CommLink 5
Technical Guide

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> **This manual is also available for download from our website—www.aaon.com/communicationdevices— where you can always find the latest literature updates.**

CommLink 5 Overview

The ASM01874 CommLink 5 is used to transfer communications between controllers or local loops on your control system. It can also be used as an interface for connection of a computer to your system.

The CommLink 5 provides communication with the control system through any computer that is running Prism 2 software. For remote communications, an IP Module Kit can be installed for LAN and Internet connections.

Optional IP Module Kit

The ASM01902 IP Module Kit, when installed and configured in the CommLink 5 communication interface, provides TCP IP Internet and/or intranet connection for Ethernet networked computer systems, allowing them to communicate with your control system. The IP Module Kit consists of the IP Module and a 10 ft. long CAT5 Ethernet crossover cable.

Using standard TCP/IP Protocol, with AAON's Prism 2 software, you are able to monitor and configure your controllers without a modem or a direct connection from a PC. Utilizing existing routers, proxies, or firewalls allows a PC running Prism 2 to connect to a controller in a remote accessible location or building. Several IP connection profiles can be created to facilitate monitoring several CommLink 5's with IP Module Kits installed on individual sites.

Installing the CommLink 5 ONLY

When you are using the CommLink 5 in an application without a computer or IP Module, follow **Steps 1-3** in the Quick Guide on **page 4**.

WARNING: If you are replacing an earlier version of the CommLink with a CommLink 5, be aware that the R(+) and T(-) terminals on the communications terminal block are reversed from all previous models of the CommLink. You must always confirm that the polarity is correct when wiring 24 VAC power to the CommLink power terminal block or serious damage to the product will result.

System Requirements

To program the CommLink 5 to work with Prism 2, you will need:

Standard Items (Required)

- CommLink 5 with USB cable and power adapter (supplied)

- A PC with an Ethernet communications port or USB port (supplied by others)

- USB drivers on CD-ROM (supplied and also downloadable from www.aaon.com/prism)

- Microsoft Windows® 10 (must be installed on the computer you are going to use)

- Prism 2 software, version 4.0.3 and up (can be downloaded for free from www.aaon.com/prism)

Optional Items

- IP Module Kit that comes with Ethernet RJ-45 Crossover CAT 5, 10 ft. long cable for LAN, and Internet remote communications

- MiniLink, MiniLink PD, or MinkLink PD 5

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

Quick Start Guide

Quick Start Guide

Follow the five steps below to get your CommLink up and running in no time.

> **NOTE:** If you are using the CommLink 5 without utilizing Prism 2, you need only perform **Steps 1-3**.

Step 1: Set your CommLink's Loop switch to Multiple or Single. See **Figure 2** on **page 6**.

Step 2: Set your CommLink's Baud rate switch to High or Low. See **Figure 3** on **page 7**.

Step 3: Wire your CommLink to the appropriate controller on your system, and plug the CommLink into a power supply. See **Figure 1** on **page 5**.

> **WARNING:** If you are replacing an earlier version of the CommLink with a CommLink 5, be aware that the R(+) and T(-) terminals on the communications terminal block are reversed from all previous models of the CommLink. You must always confirm that the polarity is correct when wiring 24 VAC power to the CommLink power terminal block or serious damage to the product will result.

Step 4: Install the USB drivers located on the included CD-ROM. See instructions on **page 8**. Then attach one end of the USB cable to the back of your CommLink and the other end into your computer's USB port.
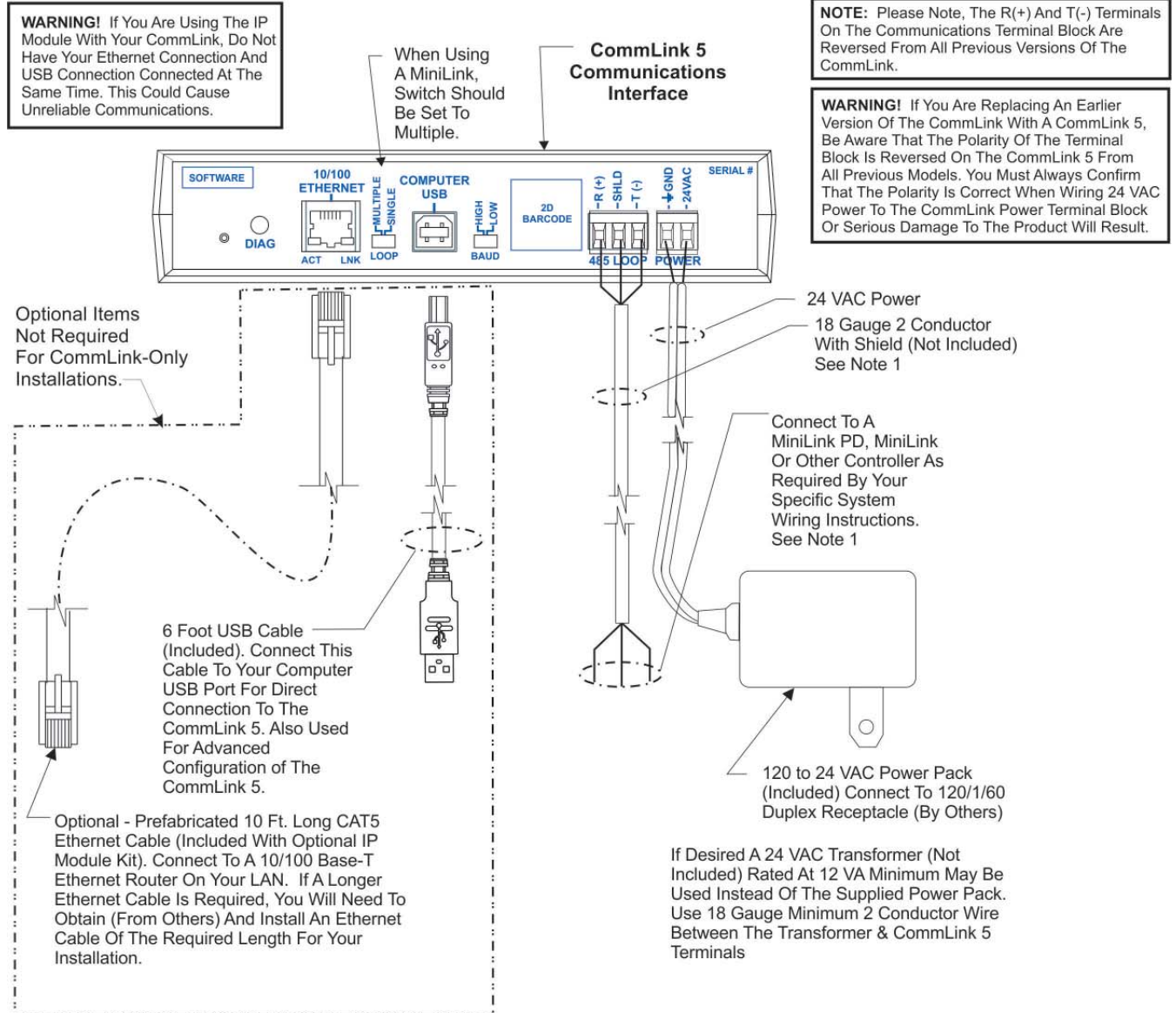
Step 5: Install Prism 2 software on your computer. See instructions on **pages 10 & 11**.

> **NOTE:** For remote communication, follow the instructions included in the *IP Module Technical Guide*.

IMPORTANT NOTES:

☐ First install the USB drivers, then follow the included CommLink 5 connection and wiring instructions sheet (**Figure 1** on **page 5**) to connect and configure the CommLink 5.

☐ 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.

CommLink 5 Connections & Wiring

WARNING! If You Are Using The IP Module With Your CommLink, Do Not Have Your Ethernet Connection And USB Connection Connected At The Same Time. This Could Cause Unreliable Communications.

When Using A MiniLink, Switch Should Be Set To Multiple.

CommLink 5 Communications Interface

NOTE: Please Note, The R(+) And T(-) Terminals On The Communications Terminal Block Are Reversed From All Previous Versions Of The CommLink.

WARNING! If You Are Replacing An Earlier Version Of The CommLink With A CommLink 5, Be Aware That The Polarity Of The Terminal Block Is Reversed On The CommLink 5 From All Previous Models. You Must Always Confirm That The Polarity Is Correct When Wiring 24 VAC Power To The CommLink Power Terminal Block Or Serious Damage To The Product Will Result.

Optional Items Not Required For CommLink-Only Installations.

6 Foot USB Cable (Included). Connect This Cable To Your Computer USB Port For Direct Connection To The CommLink 5. Also Used For Advanced Configuration of The CommLink 5.

Optional - Prefabricated 10 Ft. Long CAT5 Ethernet Cable (Included With Optional IP Module Kit). Connect To A 10/100 Base-T Ethernet Router On Your LAN. If A Longer Ethernet Cable Is Required, You Will Need To Obtain (From Others) And Install An Ethernet Cable Of The Required Length For Your Installation.

24 VAC Power

18 Gauge 2 Conductor With Shield (Not Included) See Note 1

Connect To A MiniLink PD, MiniLink Or Other Controller As Required By Your Specific System Wiring Instructions. See Note 1

120 to 24 VAC Power Pack (Included) Connect To 120/1/60 Duplex Receptacle (By Others)

If Desired A 24 VAC Transformer (Not Included) Rated At 12 VA Minimum May Be Used Instead Of The Supplied Power Pack. Use 18 Gauge Minimum 2 Conductor Wire Between The Transformer & CommLink 5 Terminals
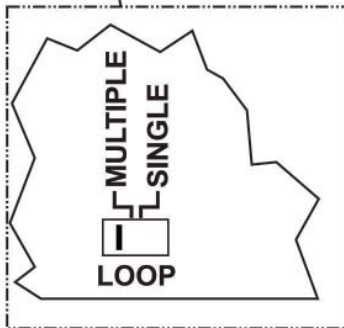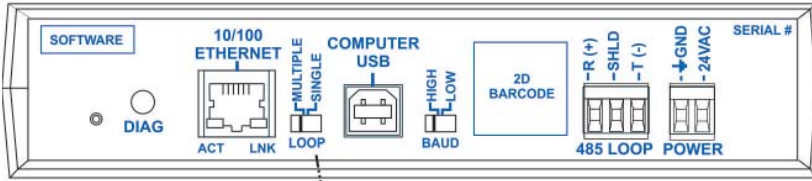
NOTES:

1) Use 18 Gauge Minimum 2 Conductor Twisted Pair With Shield Cable Belden #82760 Or Equivalent (Not Included) To Connect The CommLink 5 To A MiniLink or MiniLink PD.

2) For Direct Connection Via USB, Your Computer Must Have An Unused USB Port Available. Drivers For Your USB Port Are Provided On A CD Supplied With The CommLink 5. Please Follow The Directions In The CommLink 5 USB Driver Installation Section (Included) To Install And Configure The USB Drivers.

3) The CommLink 5 Cannot Communicate With The Control System Through Its Ethernet Port And USB Port At The Same Time.

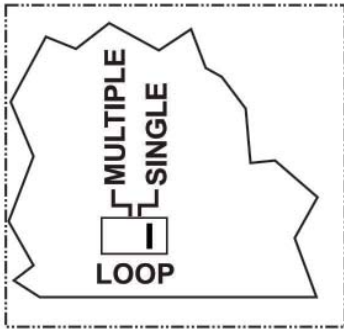4) All Wiring Must Conform To Applicable Federal, State & Local Electrical Wiring Codes.

Figure 1: CommLink 5 Connection & Wiring

Setting the CommLink 5 Communications Setting

Back of CommLink 5

CommLink 5 Communications Setting

The Loop Switch Located On The Back Of The CommLink 5 Housing Must Be Set Correctly For Your Specific Application In Order For The CommLink 5 To Function Properly. The CommLink 5 Is Factory Set For Multiple Loop Applications.

The Loop Switch Setting Should Be Set To "Multiple" In The Following Situation:

    You Have A Single CommLink With MiniLink(s) or MiniLink PD(s) Installed On Your System.

The Loop Switch Setting Should Be Set To "Single" In The Following Situation:

    You Have A Single CommLink Without Any MiniLinks Or MiniLink PDs Installed On Your System.

Switch Set To Multiple Loop Communications

Switch Set To Single Loop Communications

Figure 2: Setting Loop Communications

Setting the CommLink 5 Baud Rate

Back of CommLink 5
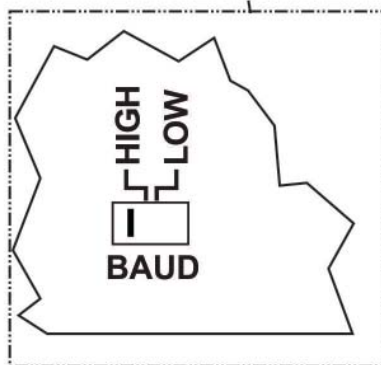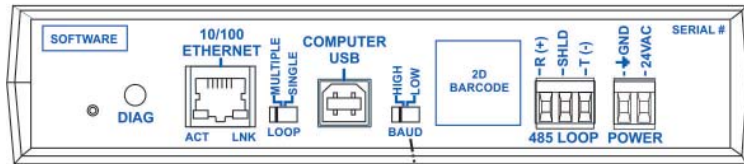
Switch Set To High Baud
Rate (115,200)
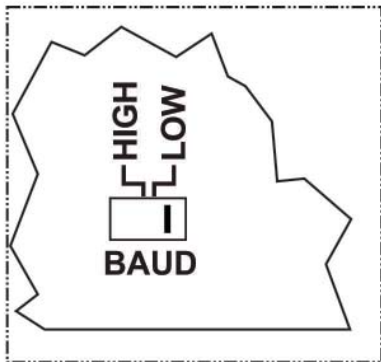
Switch Set To Low Baud
Rate (Anything Less Than
115,200)

CommLink 5 Baud Rate Setting

The Baud Rate Switch Located On The Back Of The CommLink 5 Housing Must Be Set Correctly For Your Specific Application In Order For The CommLink 5 To Function At Maximum Efficiency. The CommLink 5 Is Factory Set For Low Baud Rate Applications.

The Baud Rate Should Be Set To "High" In The Following Situations:

> You Are Using Only VCCX2 Controllers, Only VCC-X Controllers, Only AZ2 Controllers, Only VCB-X Controllers (Set To High Speed) or Only GPC-XP Controllers (Set To High Speed) On Your System or a Combination of These Controllers Set to High Speed (If Applicable).

The Baud Rate Should Be Set To "Low" In The Following Situations:

You Are Using Orion Controllers In Combination With VCB-X or GPC-XP Controllers. For Example, VCB-X or GPC-XP Controllers With VCM-X or VCM Controllers. In This Application, The VCB-X Controller and GPC-XP Controller Must Also Be Set To Low Speed.

NOTE: Refer To Each Individual Controller's Technical Guide On How To Set The Baud Rate

Figure 3: Setting the Baud Rate

USB Driver Installation

USB Driver Installation

The internal USB communication port of the CommLink 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 have used or are using a USB-Link 2.

1. Before you begin, you must determine if your computer is running 32-bit or 64-bit Windows. Open the System information by *right-clicking* the **<Start>** button and then *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 www.aaon.com/prism. 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:
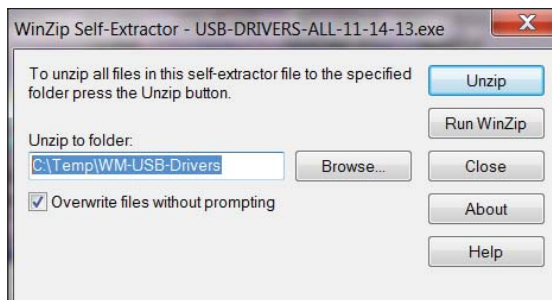
5. *Select* **<Unzip>** and the file will be unzipped to the folder C:\Temp\WM-USB-Drivers folder by default.

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.
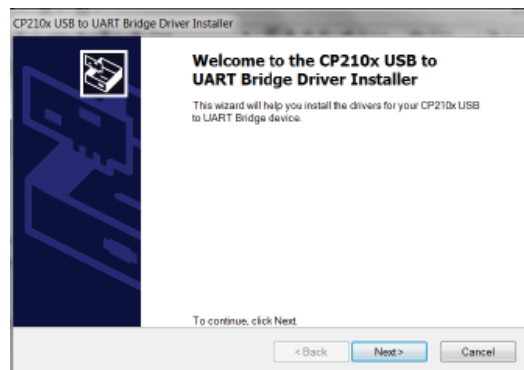
9. *Double-click* the folder "USBLink NewSS0073".
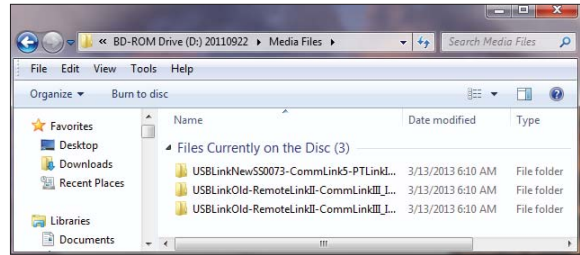
10. The following list of files will display. Choose 32_Bit.exe or 64_Bit.exe based on what type of system you determined you have in **Step 1**.

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 9** to verify the Comm Port.

Finding What COM Port Number the CommLink 5 is Using (Windows® 10)

1. *Right-click* on the Windows® icon, located on the bottom left or top left of the Windows Tool Bar.

2. *Select* **<Device Manager>.**

3. *Click* on the plus sign next to Ports to see all of the common ports.
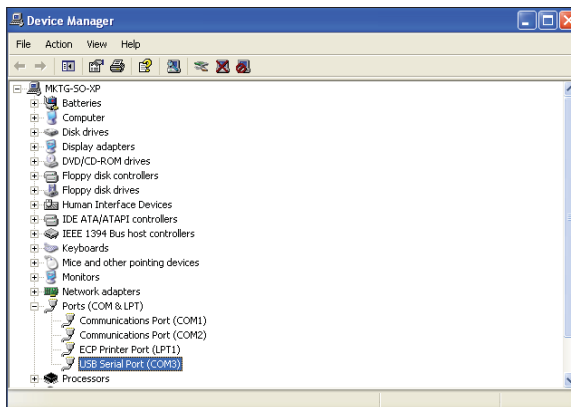
4. *Locate* the USB Serial Port (COM#). The COM# in parentheses is the port it is located on. *Write* this COM port number down. You will need to know this when setting up the Prism 2 software.

5. If the COM port number is 10 or greater, go to "Changing the USB COM Port Number" in the Troubleshooting section on **page 15**.

Prism 2 Setup

1. *Open* your Prism 2 software.
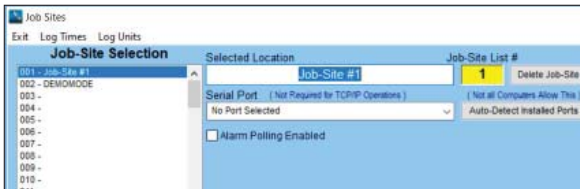
2. *Click* the **<Login>** button and *type in* the Level 9 User Name and password (default is "admin, admin"). *Click* **<Login>**.
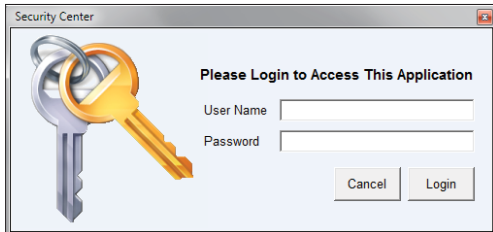
3. If Prism 2 is online, *click* the **<ON LINE>** button to make it go **<OFFLINE>**.

4. *Click* the **<Job-Site>** button to open the *Job-Sites Window*.
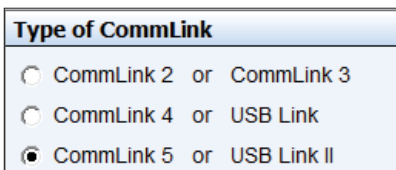
5. *Click* on any empty location in the *Job-Site Selection Window* and then *type in* a job name in the Selected Location box and *press* **<Enter>**.

6. In the Serial Port field, *click* on the pull down box and *select* the COM Port number that the CommLink 5 is using.
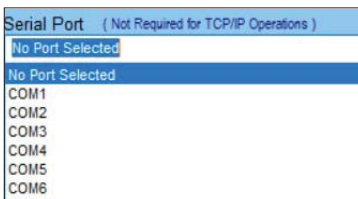
7. In the Type of CommLink selection box, select the radio button next to CommLink 5.

8. In the Network Configuration selection box, select the type of system configuration you are using. The only options applicable to CommLink 5 are Multiple Loop Configuration (Network) or Single Loop Configuration.
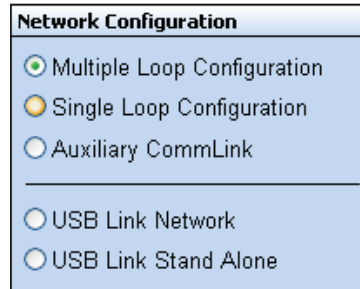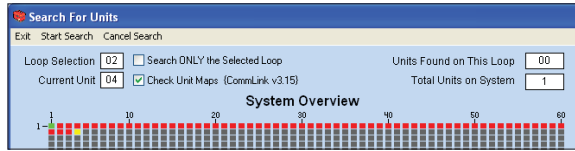
9. *Click* **<Exit>** to close out of the *Job Sites Window*.

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

11. From the **<Communications>** menu, *select* **<Search for Units>**.
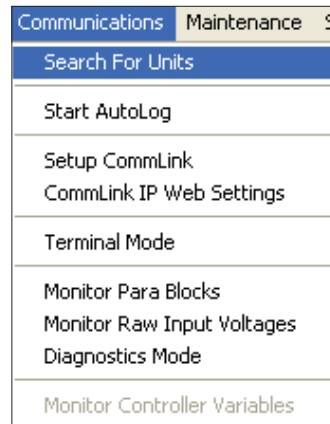
12. The *Search for Installed Units Window* will pop up. *Click* **<Start Search>** located in the upper left-hand corner of the window to initiate an automatic detection of all installed controllers on your system.

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

14. If **Units Found on this Loop** stays at zero, check the wiring to the CommLink 5 and the AHU/RTU Controllers and/or read through these directions again to make sure all steps were followed.

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

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

17. 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.

18. 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*.
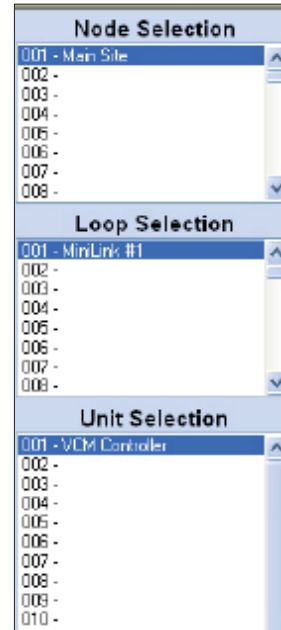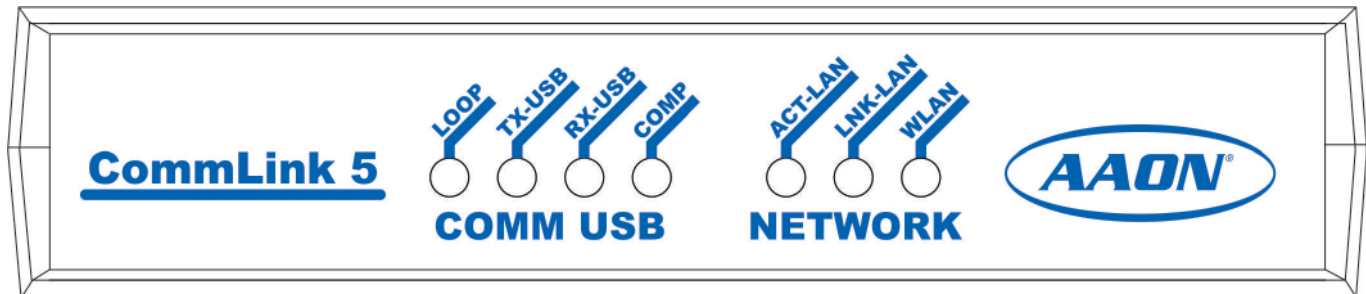
CommLink 5 LED Descriptions

Figure 3: CommLink 5 LED Display

CommLink 5 LED Descriptions

USB LEDs

LOOP - Indicates communication activity on local controller network. This LED flickers when data is exchanged with the controller network.

TX-USB - Indicates transmitted data status of USB connection. This LED only flashes when your CommLink 5 is connected to a computer and data is sent to Prism from the CommLink 5 via USB.

RX-USB - Indicates received data status of USB connection. This LED only flashes when your CommLink 5 is connected to a computer and data is sent from Prism to the CommLink 5 via USB.

COMP- Indicates connection to your computer. This LED will turn on solid once you plug the USB cable into your computer as long as the connection is not lost.

NETWORK LEDs

ACT-LAN - Indicates activity on the local area network. This LED flashes on when LAN is transmitting and receiving data and is only operational with an Ethernet connection.

LNK-LAN - Indicates local area network is connected. This LED is on when connected to LAN and is only operational with an Ethernet connection.

WLAN - Indicates wireless connection to the local area network. This LED flashes on when LAN is transmitting and receiving data and is only operational with an Ethernet connection.

Proxy and Firewall Compatibility

Proxy and Firewall configurations may become necessary when the CommLink 5 is connected to a LAN/WAN that is protected by a commercially available Firewall, Proxy, or NAT enabled router. Examples of these would include Cisco, NetGear, LinkSys, or WatchGuard Technologies. Also, some ISPs provide IP Address ranges that are already fire-walled at the NOC or ISP Head-End. Make sure that your IT Department or ISP can create a mapped TCP port 39288 on your firewall/proxy to TCP port 39288 on the assigned IP Address of the CommLink 5.

Only with proper configuration of the Firewall/Proxy are connections to the CommLink 5 from outside of the local area network going to be possible. Check that the Firewall/Proxy TCP port 39288 is not set to time out or reset after a specified amount of time when there is no traffic from the remote PC.
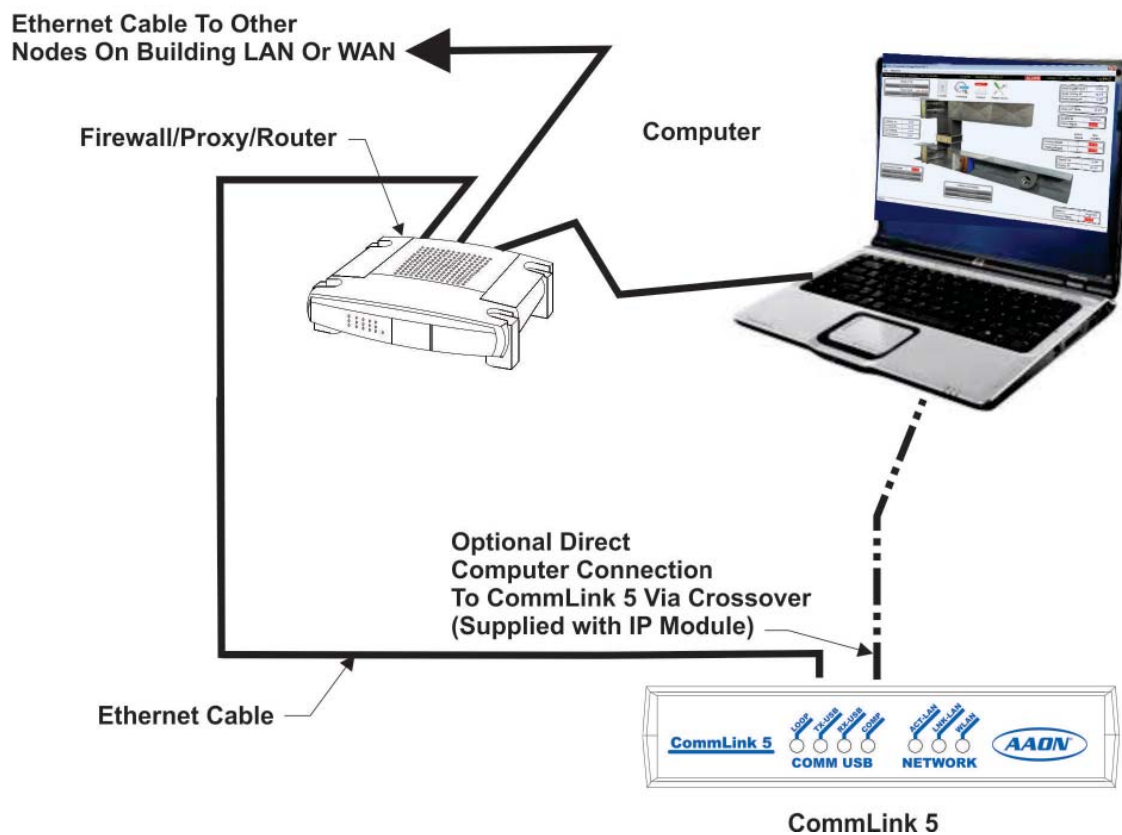

Figure 4: Example Network Diagram of a Firewall or Proxy Configuration

Troubleshooting

Troubleshooting Tips

Problems with Prism 2 Software

- Verify that the correct COM port, created by the USB connection, is selected in the *Job-Sites Window*. Verify the COM port number by *right-clicking* on the Windows® icon, *selecting* **<Device Manager>**, and *viewing* **<Ports>**.

- Verify that the radio button **<CommLink 5 or USB-Link II**> is selected for the Type of CommLink in the *Job-Sites Window*.

- Verify that the correct CommLink mode is selected under Network Configuration in the *Job-Sites Window*. Select **<Multiple Loop>** or **<Single Loop>**.

Problems with USB Connection

- Verify that the TX-USB and RX-USB are blinking when you perform a Search for Units or try to open a status screen in Prism 2.

- If the USB LEDs fail to blink, disconnect and reconnect the USB connection.

- If the problem persists, verify that the USB drivers have been installed properly.

Problems Viewing Multiple Controllers on a Network

- Make sure that the CommLink's communication switch on the back of the CommLink is set to Multiple Loop.

- In Prism 2, make sure that Multiple Loop Configuration is selected for Network Configuration in the *Job-Sites Window*.

Support Information

AAON Controls provides Prism 2 installation and configuration support. Call (866) 918-1100 for free, direct telephone support or (816) 505-1100 to talk to a Controls Support Representative. Support for all telephone services is available Monday through Friday, 7:00 AM to 5:00 PM central standard time.

> **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.

> **WARNING:** Older operating systems, while they still might be capable of running Prism, are not recommended due to security updates being obsoleted by Microsoft®. We also do not support troubleshooting of any version of Windows® operating the Prism program. Some new models of laptops running the latest release of Windows® 10 have also experienced issues running Prism, and we cannot troubleshoot customer computer issues.

Changing the USB COM Port Number

When the CommLink 5 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.
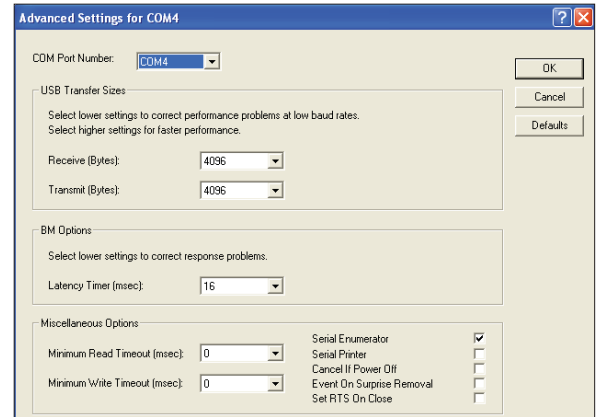
1. *Right-click* on the Windows® icon and *select* **<Device Manager>** to get to the *Device Manager Window*.

2. *Click* on the plus sign next to Ports to see all of the COM ports.
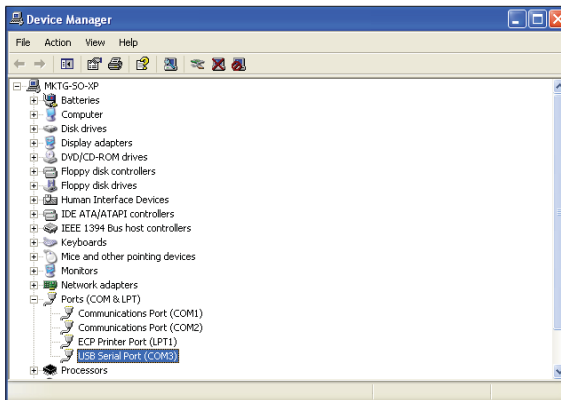
3. *Right-click* on "USB Serial Port (COM#)" and *select* **<Properties>**. In the *Properties Window*, *select* the **<Port Settings>** tab.
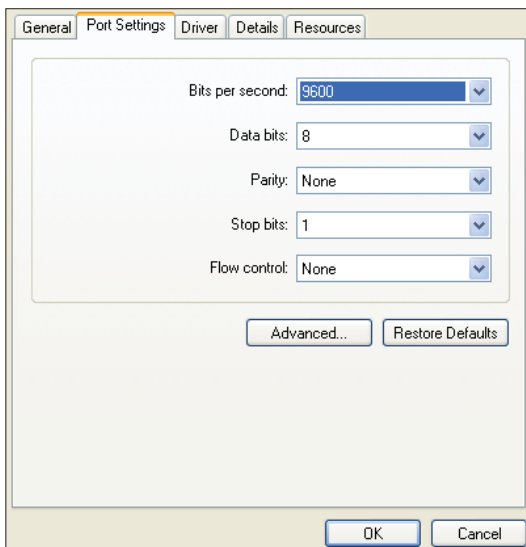
4. To assign a port number less than 10, *click* on **<Advanced>**. The *Advanced Settings Window* will appear.

5. In the COM Port Number drop 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 number 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 2 setup.

AAON Factory Technical Support: 918-382-6450
techsupport@aaon.com

AAON Controls Support: 866-918-1100
Monday through Friday, 7:00 AM to 5:00 PM
central standard time.

NOTE: Before calling Technical Support, please have the model and serial number of the unit available.

PARTS: For replacement parts please contact your local AAON Representative.