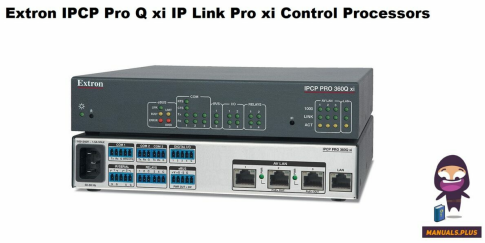


Extron IPCP Pro Q xi IP Link Pro xi Control Processors User Guide

Contents

Extron

Extron IPCP Pro Q xi IP Link Pro xi Control Processors

Product Information

Specifications

- Model: IPCP, IPCP Pro Q xi, IPCP Pro xi
- Extron eBUS port for connecting eBUS devices
- LAN ports (xi models)
- AV LAN ports (Q xi models)
- Supports DHCP setting
- Supports Subnet mask
- Supports Username and Passwords
- Supports LAN IP address and Gateway IP address
- Supports AV LAN IP address (for models with AV LAN)
- Supports Secure Sockets Layer (SSL) security certificate
- Supports IEEE 802.1X authentication

Product Usage Instructions

Step 1: Get Ready
Familiarize yourself with the features of the control processor and any touchpanels or button panels that will be part of the system. Download and install the latest version of the following software, firmware, and driver files:

- Software, firmware, and driver files are available from www.extron.com

Obtain network information from the network administrator and gather the following details for each Extron Pro series Ethernet-enabled device:

- DHCP setting (on or off)
- Subnet mask
- Username
- Device (IPCP Pro, TouchLink Pro, IPL Pro, NBP) LAN IP

address
- Gateway IP address
- Passwords
- AV LAN IP address (for models with AV LAN)

If DHCP is enabled, you do not need the IP addresses and subnet mask. Write down the MAC address of each network interface on each IP Link Pro device to be used. Obtain model names and setup information for devices the IPCP will control.

If you intend to install a different SSL certificate, contact your IT department to obtain the certificate or for instructions on how to obtain one. See Secure Sockets Layer (SSL) Certificates in the IPCP Pro Q xi and xi Series User Guide for requirements and guidelines regarding SSL certificates. IEEE 802.1X authentication is also supported once enabled (see IEEE 802.1X Certificates in the IPCP Pro Q xi and xi Series User Guide for details).

Step 2: Mount and Cable All Devices

- Mount the unit to a rack or furniture according to the provided instructions.
- Cable devices to the control processor following the cabling and features guide.
- Connect power cords and power on all the devices.

Step 3: Set Up the Control Processor, Touchpanels, and Network Button Panels for Network Communication

- Connect the PC that you will use for setup, the LAN (or AV LAN) port of the control processor, and the touchpanels or network button panels to the same Ethernet network.
- Refer to Control, Bidirectional — LAN and AV LAN (Ethernet) section for control processor LAN and AV LAN connections.

IPCP Pro Q xi and xi Series

Setup Guide

The Extron IPCP Pro Q xi and xi Series IP Link® Pro Control Processors integrate Ethernet connection into AV systems to allow users to remotely control, monitor, and troubleshoot AV equipment, including display devices and switchers. All models include an embedded web server. Depending on the model, an IPCP control processor can include multiple bidirectional serial ports, relays, IR/serial ports, digital I/O, flex I/O, switched 12 VDC power output ports, a volume control port, or contact input ports for use in applications that require control and monitoring of multiple devices within a large-scale AV system.

All models include an Extron eBUS port, which allows a variety of eBUS devices to be connected to a single control processor. eBUS devices include an array of button panels as well as power and signal hubs. eBUS devices are automatically recognized by the control processor and can be added or removed at any time. In this guide these products are referred to as the “IPCP,” “IPCP Pro Q xi,” “IPCP Pro xi,” or “control processor.” The xi models feature LAN ports. Q xi models feature both LAN and AV LAN ports. AV LAN ports provide a secure, dedicated network for the connection and isolation of AV devices.

This guide provides instructions for an experienced installer to install a control processor and to create a basic configuration.

Use Extron Toolbelt software to discover and manage the IPCP Pro control processor and other Extron control

products. Configure the control processor using Extron Global Configurator® software running in Global Configurator Professional (GC Professional) or Global Configurator Plus (GC Plus) mode, or program the control processor using Extron Global Scripter® (GS). The IPCP integrates seamlessly with Extron GlobalViewer® Enterprise (GVE) software and Extron Control apps for remote control applications. These control processors support multiple TouchLink® Pro touchpanel interfaces and Network Button Panels (NBPs) over a standard Ethernet network. Global Configurator and other useful software applications are available at **www.extron.com**.

Setup Checklist: How to Proceed With Installation

Get Ready
Familiarize yourself with the features of the control processor (see Front Panel Features — Models Without AV LAN on page 4, Front Panel Features — Models With AV LAN on page 5, Rear Panel Features — Models Without AV LAN on page 6, and Rear Panel Features — Models With AV LAN on page 7) and of any TouchLink Pro touchpanels or button panels that will be part of the system.

Download and install the latest version of the following:

- Toolbelt software — for discovering the control processor and other control products on the network, for managing core settings, and for upgrading firmware when needed.
- Global Configurator (GC) software — for configuring the control system
- Global Scripter software — for programming the control processor (as an alternative to GC)
- PCS Product Configuration Software version 4.5 or higher — for setting the IP address for any IPCP Pro Q xi model with AV LAN ports if the ports are currently set to the default IP addresses
- GUI Designer software — for designing layouts for Extron TouchLink Pro touchpanels and third-party touch interfaces
- IP Link Pro device drivers — for use with GC, to make control of other AV devices possible
- IR Learner Pro software — for use with models that have IR receiver ports. Use this to create your own IR drivers using the remote control of an AV device, if drivers are not already available from Extron

All are avail able from www.extron.com (see Locating Software, Firmware, and Driver Files on the Extron Website on page 15).

Obtain network information for the unit from the network administrator. You also need the following details for each Extron Pro series Ethernet-enabled device:

- DHCP setting (on or off)
- Device (IPCP Pro, TouchLink Pro, IPL Pro, NBP) LAN IP address … AV LAN IP address (for models with AV LAN)
- Subnet mask
- Gateway IP address
- Username
- Passwords

NOTE: If DHCP is on, you do not need the IP addresses and subnet mask.

- Write down the MAC address of each network interface on each IP Link Pro device to be used.
- Obtain model names and setup information for devices the IPCP will control.
- Each control processor comes with a factory-installed Secure Sockets Layer (SSL) security certificate. If you

intend to install a different SSL certificate, contact your IT department to obtain the certificate or for instructions on how to obtain one. See “Secure Sockets Layer (SSL) Certificates” in the IPCP Pro Q xi and xi Series User Guide for requirements and guidelines regarding SSL certificates. IEEE 802.1X authentication is also supported once enabled (see “IEEE 802.1X Certificates” in the IPCP Pro Q xi and xi Series User Guide for details).

Mount and Cable All Devices

- Mount the unit to a rack or furniture (see Mounting on the next page).
- Cable devices to the control processor (see Cabling and Features on page 8).
- Connect power cords and power on all the devices.

Set Up the Control Processor, Touchpanels, and Network Button Panels for Network Communication

- Connect the PC that you will use for setup, the LAN (or AV LAN) port of the control processor, and the touchpanels or network button panels to the same Ethernet network. For control processor LAN and AV LAN connections, see Control, Bidirectional — LAN and AV LAN (Ethernet) on page 9.
- Start Toolbelt and use it to set the IP address, subnet, gateway IP address, DHCP status, and related settings. See the flowchart in Network Communication Setup on the next page.

NOTES:

- When setting up DHCP during network configuration or if using a host name instead of an IP address, the user must enter a qualified host name (Username.HostName.Domain). For example: somename.extron.com.
- A dedicated AV LAN safeguards AV systems from outside intrusion or interference by separating device control and other network traffic from a corporate or campus network. To ensure that the control processor LAN and AV LAN connections (ports) are connected to separate networks, the LAN and AV LAN IP address schemes must be on different subnetworks.

Configure or Program the Control Processor, Touchpanels, and Network Button Panels

The most basic steps are outlined below in the recommended order.

NOTE: See the Toolbelt Help File, Global Configurator Help File, Global Scripter Help File, and GUI Designer Help File as needed for step-by-step instructions and detailed information. The help file for GC includes an introduction to the software and how to start a project and configuration.

- If TouchLink Pro or third party touchpanels are part of the system, start and use GUI Designer to design, save, and build the graphical user interface (GUI) layout for the touchpanels.
  NOTE: To redeem (activate) a LinkLicense®, go to www.extron.com//llredeem and follow the online instructions.
- Using GC, create a new GC Professional or GC Plus project and configure the control processor and other IP Link Pro devices. The configuration tells the control processor:
  - How its ports function
  - How to control other products
  - Which touchpanels to interact with

    - What to monitor
    - When to do things
    - Whom to notify, how, and under what circumstances
- Configure ports on the control processor:
- Select device drivers and link them to each serial, IR/serial, or Ethernet port.
- Select settings (serial protocol, relay behavior, digital I/O or flex I/O settings) as needed.
- Add eBUS devices and set them up:
- Ensure that the hardware address set on each device is distinct and matches the address used in the configuration.
- Assign button functions as desired.
- Add Network Button Panels (NBPs) and set them up. Assign button functions as desired.
- Set up monitors, schedules, macros, and local variables.
- Add touchpanels and set them up:
    - Add the GUI configuration for each touchpanel to the GC project using Global Configurator.
    - Assign any appropriate functions, monitors, or schedules to the touchpanels and their buttons.
- If not using GC Professional or GC Plus, use Global Scripter to program the control system as desired.
- Program ports on the control processor:
    - Program each serial, IR/serial, or Ethernet port.
    - Program relay behavior, digital I/O, and flex I/O settings as needed.
- Add eBUS devices and set them up:
    - Ensure that the hardware address (eBUS ID) set on each device is distinct and matches the address programmed for it in the IPCP.
    - Program button functions as desired.
- Add Network Button Panels and set them up. Program button functions as desired.
- Add touchpanels and set them up:
    - Upload the GUI configuration for the touchpanels to the project.
    - Program functions, monitors, or schedules to the touchpanels and their buttons.
- Save the GC or GS project.
- Build and upload the system configuration to the control processor and other system devices.

Test and Troubleshoot
Test the system (see the IPCP Pro Q xi and xi Series User Guide for an outline of the system testing procedure). Make adjustments to wiring or configuration as needed.

Network Communication Setup

Network setup is essential prior to configuration. Use the following flowchart as a guide to setting up the control processor for network use.

- Connect the PC and the LAN port or AV LAN port of the control processor to the same network. Apply power to all devices.
- Open the Toolbelt software from within Global Configurator (GC Professional or GC Plus mode) or as the stand-alone application. Start Device Discovery. Toolbelt displays a list of all Extron control devices connected to the network.
- Using the MAC address, locate the desired control processor in the list and select it.

- For each network interface (LAN, or LAN and AV LAN), use the Set IP feature in Toolbelt or use the Toolbelt Manage > Network Settings tab feature to enter the IP address and subnet address, then configure other network settings as needed.

Figure 1. Network Setup

NOTE: If using 802.1X security, see the Extron 802.1X Technology Reference Guide and the Toolbelt Help file for additional details on system setup.

Mounting

Securely mount the control processor and other devices and attach cables using the wiring section (see Cabling and Features on page 8) as a wiring guide. Optional 1U rack shelves and furniture mounting bracket kits are available for use with the control processor. Read the instructions and UL guidelines that come with the rack shelf or mounting kit for installation procedures.

See the product-specific page at www.extron.com for a list of compatible accessories for mounting your control processor.

Panels and Locations of Features

The location and quantity of LEDs and corresponding connectors vary by model, but the functions and port wiring are identical across models for each port type.

Front Panel Features Models Without AV LAN

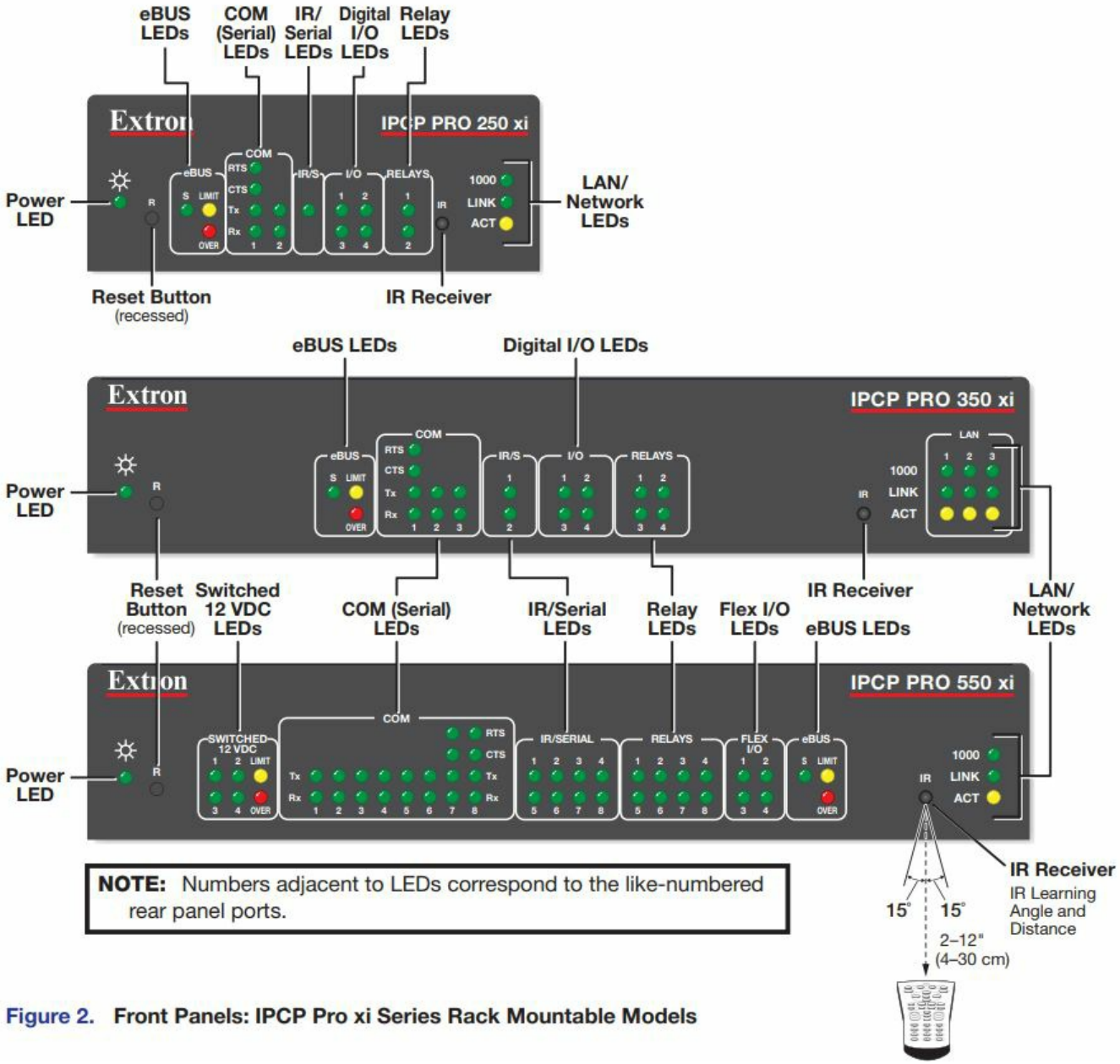


Figure 2. Front Panels: IPCP Pro xi Series Rack Mountable Models

NOTE: For full reset mode information, see the IPCP Pro Q xi and xi Series User Guide.

Front Panel Features Models With AV LAN

This section shows a front panel of a representative AV LAN model, not all models.

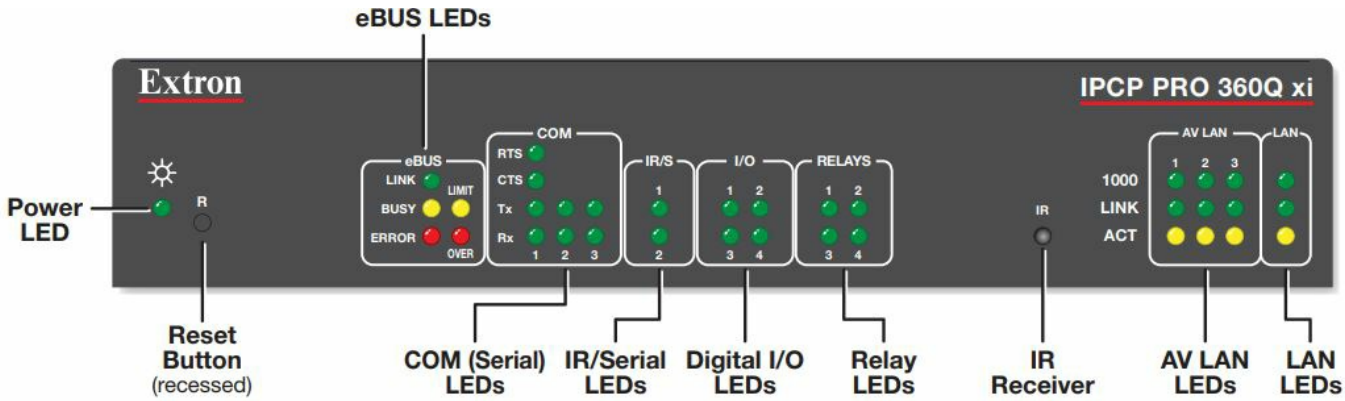


Figure 3. IPCP Pro 360Q xi Front Panel

Rear Panel Features Models Without AV LAN

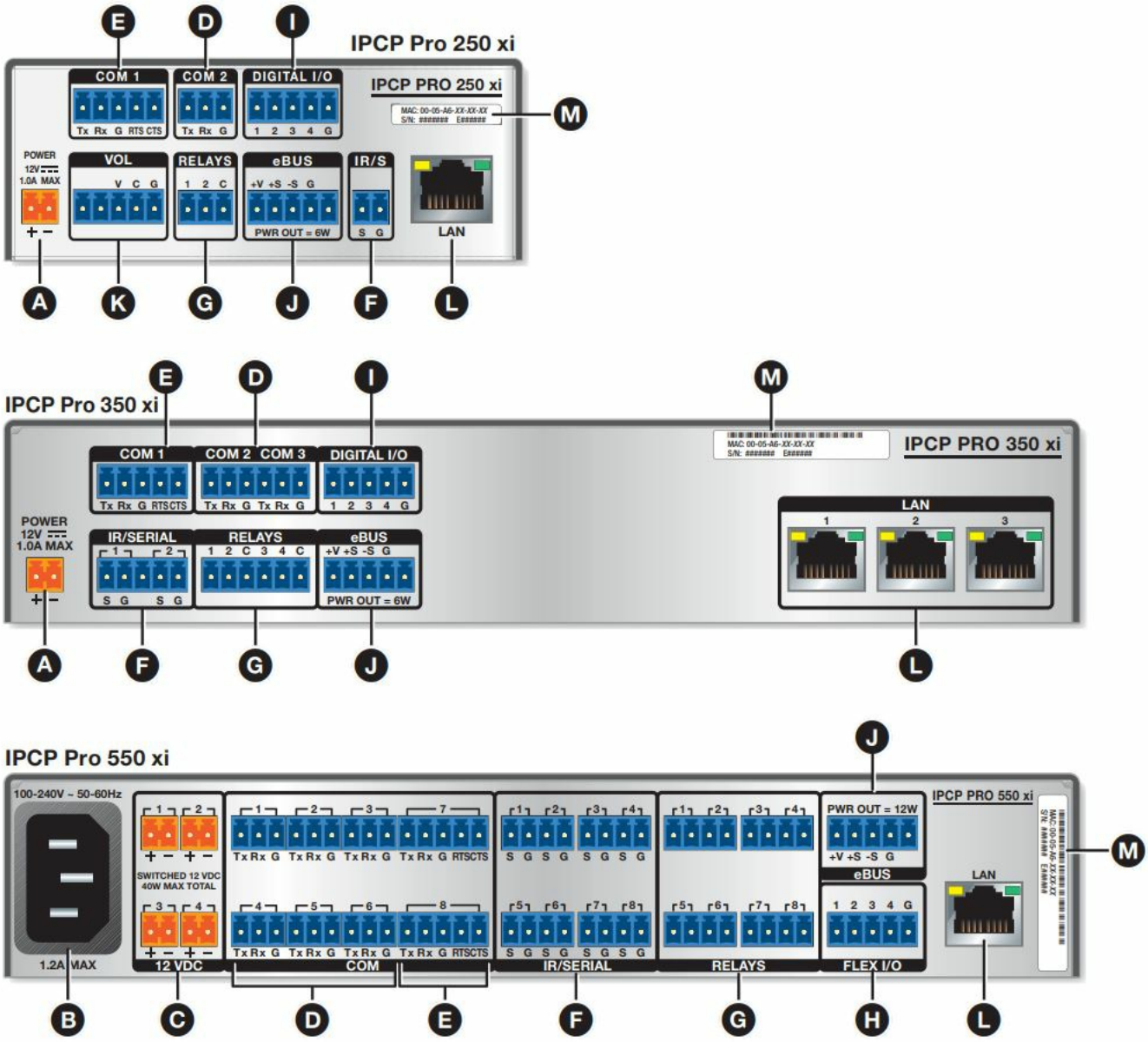


Figure 4. IPCP Pro xi Control Processors —Rear Panels

- **A** Power input connector (external power supply)
- **B** Power input connector (internal power supply)
- **C** Switched 12 VDC power output ports
- **D** 3-pole COM ports (RS-232-only)
- **E** 5-pole COM ports (RS-232/RS-422/RS-485)
- **F** IR/serial output ports
- **G** Relay ports
- **H** Flex I/O ports (digital input/output or analog input)
- **I** Digital I/O ports (digital input/output)
- **J** eBUS ports
- **K** Volume control port
- **L** LAN connectors and LEDs (Ethernet)
- **M** MAC address label

Rear Panel Features Models With AV LAN

This section shows the rear panels of some representative models with AV LAN.

IPCP Pro 255Q xi

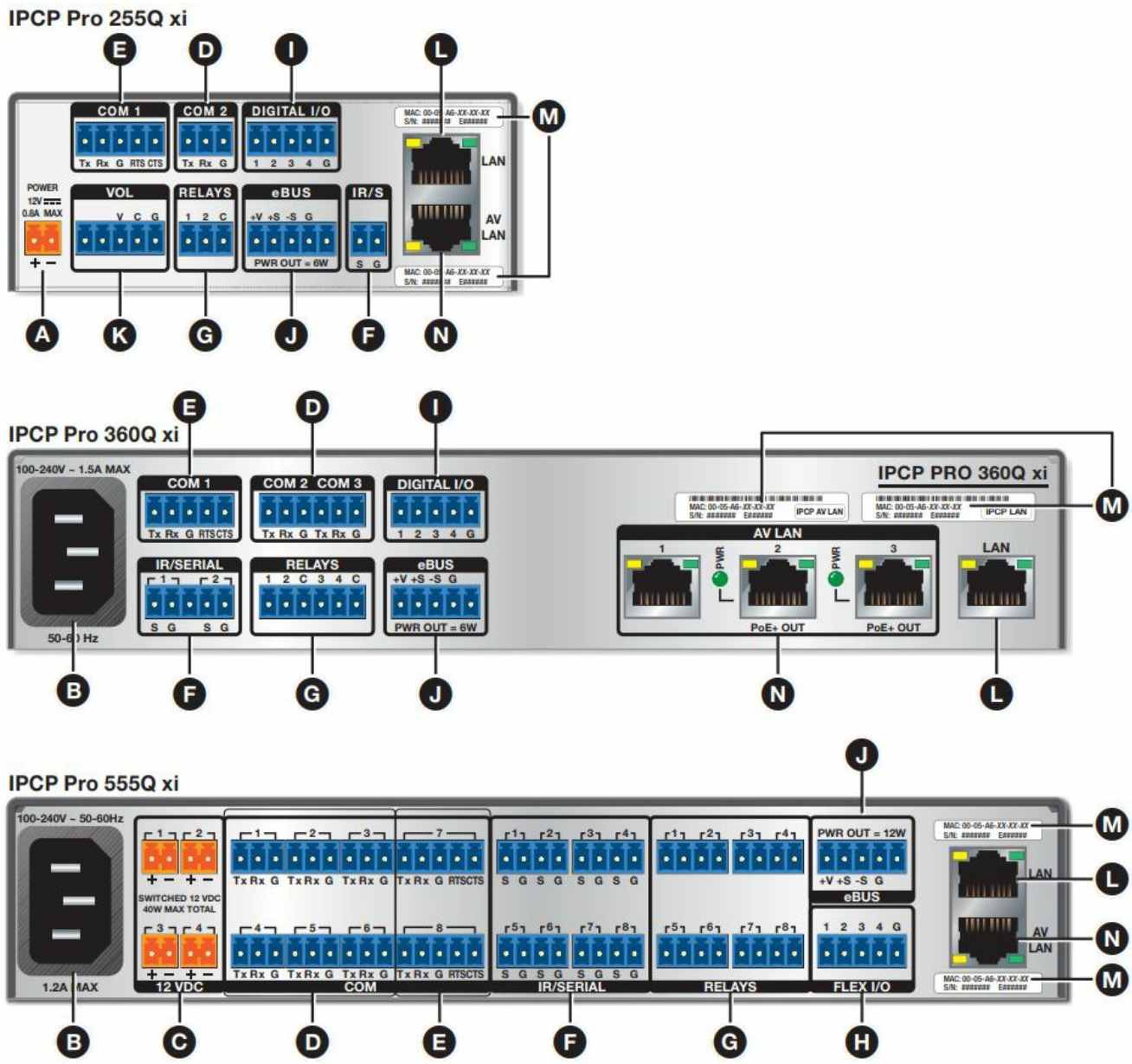


Figure 5. IPCP Pro Q xi Control Processors — Rear Panels

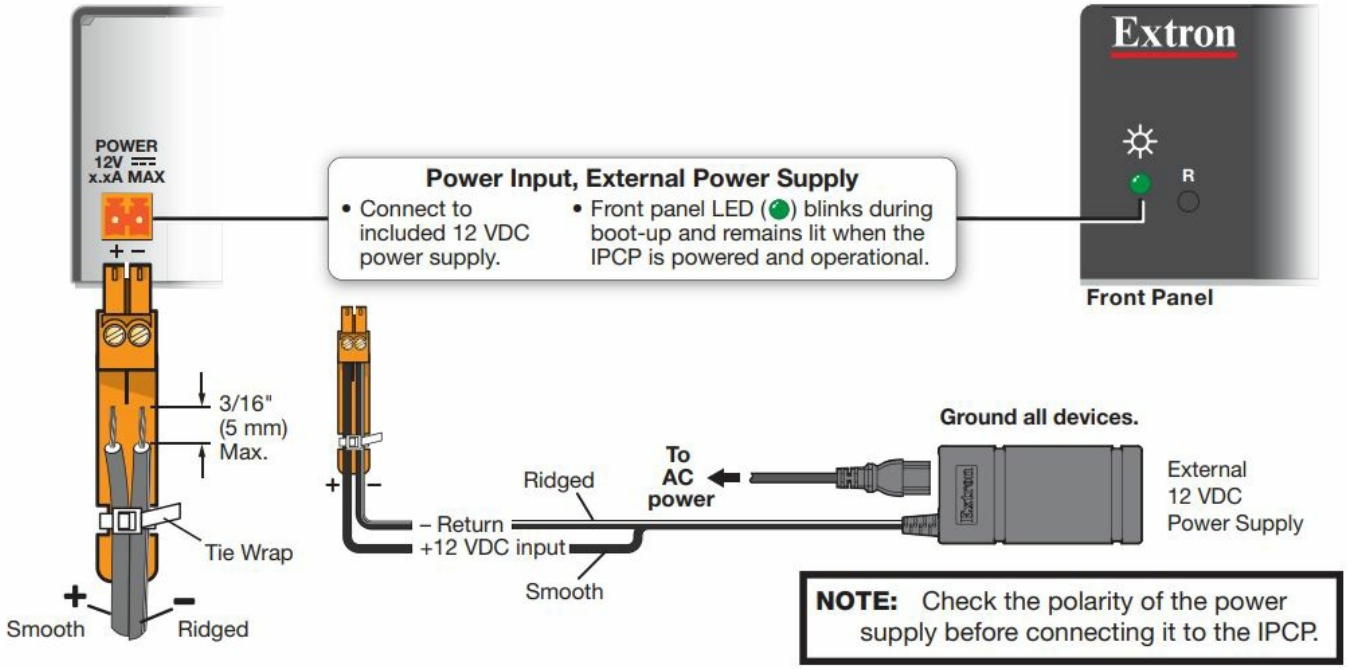
- **A** Power input connector (external power supply)
- **B** Power input connector (internal power supply)
- **C** Switched 12 VDC power output ports
- **D** 3-pole COM ports (RS-232-only)
- **E** 5-pole COM ports (RS-232/RS-422/RS-485)
- **F** IR/serial output ports
- **G** Relay ports
- **H** Flex I/O ports (digital input/output or analog input)
- **I** Digital I/O ports (digital input/output)
- **J** eBUS ports
- **K** Volume control port
- **L** LAN connectors and LEDs (Ethernet)
- **M** MAC address labels

- **N** AV LAN connector and LEDs (Ethernet), some with PoE+ and PoE+ LEDs

Cabling and Features

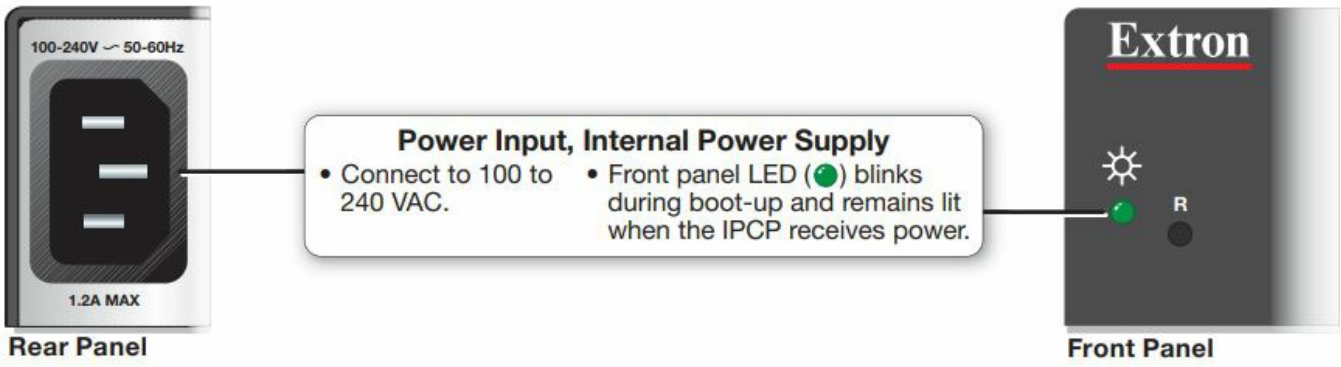
Attach cables using the following wiring diagrams as a guide. Full details are available in the User Guide. Installation and service must be performed by experienced personnel.

Power Input External

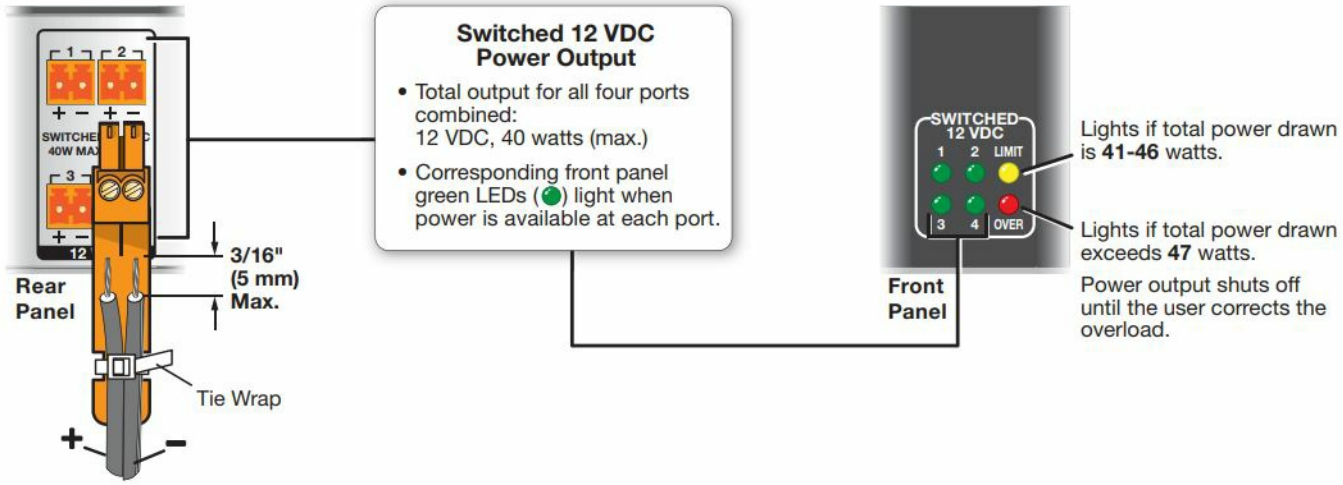


ATTENTION: Always use a power supply supplied or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the unit.

Power Input Internal



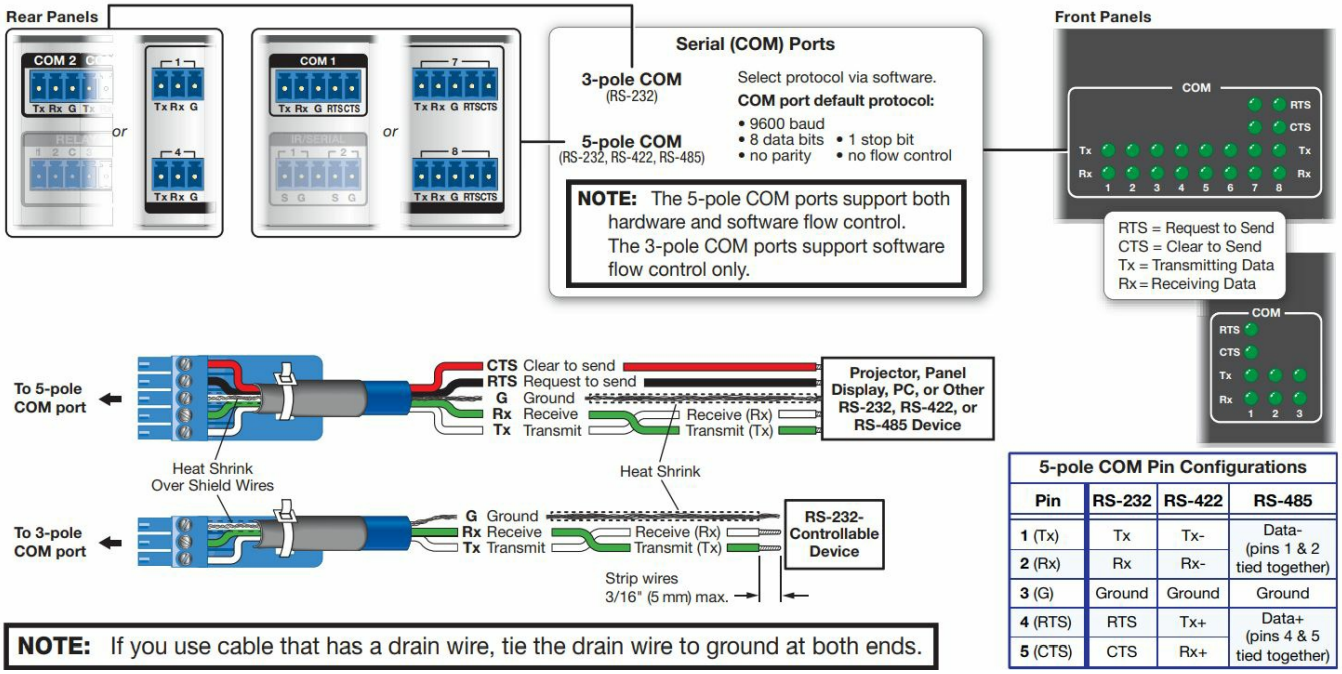
Power Output Switched 12 VDC Power Output



Power Output — PoE+

The IPCP Pro 360Q xi can output PoE+ on AV LAN ports 2 and 3. For details, see the PoE+ output information on page 11.

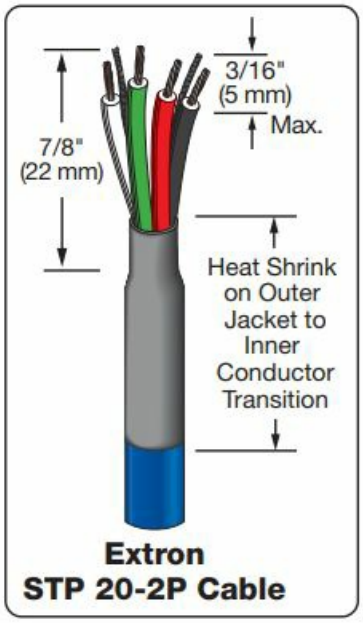
Control, Bidirectional — Serial (COM)



5-pole COM Pin Configurations

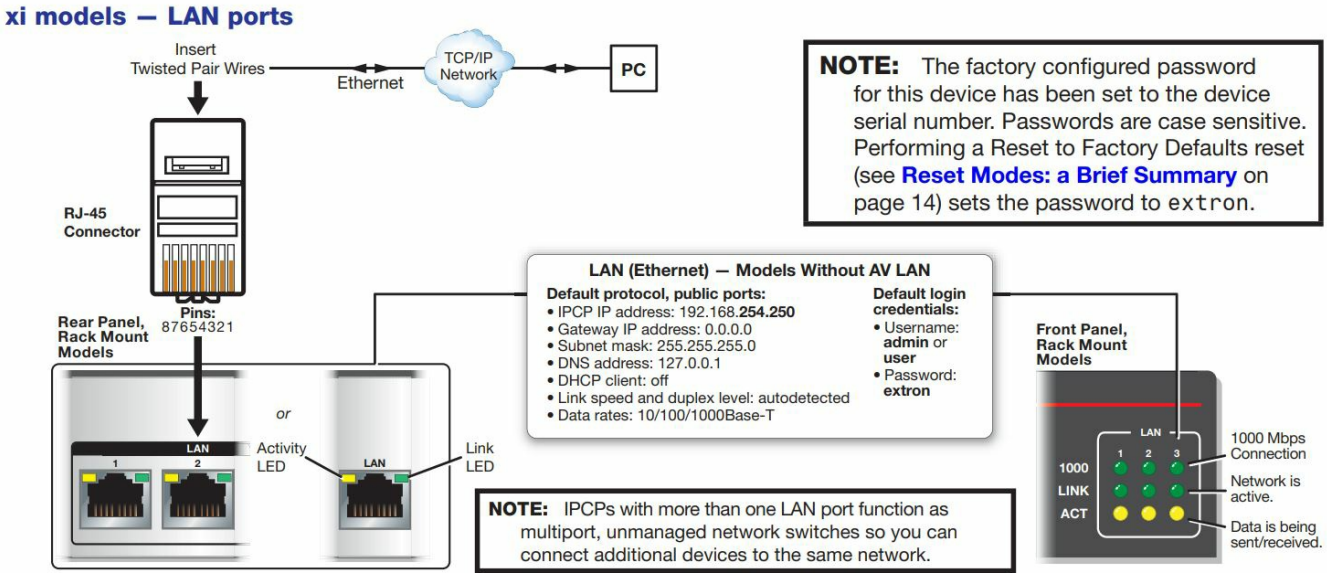
Pin	RS-232	RS-422	RS-485
1 (Tx)	Tx	Tx-	Data- (pins 1 & 2 tied together)
2 (Rx)	Rx	Rx-	
3 (G)	Ground	Ground	Ground
4 (RTS)	RTS	Tx+	Data+ (pins 4 & 5 tied together)
5 (CTS)	CTS	Rx+	

TIP: STP 20-2P cable, shown at left, is recommended for these connections. For best results, insulate the common or drain wires using heat shrink.

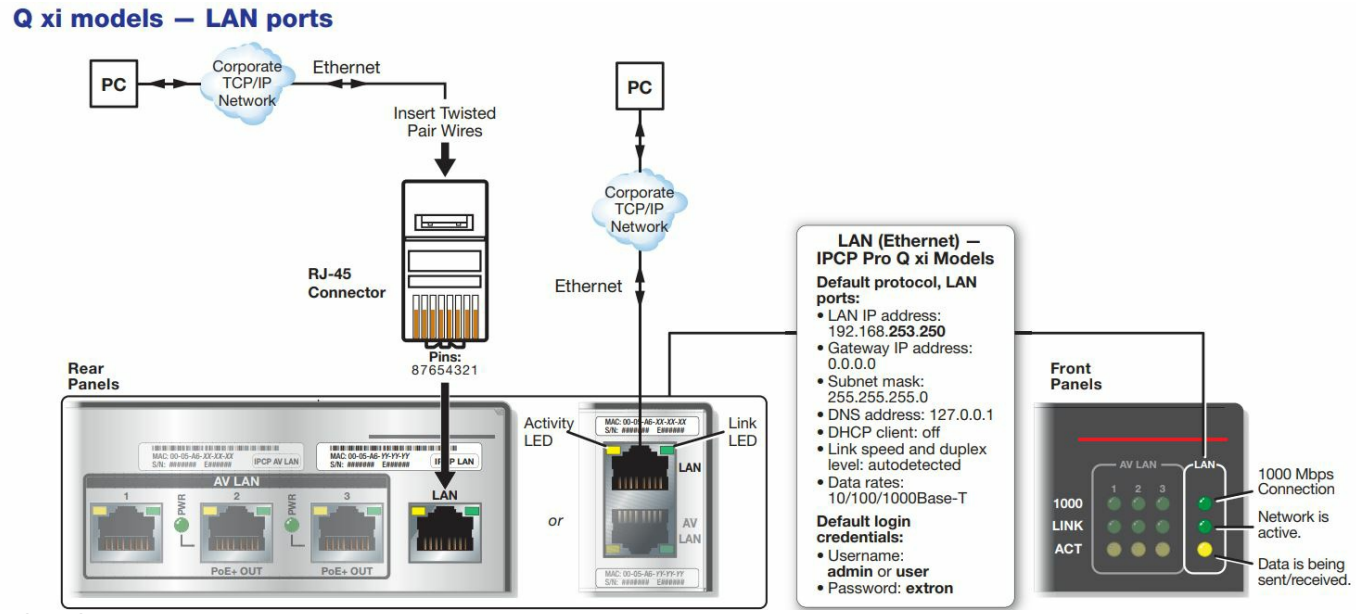


Control, Bidirectional — LAN and AV LAN (Ethernet)
Default port IP addresses and recommended connections vary depending on whether or not the IPCP model includes AV LAN ports.

xi models — LAN ports



Q xi models — LAN ports



NOTES:
IPCPs with more than one LAN or AV LAN port function as multiport, unmanaged network switches so you can connect additional devices to the same network. The factory confirmed passwords for this device have been set to the device serial number. Passwords are case-sensitive. Performing a Reset to Factory Defaults reset (see) sets the passwords to extron.

AV LAN DHCP Server
The AV LAN DHCP Server is disabled by default. It can be enabled to dynamically assign IP addresses to DHCP clients on the AV LAN. AV Network PC AV Network Default protocol, AV LAN when DHCP server is enabled:

- DHCP server IP address: 192.168.254.1
- Subnet mask: 255.255.255.0
- DNS address: 192.168.254.1
- DHCP dynamic address range for client devices: 192.168.254.100 – 192.168.254.149
- Maximum served addresses when DHCP server is enabled: 50
- DHCP client address lease time: 24 hours.

To use DHCP in the AV LAN:

1. Using Toolbelt, enable the DHCP server for the AV LAN within the control processor (see the software or programming help le for details).
2. Enable DHCP on each client AV device (see the user guide for each product).
3. Connect client AV devices to the AV LAN.

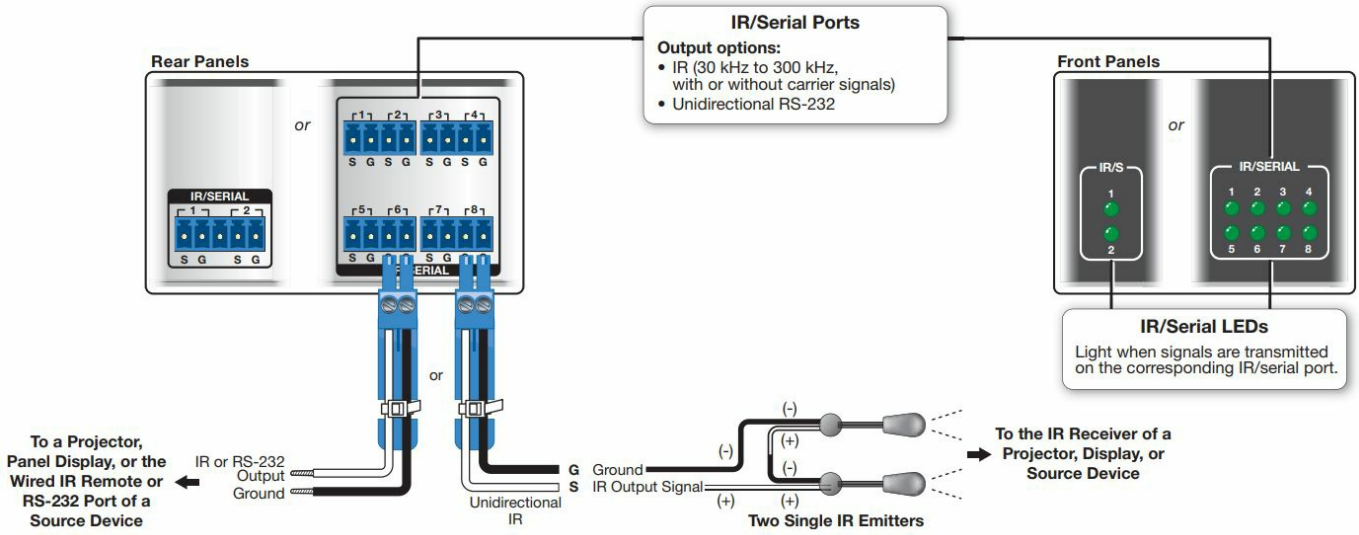
PoE+ output: The IPCP Pro 360Q xi offers Power over Ethernet+ (PoE+) output on AV LAN ports 2 and 3. These RJ-45 connectors, labeled “PoE+ Out,” can output a maximum of 30 watts per port. The corresponding Power LED lights when the port provides power. PoE+ ports can be monitored for status and power consumption, and power output can be scheduled. For details, see the IPCP Pro Q xi and xi Series User Guide and the Global Configurator Help File.

ATTENTION: Power over Ethernet (PoE) is intended for indoor use only. It is to be connected only to networks or circuits that are not routed to the outside plant or building.

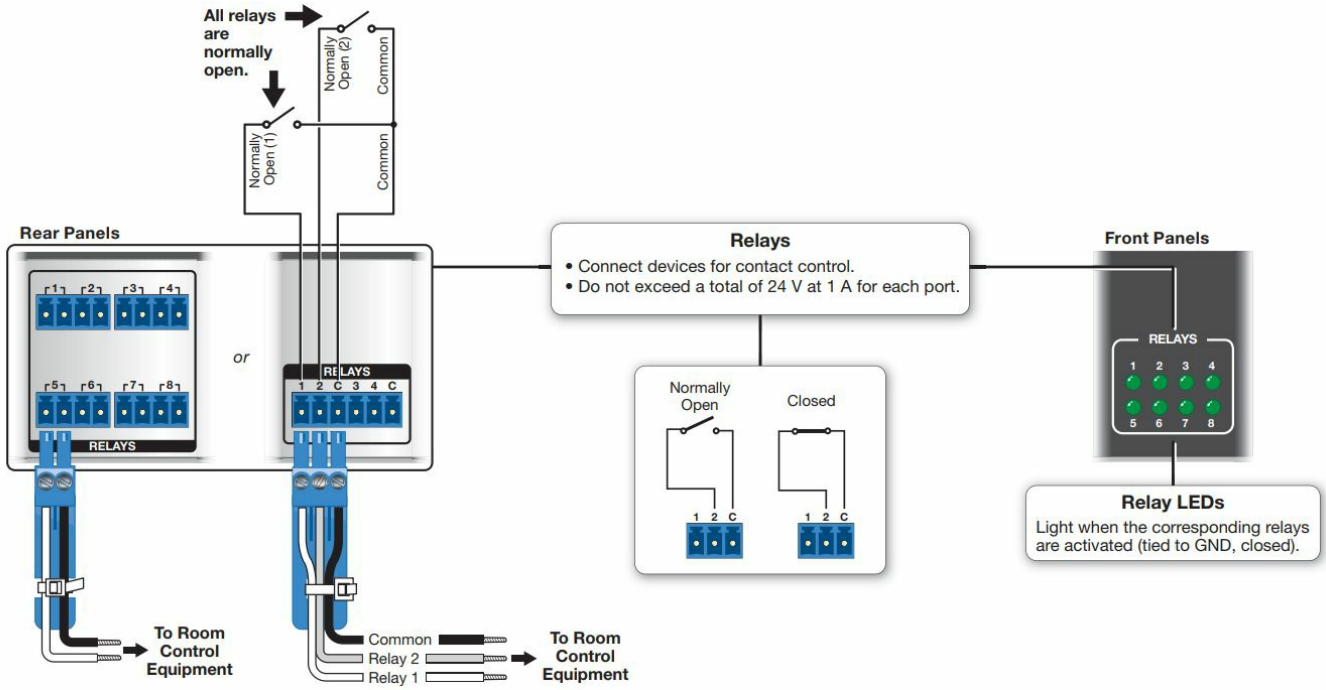
All models (with or without AV LAN)

MAC address:
Each network interface of the control processor is assigned a unique user hardware ID number (MAC address) (for example, 00-05-A6-05-1C-A0). You may need this address during control processor configuration. A label that indicates the MAC address is located on the rear or side panel of the unit.

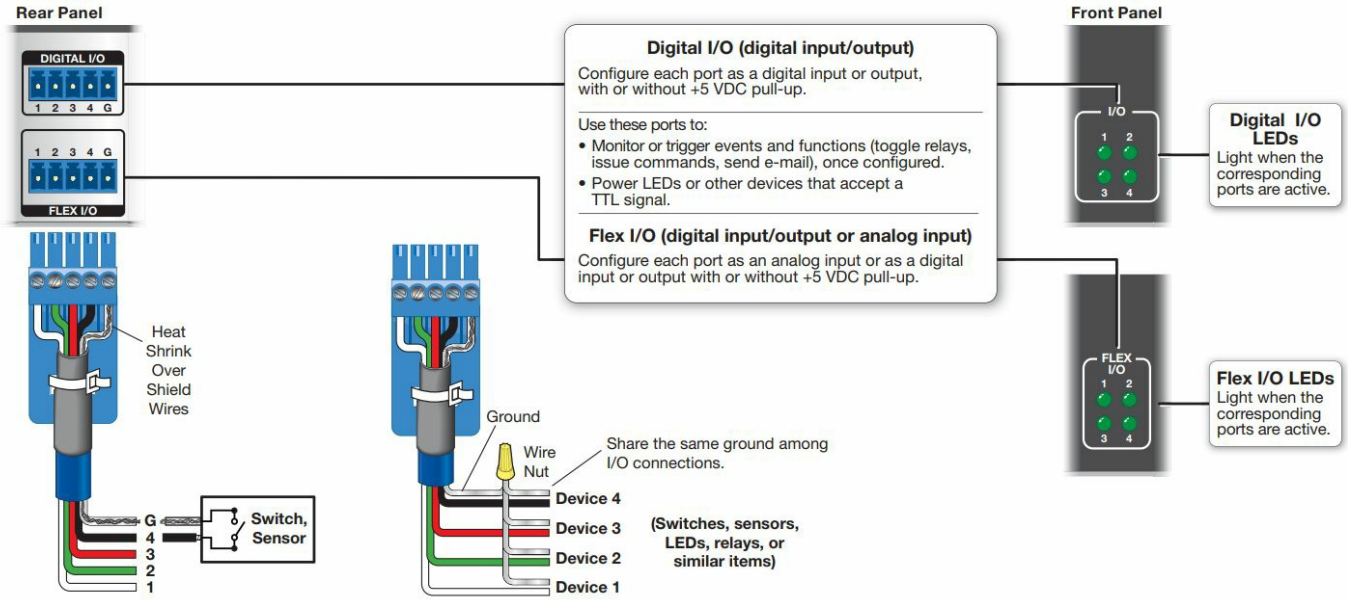
Control, Unidirectional IR/Serial



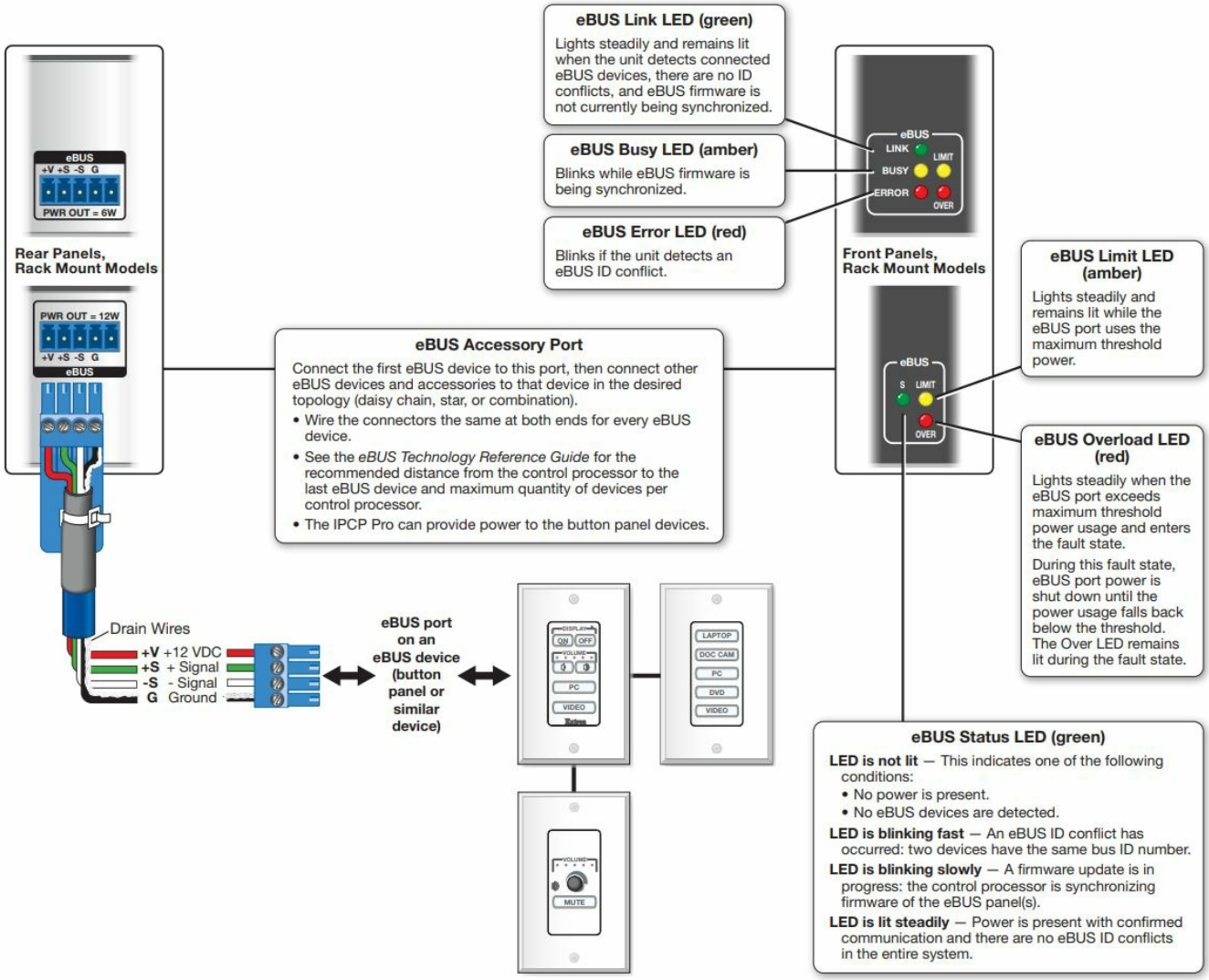
Control, Unidirectional Relays

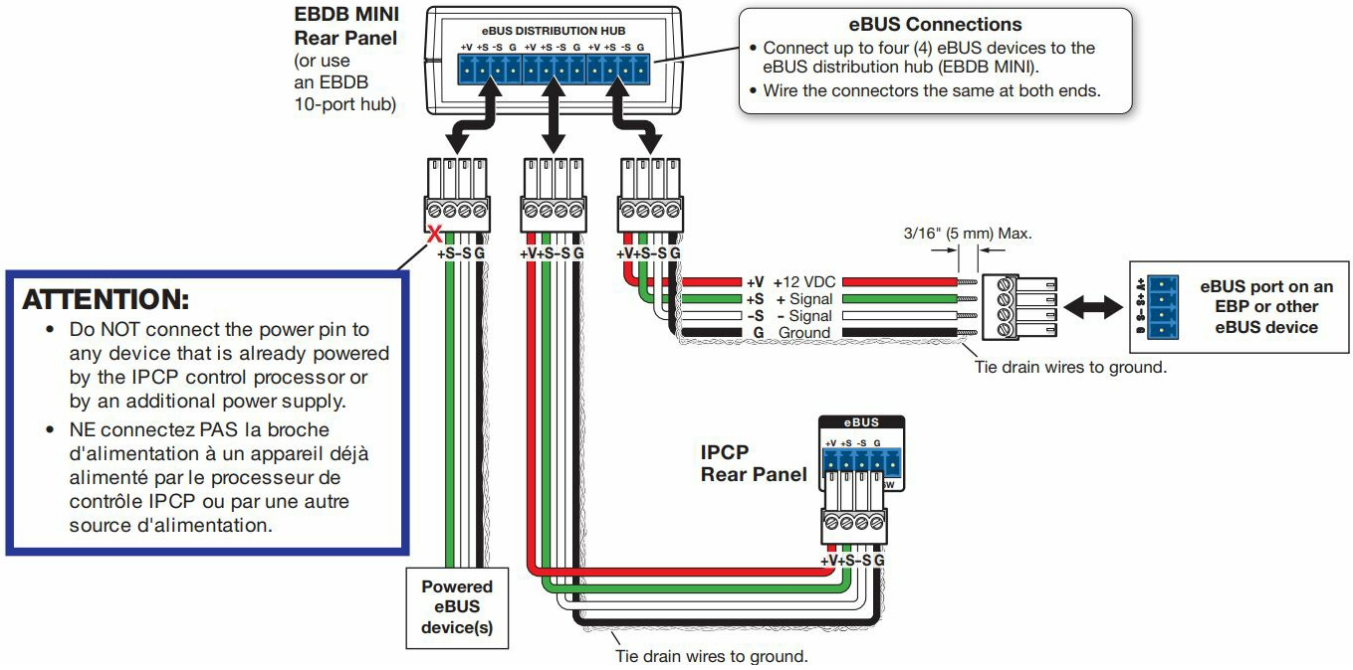


Control, Unidirectional Flex I/O or Digital I/O

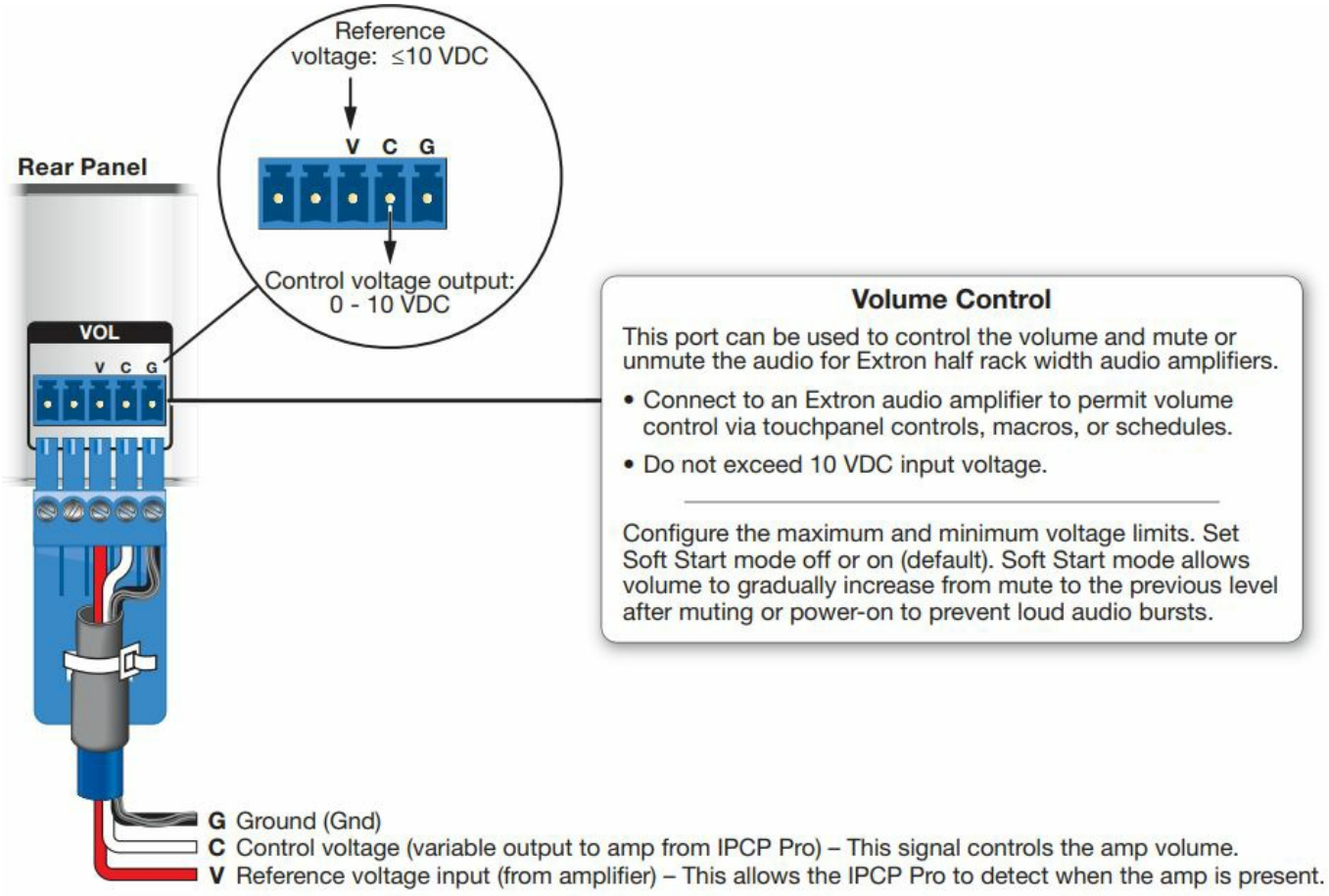


Control eBUS

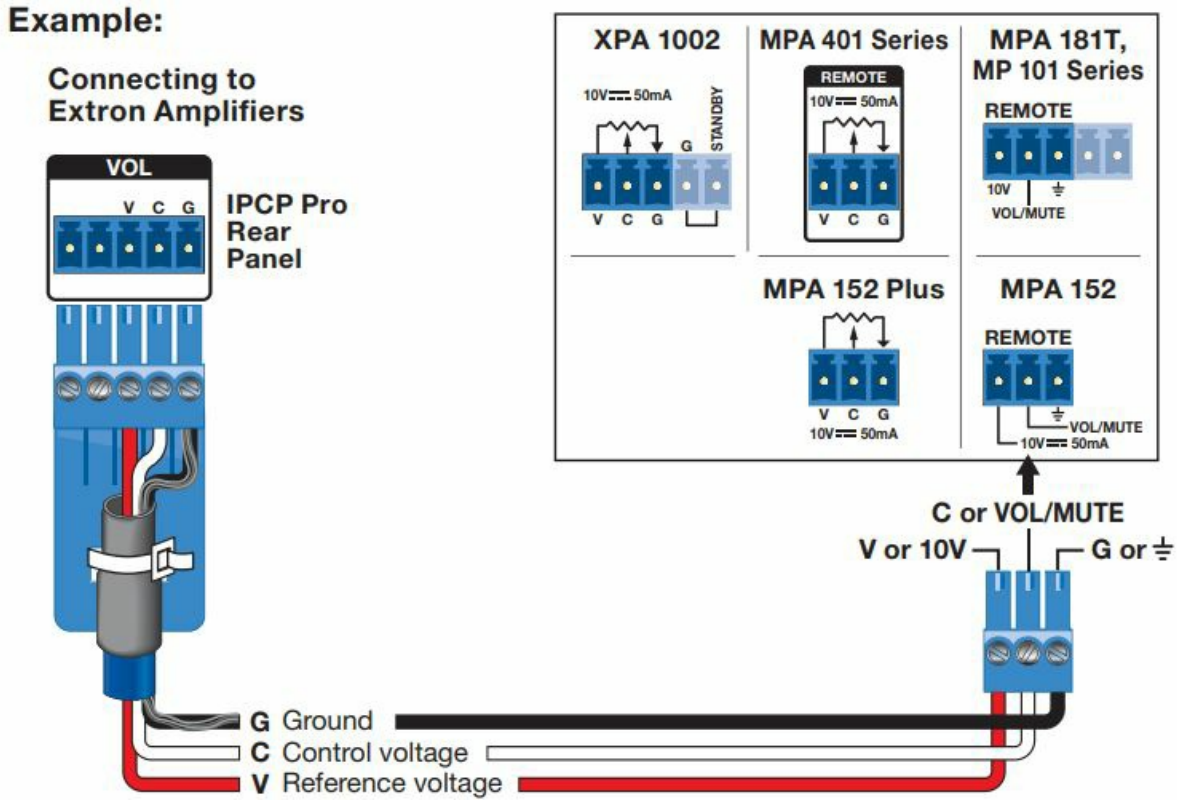




Control Volume



NOTE: Use a shielded cable and place the control processor as close as possible to the amplifier to avoid picking up background noise via the cable. Ideal cable length is six feet (1.8 m) or less.



NOTE: When the audio mute is active, the control processor sets output voltage to 0 VDC, even if the voltage range (minimum and maximum voltage limits) has been set to levels above zero, such as 2 V to 8 V.

Reset Modes: A Brief Summary
The IP Link Pro control processors offer the following reset modes:

Run Factory Boot Code:
Press and hold the front panel Reset button while applying power to the unit. Keep holding the button down until the Power LED blinks twice, or for 6 seconds, then release the button. The LED blinks slowly during bootup. The control processor runs the factory boot code (rather than full firmware). Upload new firmware to the unit (see “Updating the Firmware” in the user guide for details).

- Use this mode to temporarily boot up the unit running only the factory boot code, then install the desired firmware.
- Use this in the event that a firmware update has failed or if incompatibility issues arise with user-loaded firmware.

NOTES:

- Do not continue to operate the control processor using only the factory boot code. The unit requires a full firmware package to be fully operational. If you want to use the firmware version with which the unit shipped, you must upload that version again (see the Global Configurator Help File or Toolbelt Help File for firmware upload instructions).
- To return the unit to the firmware version that was running prior to the reset, cycle power to the unit instead of installing new firmware.

Project Recovery
See the IPCP Pro Q xi and xi Series User Guide for instructions. Use this mode to recover the project in the event of a lost user name and password.

Run/Stop Program: Project in the event of a lost user name and password. Hold down the Reset button for about 3 seconds, until the Power LED blinks once. Release and press the Reset button momentarily (for <1 second) within 1 second. (Nothing happens if the momentary press does not occur within 1 second.) The LED blinks 2 times if scripts and systems are starting. The LED blinks 3 times if they are stopping. This mode allows you to restart any programs stopped by an IP settings reset.

Toggle DHCP Client: Press the Reset button five times (consecutively). Release the button. Do not press the button within 3 seconds following the fifth press. Use this mode to enable or disable the DHCP client for the LAN port.

- The Reset LED blinks 6 times if the DHCP client is enabled.
- The Reset LED blinks 3 times if the DHCP client is disabled.

NOTES:

- By default DHCP is off for the LAN port and the unit uses a static IP address.
- If DHCP has been enabled, when you disable DHCP, the unit reverts to using the previously-set static IP address.

Reset All IP Settings:

- Press and hold the front panel Reset button until the Power LED blinks once at 3 seconds and twice at 6 seconds. Release and momentarily press the Reset button within 1 second. The LED blinks 3 times in quick succession upon successful reset.
- Use this mode to reset all network settings to factory default values without affecting user-loaded files. This reset mode also stops any running programs and disables 802.1X authentication. Lastly, this mode resets the settings for both LAN and AV LAN ports, including turning DHCP off.

Reset to Factory Defaults:

- Press and hold the front panel Reset button for 9 secondsuntil the Power LED blinks once at 3 seconds, twice at 6 seconds, and thrice at 9 seconds.
- Release and momentarily press the Reset button within 1 second. The Power LED blinks 4 times in quick succession upon successful reset.
- Use this mode to return the control processor to factory default settings. This mode also deletes all user-loaded files and configurations (except LinkLicense files), and it clears messages in the event logs table. User-loaded digital certificates are deleted. The unit continues to run the user-loaded firmware.

For detailed information on each mode and its use, see the IPCP Pro Q xi and xi Series User Guide at **www.extron.com**.

Resources

Obtaining Control Drivers
Extron provides an extensive selection of device drivers available on the Extron website. If the system requires a control driver that is not already available, you have additional options:

- Request a new serial (RS-232) or Ethernet driver from Extron.
- Create your own custom IR device driver using IR Learner Pro software. Follow the directions in the IR Learner Pro Help File to create a driver by using the remote control for that device and the IR receiver port on the front panel of the IPCP.

Obtaining Instructions, Information, and Assistance
A checklist of basic setup steps is provided at the beginning of this guide. For additional information see the help files and the IPCP Pro Q xi and xi Series User Guide, available at **www.extron.com**. If you have questions during installation and setup, call the Extron S3 Sales & Technical Support Hotline or the Extron S3 Control Systems Support Hotline (1.800.633.9877).

Locating Software, Firmware, and Driver Files on the Extron Website
There are three main ways to find software, firmware, and device drivers within **www.extron.com**:

- Via links from the web page for the specific product
- Via the Download page (Click on the Download tab at the top of any page within **www.extron.com**.)
- Via links from search results

NOTES:

- For some software you have the option to click the Download Now button to begin downloading the software file. For other software there is a link for contacting an Extron support representative who can provide you access to the latest version. To obtain Extron control product software, you must have an Extron Insider account. Extron provides training to our customers on how to use the software. Access to the full features of Global Configurator Professional is available to those who successfully complete Extron Control Professional Certification.
- IP Link Pro Series RS-232 and Ethernet drivers are required. You must use serial and Ethernet drivers developed specifically for the IP Link Pro platform. With the exception of IR device drivers, drivers used for the previous generation IP Link (non-Pro) control processors are not compatible.

Overall Configuration Procedure for the Control Processor

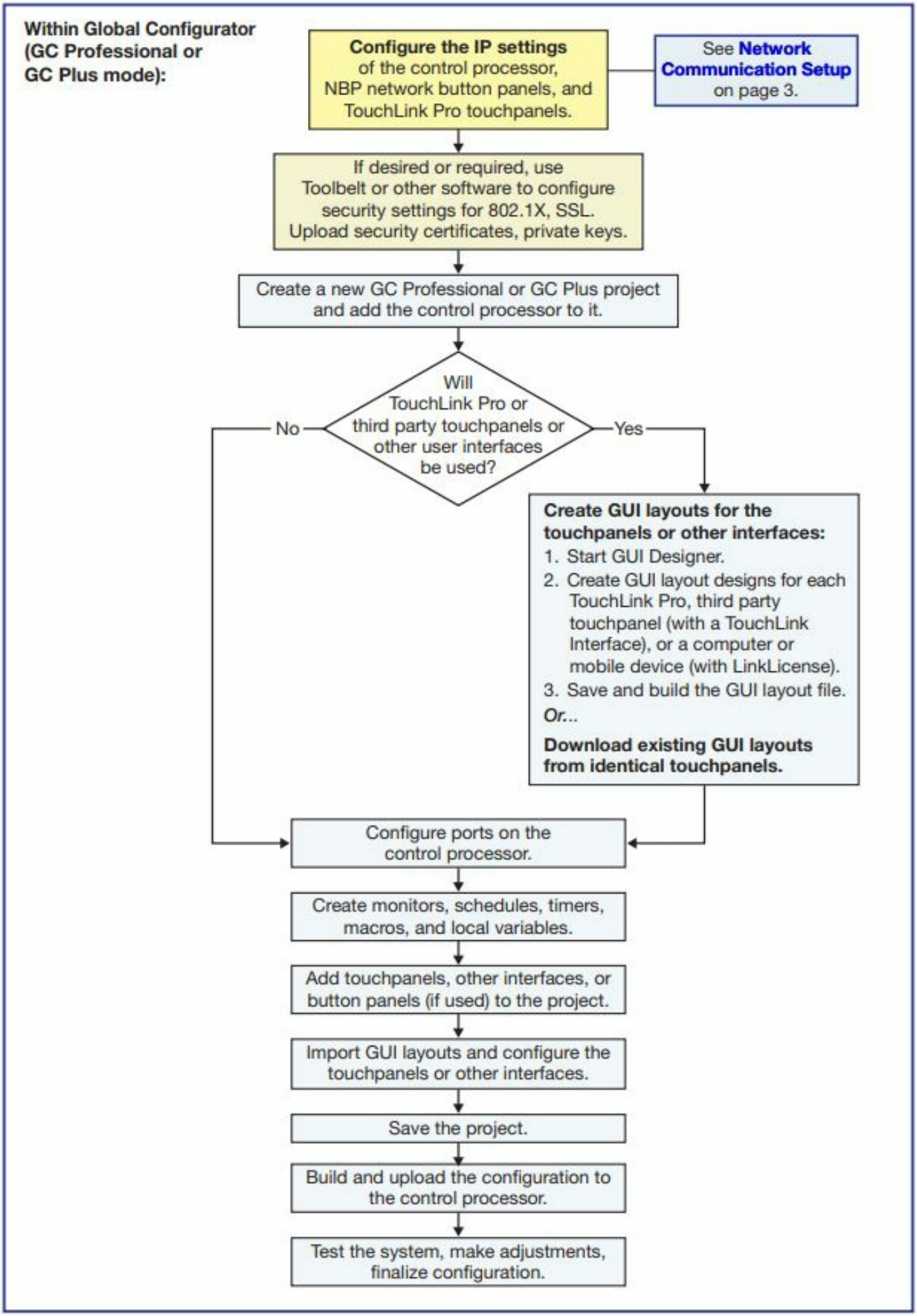


Figure 6. Overall Configuration Steps

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide on the Extron website. www.extron.com All trademarks mentioned are the property of their respective owners. Worldwide Headquarters: Extron USA West, 1025 E. Ball Road, Anaheim, CA 92805, 800.633.9876

FAQ'S

Where can I download the latest software, firmware, and driver files?
You can download the latest software, firmware, and driver files from the Extron website at www.extron.com.

What is the purpose of the Extron eBUS port?

The Extron eBUS port allows a variety of eBUS devices to be connected to a single control processor, including button panels, power hubs, and signal hubs. eBUS devices are automatically recognized by the control processor and can be added or removed at any time.

What is the difference between xi models and Q xi models?

xi models feature LAN ports, while Q xi models feature both LAN and AV LAN ports. AV LAN ports provide a secure, dedicated network for the connection and isolation of AV devices.

Documents / Resources

	Extron IPCP Pro Q xi IP Link Pro xi Control Processors [pdf] User Guide IPCP Pro Q xi IP Link Pro xi Control Processors, IPCP Pro, Q xi IP Link Pro xi Control Processors, xi Control Processors, Control Processors, Processors

References

- Extron - The AV Technology Leader
- Extron - Sign in
- Manual-Hub.com - Free PDF manuals!
- User Manual