



IP Module 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.**

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IP Module Overview

The ASM01902 OE415-02 IP Module installs into the CommLink 5 Communications Interface and provides a TCP/IP Port connection from the AAON control system to a building's Ethernet LAN, providing communications with the control system through any Windows® computer (with Prism 2 software installed) connected to the LAN or the Internet (if configured for access through your LAN's Internet firewall).

Using standard TCP/IP Protocol, with 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 sites.

NOTE: Each IP Module is shipped with a unique password. You should change this password *immediately* to protect the controls system. Please see **page 12** for instructions.

System Overview

The IP Module is a stand-alone network appliance that connects to a 10BaseT or 10/100 network connection. The IP Module will require an IP address on the local network or a routable IP address provided by an ADSL or cable modem if it is to be accessed through the Internet. The PC will require a dialup or Ethernet network connection to the Internet or local network with routes to the CommLink. Check with your local IT Department in regards to your network routing needs.

The TCP/IP connection itself is a TCP connection made on a single port number and is static in nature. Firewall and proxy servers can be configured to allow traffic to and from this device. The nature of the data is raw in form and comprised of packets native to Prism 2 software. The CommLink will respond to ICMP traffic (PING) for verification of proper configuration, but Prism 2 software is required in order to send and receive data to and from the CommLink.

System Requirements

To program the IP Module to work with Prism 2, you will need:

- CommLink 5 with power adapter
- IP Module
- Prism 2 software (can be downloaded from www.aaon.com/prism)
- USB Drivers (can be downloaded from www.aaon.com/prism)
- A PC with an Ethernet communications port (supplied by others)
- Ethernet RJ-45 Crossover CAT 5, 10 ft. long cable (supplied with the IP Module) and an available network port to connect the CommLink to your computer
- Microsoft Windows® 10 (must be installed on the computer you are going to use)
- An IP Address, Subnet Mask, and Gateway Address for the CommLink's IP Module. (Ask your Network Administrator for this information.)
- For the CommLink 5 - Baud rate of the control system that your CommLink 5 is connected to. See **Figure 3, page 7** for further explanation.

NOTE: AAON Controls Support does not support any version of Windows Server.

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.

Quick Start Guide

Quick Start Guide

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.

Follow the steps below to get your IP Module up and running in no time.

- Step 1:** Install Prism 2 software and our USB drivers on your Windows® PC.
- Step 2:** Open your CommLink and snap in your IP Module. See **Figure 1, page 5** for instructions.
- Step 3:** Set your CommLink’s communication switch to Multiple or Single. See **Figure 2, page 6** for instructions.
- Step 4:** Set your CommLink’s Baud Rate switch to High or Low. See **Figure 3, page 7**.
- Step 5:** Wire your CommLink to the appropriate controller on your system and plug the CommLink into a power supply. See **Figure 4, page 8** for instructions.
- Step 6:** Connect your CommLink to your PC via Ethernet cable. See **Figures 5 & 6, page 9**.
- Step 7:** Change your PC’s IP address. See **page 10** for instructions.

- Step 8:** In the Prism 2 software’s IP Module’s *Network Configuration Window*, enter your IP address, Subnet Mask, and Default Gateway as provided by the jobsite IT staff. See **page 11** for instructions.
- Step 9:** In the Prism 2 software’s *CommLink Configuration Settings Window*, select 115,200 as the baud rate for the CommLink 5. See **page 12** for instructions.
- Step 10:** In the Prism 2 software’s IP Module’s *Change Password Window*, change your IP Module’s password.

IMPORTANT NOTES:

- Follow the included CommLink connection and wiring instructions sheet to connect and configure the CommLink for an Ethernet connection. See **Figure 4, page 8**.
- 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.

Installing the IP Module into the CommLink 5

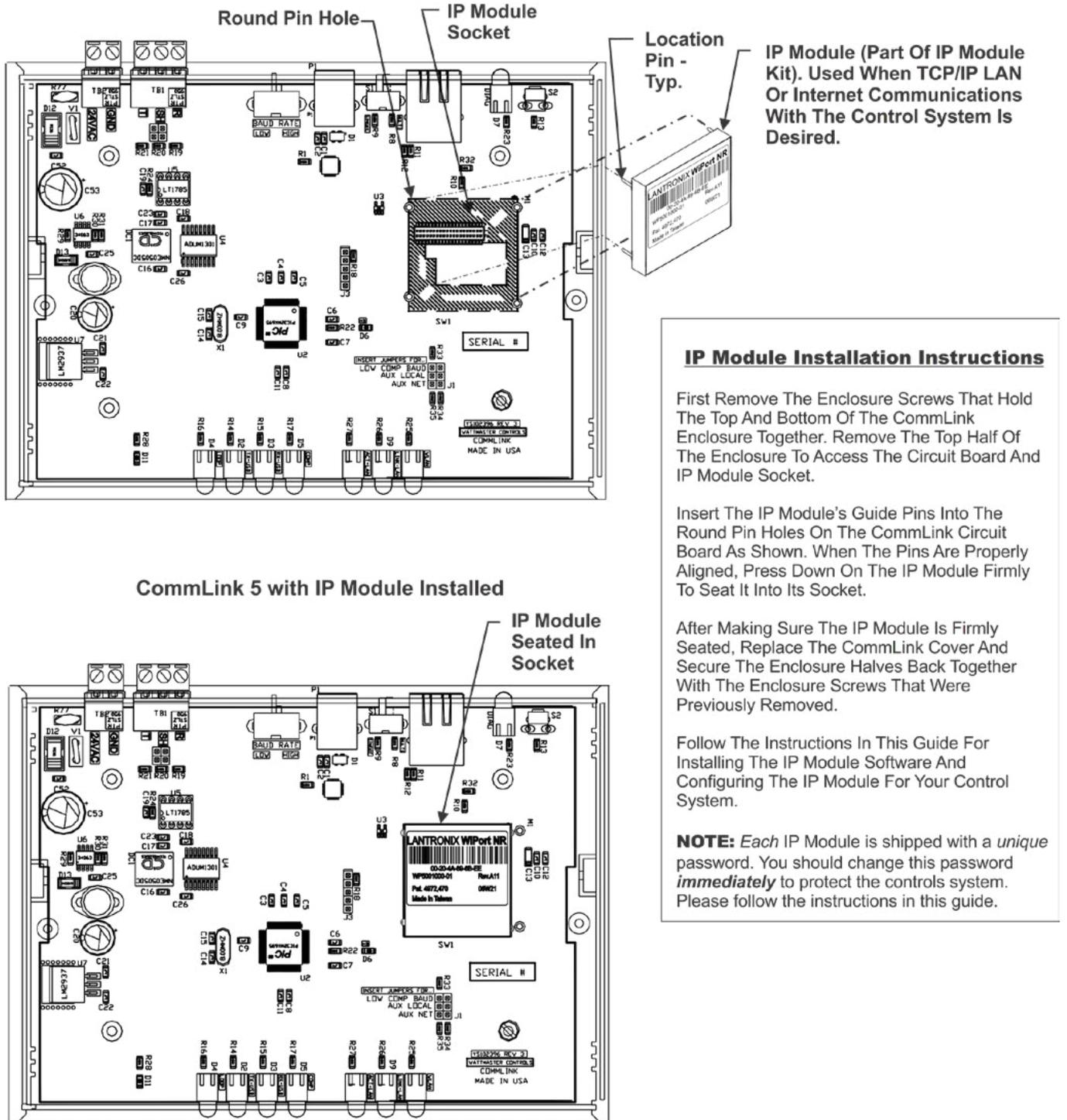


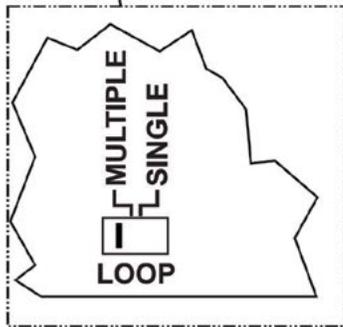
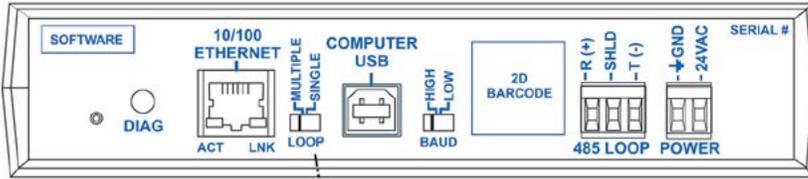
Figure 1: Installing the IP Module into the CommLink 5

COMMUNICATION SETTINGS

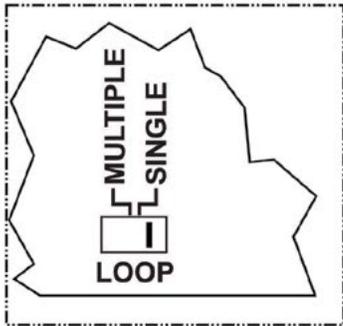
CommLink 5 Communications Setting

Setting the CommLink 5 Communications Setting

Back of CommLink 5



Switch Set To Multiple Loop Communications



Switch Set To Single Loop Communications

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.

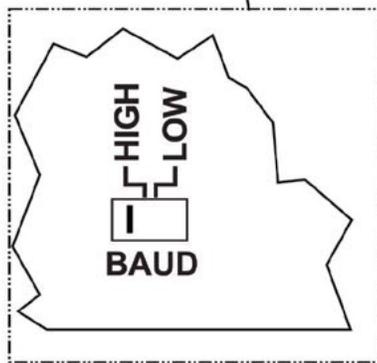
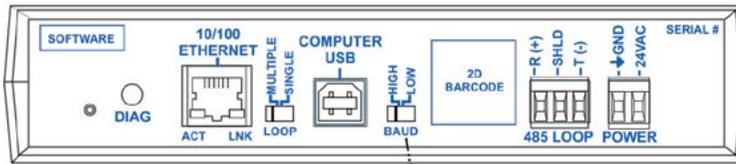
The Loop Switch Setting Should Be Set To "Single" In The Following Situation:

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

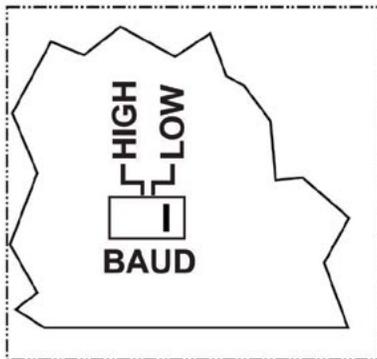
Figure 2: Setting Loop Communications

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.

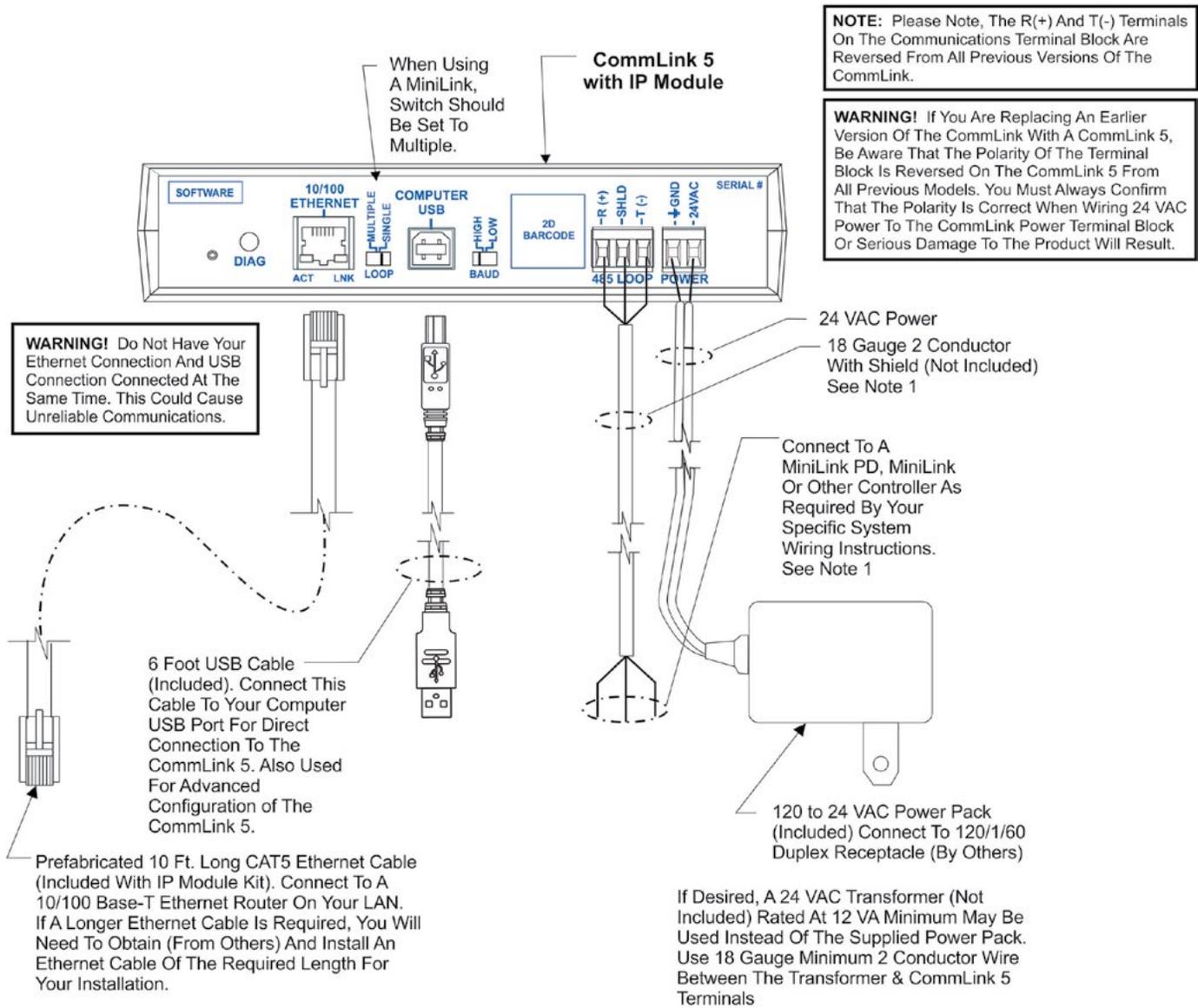
NOTE: Refer To Each Individual Controller's Technical Guide On How To Set The Baud Rate

Figure 3: Setting the Baud Rate

CONNECTIONS & WIRING

CommLink 5 with IP Module Connections and Wiring

CommLink 5 with IP Module Connections & Wiring



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 4: CommLink 5 Connection & Wiring

CommLink with IP Module Hardware Connection

CommLink with IP Module Hardware Connection

You have two options for connecting the CommLink to your PC via Ethernet:

- 1.) You can connect the CommLink directly to your PC by using a crossover CAT 5 Ethernet cable (provided) as shown. See **Figure 5** for details.
- 2.) You can connect both your PC and the CommLink to an Ethernet Hub with standard CAT5 cables (by others). See **Figure 6** for details.

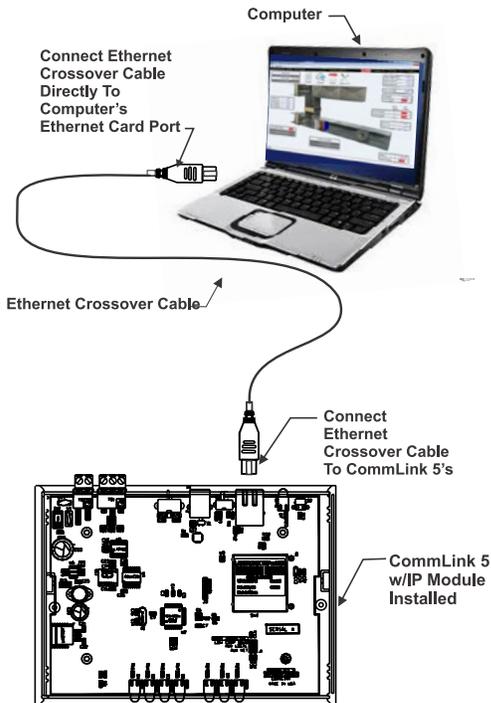


Figure 5: Connecting with Crossover Ethernet Cable

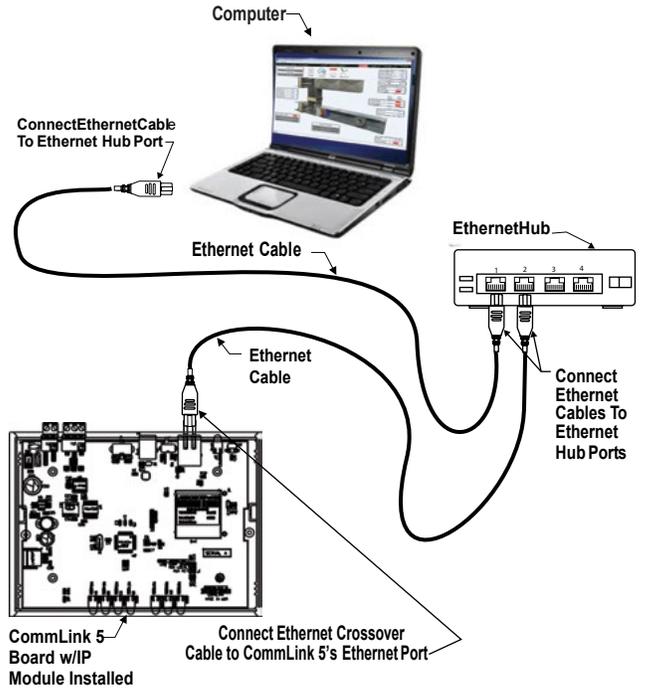


Figure 6: Connecting with Ethernet Cable and Hub

If using a hub or switch, connect a standard CAT 5 cable from the CommLink to the hub or switch. You will also need to connect your computer to the LAN via standard CAT 5 (by others).

If connecting directly to the CommLink without a hub or switch, use a crossover CAT 5 Ethernet cable. The LNK-LAN LED will light up once power is applied, indicating connection to the LAN.

Power up the CommLink by plugging in the power cable. The CommLink may take up to three minutes to power up completely. Once the CommLink is powered up, you should notice that the red "LOOP" LED light on the CommLink remains lit continuously and flickers during communication. See **Figure 17, page 14** for the LED location.

CommLink Configuration

Computer IP Address Set-up for Windows® 10

In order for the CommLink to communicate properly, you must set the IP address of the CommLink and computer to be within the same netmask. The following instructions explain how to change your computer's IP address.

- 1.) *Right click* the Windows icon or **<start>**; then *click* **<Network Connections>**.
- 2.) Then *click* **<Network and Sharing Center>**. The *Network and Sharing Center Window* will appear.

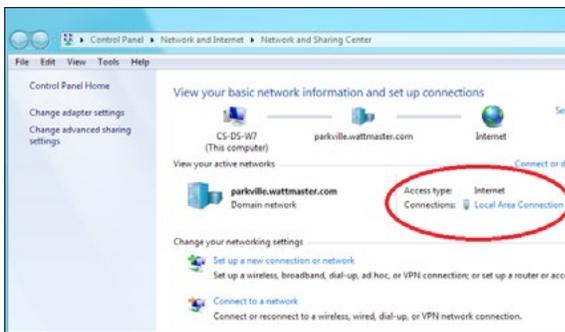


Figure 7: Network and Sharing Center Window

NOTE: If any wireless connections are listed, disable them by *right-clicking* the connection and *selecting* **<Disable>**.

- 3.) In the *Network and Sharing Center Window*, *select* the **Local Area Connection** entry. The *Local Area Connection Status Window* will appear.

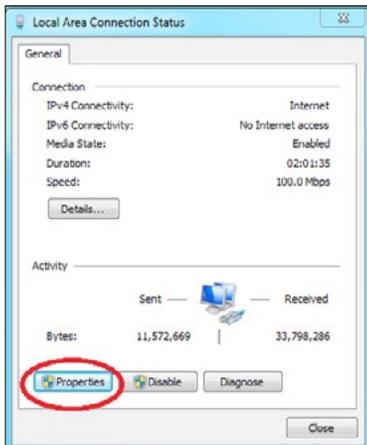


Figure 8: Local Area Connection Status Window

- 4.) *Click* the **<Properties>** button. The *Local Area Connection Properties Window* will appear.

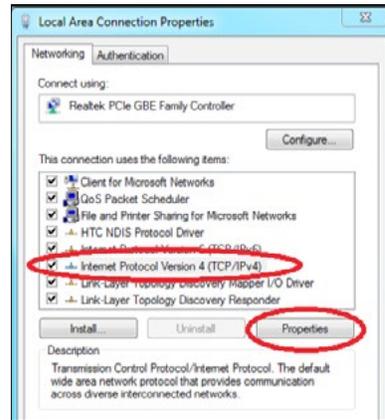


Figure 9: Local Area Connection Properties Window

- 5.) In the *Connection Items List Box* (**Figure 9**), be sure the Internet Protocol Version (TCP/IPv4) is checked. *Click* on Internet Protocol (TCP/IP v4) to highlight it and then *click* **<Properties>**. The *Internet Protocol Properties Window* will appear.

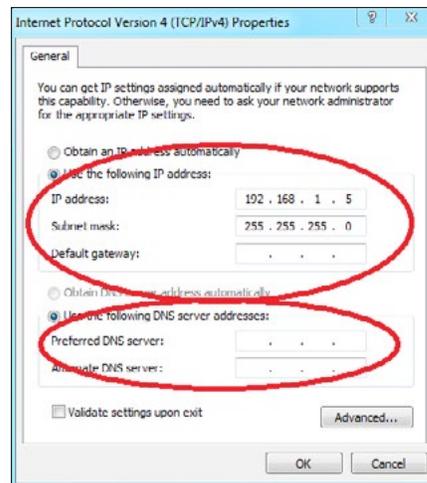


Figure 10: Internet Protocol Properties Window

- 6.) *Type in* the following information:
 - a.) Make the IP address 192.168.1.5
 - b.) Make the Subnet mask 255.255.255.0
 - c.) Blank out the Default gateway setting (leave the setting blank as shown in **Figure 10**).
 - d.) Blank out the Preferred DNS server setting and the Alternate DNS server setting (see **Figure 10**).

- 7.) *Select* **<OK>** until all of the above windows are closed. You may have to *reboot* the computer before the new values are valid.

Changing the CommLink IP Address

Follow the instructions below to set your IP Module’s IP address. Be sure you have configured your PC’s IP address as described on page 10.

- 1.) Run the Prism 2 program, open the Job Sites Window, and type the default IP address 192.168.1.25 in the **Node IP Address** field. See the Prism 2 Technical Guide if needed for further instructions. To access the IP Module web page, click on the **<Communications>** tab and then click **<CommLink IP Web Settings>** (see below).

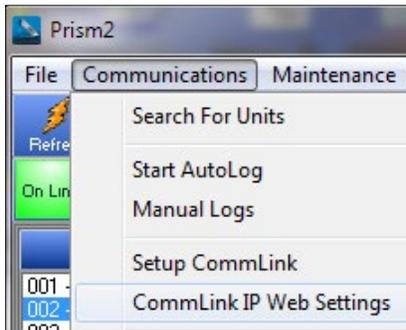


Figure 11: CommLink IP Web Settings

- 2.) The Sign In Window, shown below, will pop up before you can have access to the CommLink IP Module Web-page, shown in Figure 13. Leave the username blank, and in the Password field, enter the password located on the bottom of the CommLink. Then click **<OK>**.

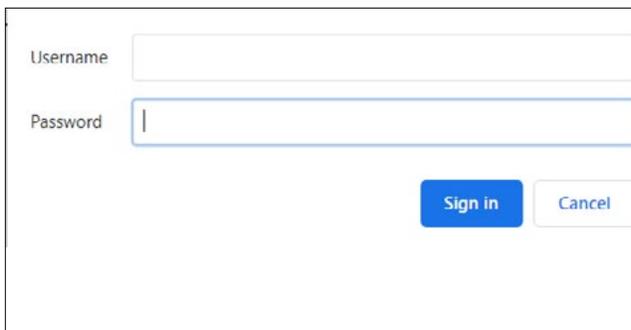


Figure 12: Sign In Window

NOTE: If there is no password label on the bottom of your CommLink, open the CommLink and look at the IP Module label for the MAC Address. The MAC address is the 12 digit dashed alphanumeric number. The password is 8500 plus the MAC address with no spaces or dashes. IP Modules with software versions prior to 1.14, were not assigned passwords. If this is the case, simply leave both Username and Password fields blank, and click **<OK>**.

- 3.) The CommLink IP Module Window, shown below, will appear if a connection is established.



Figure 13: CommLink’s IP Module Home Page

- 4.) Click **<Network Configuration>** found in the menu bar on the left side of the web page.

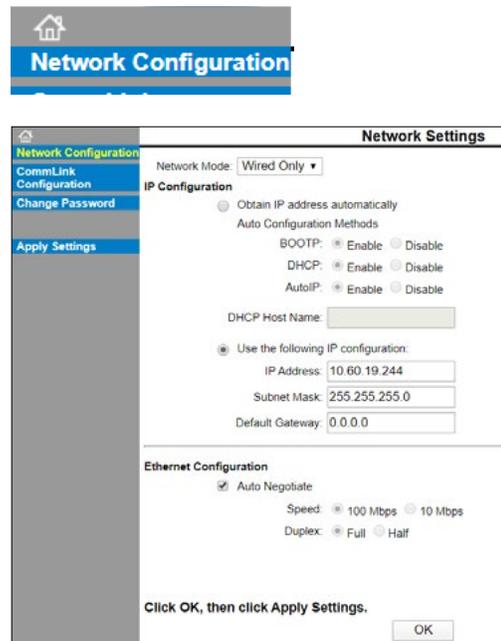


Figure 14: Network Configuration Settings

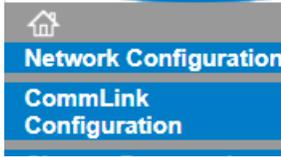
- 5.) Under IP configuration, select the radio button in front of the option **<Use the following IP configuration>** and type in the IP address, Subnet Mask, and Default Gateway as provided by the jobsite IT staff.

NOTE: Be sure all other settings are set to default as shown in Figure 14.

- 6.) Click **<OK>** at the bottom of the Network Settings Screen once the changes have been made.

IP Module Network Configuration

7.) Click **<CommLink Configuration>** found in the menu bar on the left side of the web page.



8.) Under Port Settings, in the Baud Rate drop down menu, *select* 115,200 as the baud rate if using a CommLink 5 (default) or 19,200 is using a CommLink IV.

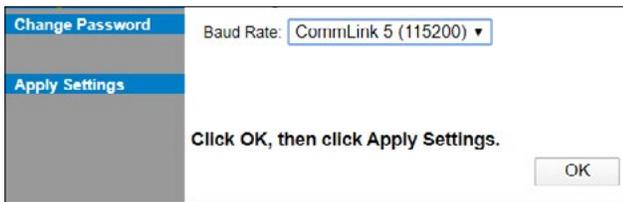
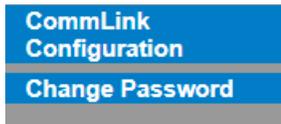


Figure 15: CommLink Baud Rate Setting

9.) Click **<OK>** at the bottom of the screen above once the changes have been made.

10.) Click **<Change Password>** found in the menu bar on the left side of the web page.



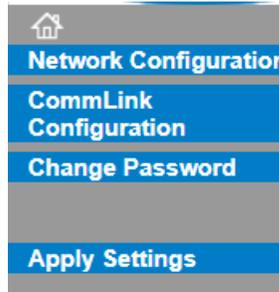
11.) The *Change Password Window* will appear. See **Figure 16**. Type in a new password in both fields—the New Password field and Retype Password field and *press* **<OK>**. A message will appear if the password change is successful. Make sure to write the new password down.

NOTE: If for some reason you forget or lose the password, you can *press* the reset button on the back of the CommLink (located next to the DIAG button). This will reset the password to the factory-set password and will also reset ALL factory settings. As a result, all factory settings will need to be reconfigured.

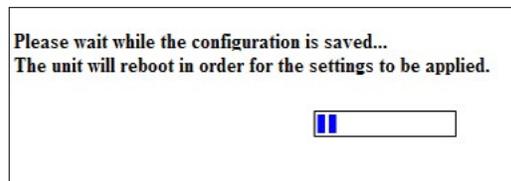


Figure 16: Change Password Window

12.) After you are done modifying all of the IP settings, click **<Apply Settings>** in the menu bar to the left.



13.) The following message will appear on the screen and the LNK-LAN LED will blink once:



14.) When the LNK-LAN LED flashes, it indicates that the new settings have been saved. To verify that the changes were successful, first connect the IP Module to the building's network using a standard Ethernet cable. Then make sure your PC has a connection to the Local Area Network and reopen the IP Module Setup Webpage by typing in the newly assigned IP Address.

15.) Be sure to set the IP address in Prism 2 to the new IP address set up for the CommLink.

Proxy and Firewall Compatibility

Proxy and Firewall configurations may become necessary when the CommLink 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.

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

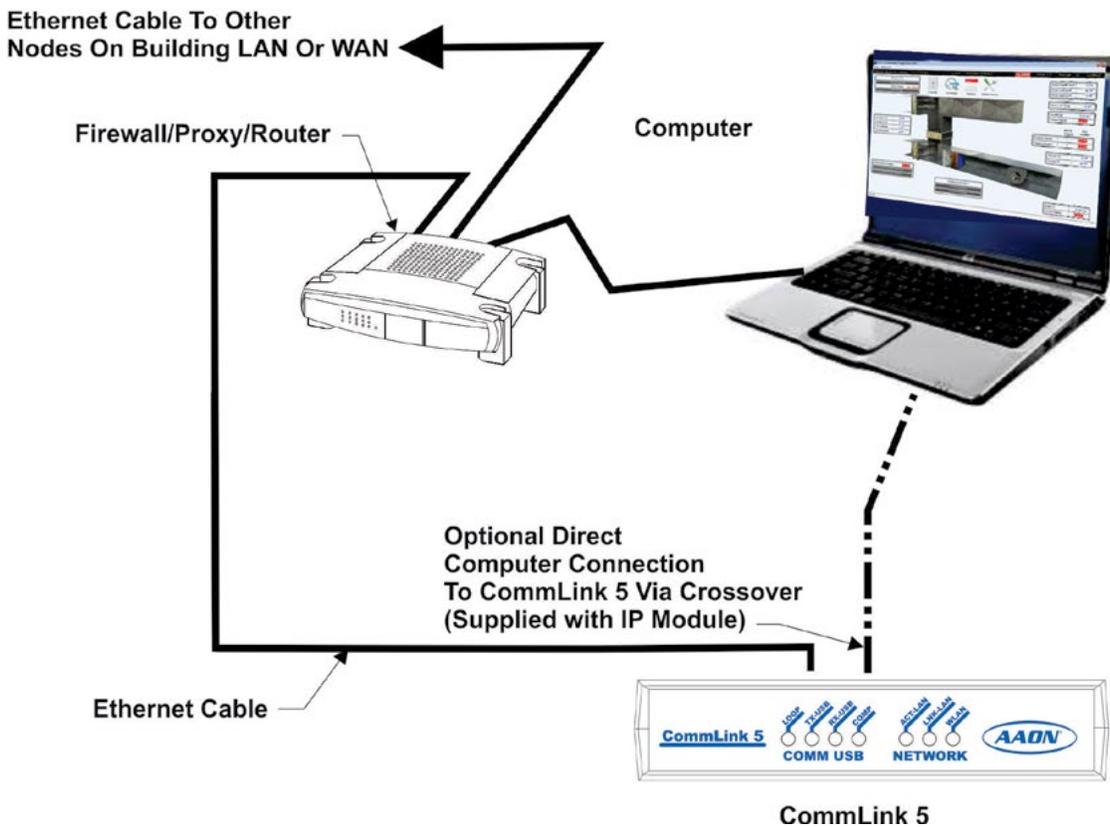


Figure 17: Example Network Diagram of a Firewall or Proxy Configuration

CommLink 5 LED Descriptions

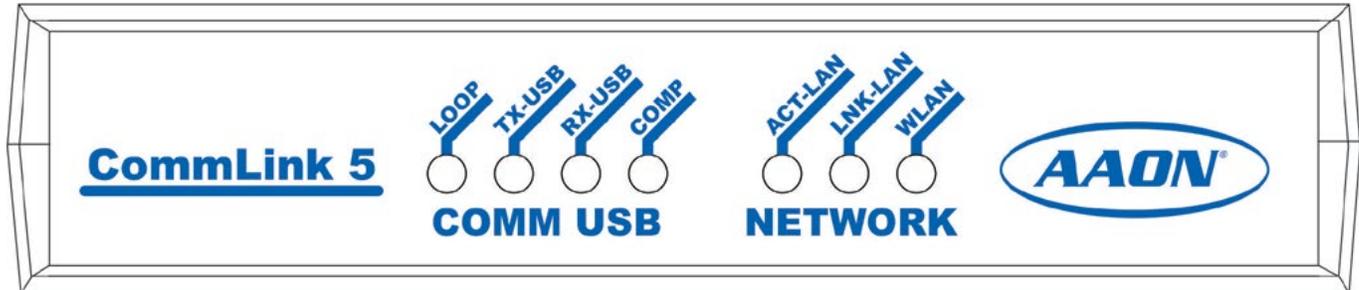


Figure 18: CommLink 5 LED Display

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 2 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 2 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.

Troubleshooting Procedures

Ethernet Connection When the device is connected to a hub, verify that the LINK LED is lit on the CommLink device and the ACT LED occasionally blinks. The ACT LED indicates network activity and may be reflecting other network traffic.

Ethernet Connection, Routing Verify the route is available to the CommLink and firewalls or proxies are configured to pass TCP network traffic on port 39288 if necessary. This can be verified by your Network Administrator.

IP Address Verify that the assigned IP Address is valid for the local network and that it is not in use by any other device. Try to PING the CommLink's IP address to confirm the address is correct and responding.

NOTE: Make sure that the CommLink is connected as shown in **Figures 4, page 8** and all installation procedures have been completed prior to using the "ping" command.

To do this, open a DOS session by opening a command prompt:

1. To open a command prompt, *click <Start>*, *point to <All Programs>*, *point to <Accessories>*, and then *click <Command Prompt>*.
2. PING to the IP Address by *typing*:
ping IP address
Example: ping 192.168.1.25
3. *Press <Enter>* on the keyboard.
4. If no reply is received, first check your PC's IP address and Ethernet connections. If problems persist, consult your network administrator.

Prism 2 Software Verify that the IP address is correctly entered in the connection profile for the CommLink. Also verify that the port is left blank in the profile. This port area specifies Comm port settings, not an IP address port.

TCP Port Address The TCP port address 39288 is hard coded into the EPROM of the CommLink and in Prism 2 software. It cannot be changed by the end user. The TCP port address needs to be set in your Prism 2 connection.

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.

IP Module Technical Guide
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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.



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