#). The COM# in parentheses is the port it is located on. *Write* this COM port number down. You will need to know this when setting up the Prism 2 software.

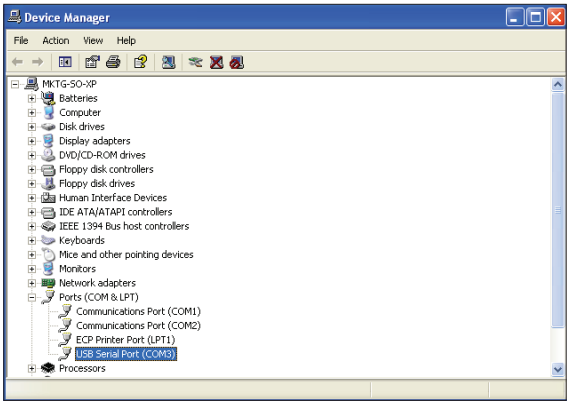
5. If the COM port number is 10 or greater, go to "Changing the USB COM Port Number" in the Troubleshooting section on page 12; otherwise, continue with the section "Prism 2 Setup" on the next page.

Changing the USB COM Port Number

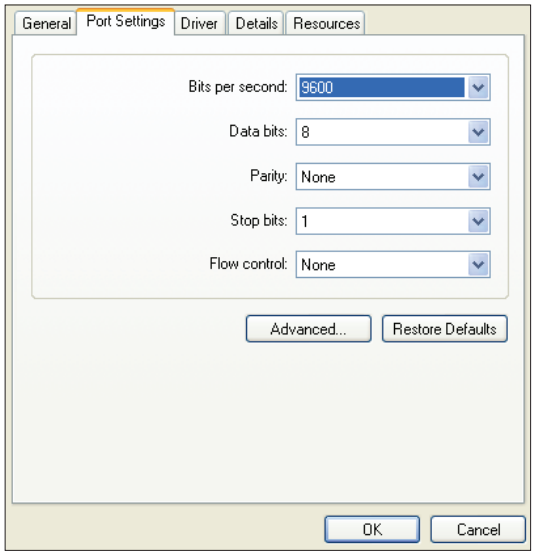
When the USB-Link 2 is first plugged in, it will be assigned a COM port number to be used for communicating with the Prism 2 software. If the port number is 10 or greater, it needs to be changed to a value less than 10 to be recognized by Prism 2.

1. *Click* **<Start>**, *click* **<Control Panel>**, *click* **<System>**, *click* the **<Hardware>** tab, and then *click* **<Device Manager>** to get to the *Device Manager Window*.

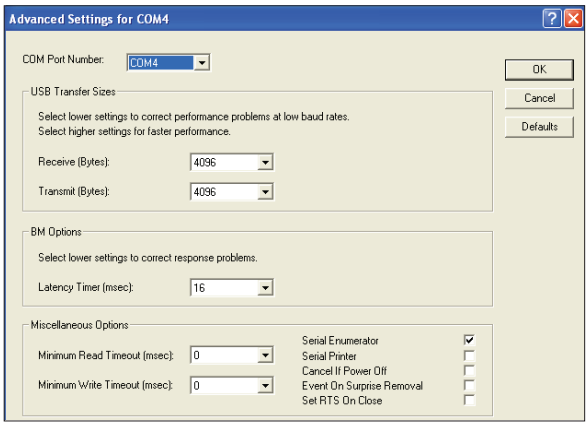
2. *Click* on the plus sign next to Ports to see all of the COM ports.



3. *Right-click* on "USB Serial Port (COM#)" and *select* **<Properties>**. In the *Properties Window*, *select* the **<Port Settings>** tab.



4. To assign a port number less than 10, *click* on **<Advanced>**. The *Advanced Settings Window* will appear.



5. In the COM Port Number drop down box, *select* which COM port you wish to use. Make sure you select a COM port number that is not currently in use (you can see the ports in use in the *Device Manager Window*). *Select* a port that is less than 10.

NOTE: Windows® will assign a port number to every device that has ever been installed on your computer. So if there are no available ports below 10, choose a port number less than 10 for a device listed that you know you are not currently using.

6. Once you select the correct COM port number, *click* **<OK>** and close any windows opened in the process of changing the port number. Make note of this number because you will need it for your Prism setup.