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This manual is also available for download from our website—[www.aaon.com/communicationdevices](http://www.aaon.com/communicationdevices)—where you can always find the latest literature updates.

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IP Module Overview

The ASM01902 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.

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 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.
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:** Open your CommLink and snap in your IP Module. See Figure 1, page 5 for instructions.

**Step 2:** Set your CommLink’s communication switch to Multiple or Single. See Figure 2, page 6 for instructions.

**Step 3:** Set your CommLink’s Baud Rate switch to High or Low. See Figure 3, page 7.

**Step 4:** 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 5:** Connect your CommLink to your PC via Ethernet cable. See Figures 5 & 6, page 9.

**Step 6:** Change your PC’s IP address. See page 10 for instructions.

**Step 7:** Change the IP address of your CommLink. See page 11 for instructions.

**Step 8:** Set the baud rate for your CommLink in the Configuration Settings. See page 12 for instructions.

**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

IP Module Installation Instructions

First, remove the enclosure screws that hold the top and bottom of the CommLink enclosure together. Remove the top half of the enclosure to access the circuit board and IP module socket.

Insert the IP Module's guide pins into the round pin holes on the CommLink circuit board as shown. When the pins are properly aligned, press down on the IP module firmly to seat it into its socket.

After making sure the IP module is firmly seated, replace the CommLink cover and secure the enclosure halves back together with the enclosure screws that were previously removed.

Follow the instructions in this guide for installing the IP module software and configuring the IP module for your control system.

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

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

Figure 2: Setting Loop Communications
Setting the CommLink 5 Baud Rate

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 A22 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
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

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.

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.
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.

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

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

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

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 IP Address of the CommLink

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).

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

3.) The Windows Security Window, shown in Figure 13, might pop up before you can have access to the CommLink IP Module Window, shown above. Click <OK> or <Cancel> to bypass the Windows Security Window.

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

WARNING: If you do enter a user name and password in this window and forget one or both of the items, you will be permanently locked out of the IP Module configuration settings. AAON Controls cannot reset those credentials back to the default, and as a result, you will need to purchase a new IP Module. Therefore, we highly recommend that you do not enter a username and password in this window.
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, page 11.

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

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 19,200 as the baud rate for the CommLink IV or 115,200 if using a CommLink 5.

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

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

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

12.) 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.

13.) 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 16: Example Network Diagram of a Firewall or Proxy Configuration
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 LNK-LAN LED is lit on the CommLink device and the ACT-LAN LED occasionally blinks. The ACT-LAN 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 Figure 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.
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.