User Guide

MediaLink

IPI 100 and IPI 200 Series

MediaLink IP Intercom Interfaces



Extron

68-1170-01 Rev. F
01 19

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠, when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, **www.extron.com**.

Sicherheitsanweisungen • Deutsch

WARNUNG: Dieses Symbol ⚠ auf dem Produkt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

VORSICHT: Dieses Symbol ⚠ auf dem Produkt soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, **www.extron.com**.

Instrucciones de seguridad • Español

ADVERTENCIA: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de voltaje peligroso sin aislar dentro del producto, lo que puede representar un riesgo de descarga eléctrica.

ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento recogidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, **www.extron.com**.

Instructions de sécurité • Français

AVERTISSEMENT : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

ATTENTION : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec le matériel.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, **www.extron.com**.

Istruzioni di sicurezza • Italiano

AVVERTENZA: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di tensione non isolata pericolosa all'interno del contenitore del prodotto che può costituire un rischio di scosse elettriche.

ATTENTZIONE: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

Per informazioni su parametri di sicurezza, conformità alle normative, compatibilità EMI/EMF, accessibilità e argomenti simili, fare riferimento alla Guida alla conformità normativa e di sicurezza di Extron, cod. articolo 68-290-01, sul sito web di Extron, **www.extron.com**.

Instrukcje bezpieczeństwa • Polska

OSTRZEŻENIE: Ten symbol, ⚠, gdy używany na produkt, ma na celu poinformować użytkownika o obecności izolowanego i niebezpiecznego napięcia wewnątrz obudowy produktu, który może stanowić zagrożenie porażenia prądem elektrycznym.

UWAGI: Ten symbol, ⚠, gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

Informacji na temat wytycznych w sprawie bezpieczeństwa, regulacji wzajemnej zgodności, zgodność EMI/EMF, dostępności i Tematy pokrewne, zobacz Extron bezpieczeństwa i regulacyjnego zgodności przewodnik, część numer 68-290-01, na stronie internetowej Extron, **www.extron.com**.

Инструкция по технике безопасности • Русский

ПРЕДУПРЕЖДЕНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

ВНИМАНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии важных инструкций по эксплуатации и обслуживанию в руководстве, прилагаемом к данному оборудованию.

Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: , **www.extron.com**, номер по каталогу - 68-290-01.

安全说明 • 简体中文

警告: ⚠产品上的这个标志意在警告用户该产品机壳内有暴露的危险 电压, 有触电危险。

注 意: ⚠产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修) 说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容，敬请访问 Extron 网站 , **www.extron.com**，参见 Extron 安全规范指南，产品编号 68-290-01。

安全記事 • 繁體中文

警告:⚠若產品上使用此符號，是為了提醒使用者，產品機殼內存在著可能會導致觸電之風險的未絕緣危險電壓。

注意 ⚠ 若產品上使用此符號，是為了提醒使用者，設備隨附的用戶手冊中有重要的操作和維護（維修）說明。

有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊，請瀏覽 Extron 網站：**www.extron.com**，然後參閱《Extron 安全性與法規遵守手冊》，準則編號 68-290-01。

安全上のご注意 • 日本語

警告: この記号⚠が製品上に表示されている場合は、筐体内に絶縁されていない高電圧が流れ、感電の危険があることを示しています。

注意: この記号 ⚠ が製品上に表示されている場合は、本機の取扱説明書に記載されている重要な操作と保守(整備)の指示についてユーザーの注意を喚起するものです。

安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト **www.extron.com** より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

안전 지침 • 한국어

경고: 이 기호 ⚠ 가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호 ⚠ 가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

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FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

NOTE: For more 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.

Battery Notice

This product contains a battery. **Do not open the unit to replace the battery.** If the battery needs replacing, return the entire unit to Extron (for the correct address, see the **Extron Warranty** section on the last page of this guide).

CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

ATTENTION : Risque d'explosion. Ne pas remplacer la pile par le mauvais type de pile. Débarrassez-vous des piles utilisées selon le mode d'emploi.

Conventions Used in this Guide

Notifications

In this user guide, the following are used:

WARNING: Potential risk of severe injury or death.
AVERTISSEMENT : Risque potentiel de blessure grave ou de mort.

CAUTION: Risk of minor personal injury.
ATTENTION : Risque de blessure mineure.

ATTENTION:
- Risk of property damage.
- Risque de dommages matériels.

NOTE: A note draws attention to important information.

Software Commands

Commands are written in the fonts shown here:

```
^AR Merge Scene,,Op1 scene 1,1 ^B 51 ^W^C
[Ø1] R ØØØ4 ØØ3ØØ ØØ4ØØ ØØ8ØØ ØØ6ØØ [Ø2] 35 [17] [Ø3]
Esc X1 * X17 * X20 * X23 * X21 CE ←
```

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character "Ø" is used for the number zero and "O" represents the capital letter "o".

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 2Ø8.132.18Ø.48: bytes=32 times=2ms TTL=32
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx –t
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.

Click the **OK** button.

Specifications Availability

Product specifications are available on the Extron website, **www.extron.com**.

Extron Glossary of Terms

A glossary of terms is available at **www.extron.com/technology/glossary.aspx**.

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Introduction

This section covers the following topics:

- About this Manual
- Additional Reference Material
- About the IP Intercom Modules
- Features
- System Requirements
- UL Requirements

About this Manual

This manual describes how to configure and operate the following Extron MediaLink IP Intercom Modules:

- IPI 101 AAP
- IPI 104 AAP
- IPI 201 Series (AAP and 2-gang)
- IPI 204 Series (AAP and 2-gang)



IPI 101 AAP



IPI 104 AAP



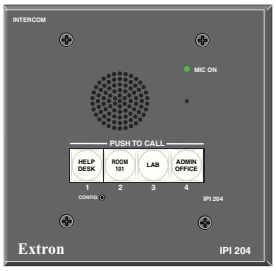
IPI 201 AAP



IPI 204 AAP



IPI 201 (2-gang)



IPI 204 (2-gang)

Figure 1. IPI 100 and 200 Series Modules

The terms “IPI” and “intercom” are used interchangeably in this manual to refer to all models. The term “100 Series” refers to both the IPI 101 and IPI 104. The term “200 Series” refers to both the IPI 201 models (AAP or 2-gang version) and both the IPI 204 models.

The term “console” refers to a PC that is running the IP Intercom HelpDesk software and is connected to one or more IPI Intercom Systems (MLC 226 IP with IPI 104/101 AAP or stand-alone IPI 201/204 AAP or 2-gang models) via a local area network.

“MLC” refers to an MLC 226 IP MediaLink Controller.

“WAV” refers to a Waveform audio file, which has a `.wav` file extension.

Additional Reference Material

The following documents are referred to in this manual. The help files are packaged with the software to which they refer and the guides are available at **www.extron.com**.

- *MLC 226 IP Series Installation Manual*
- *IP Intercom System* brochure
- *Extron IP Intercom System Frequently Asked Questions*
- *IP Intercom Network Impact Statement*
- *IP Intercom Best Practices*
- *IP Intercom Help File*, which is automatically downloaded and installed along with the IP Intercom HelpDesk software
- *Global Configurator Help File*, which is automatically downloaded and installed along with the Global Configurator software

About the IP Intercom Modules

The Extron MediaLink IPI 104 AAP and IPI 204 (four-button modules) and the IPI 101 AAP and IPI 201 (one-button modules) are for use with the Extron two-way IP Intercom System.

The IP Intercom System helps with room-to-help desk or room-to-room communications within a building, a group of buildings, or even greater distances as long as the intercoms are part of the same network. It provides enhanced support using a standard local area or wide area IP network.

For an IP Intercom System, each room requires an IPI 201 or IPI 204 intercom, or an MLC 226 IP MediaLink Controller connected to an IPI 104 AAP or IPI 101 AAP.

NOTE: The IPI 201 and IPI 204 are stand-alone units that do not require a connection to a MediaLink controller.

Connections between the IPI 101 AAP and IPI 104 AAP intercoms with MLC 226 IP and the network are via existing standard network twisted pair cables.

NOTE: The MLC 226 IP to which the IPI 100 Series intercoms are connected must have been shipped after November 16, 2005 and also have firmware version 1.05 or later to support the IPI. Examine the rear panel of the MLC 226 IP. If there is a second RJ-45 connector, labelled “Intercom” and an audio output (see **figure 3** on page 7), it is capable of supporting an IP Intercom station.

To set up the IPI you must use the IP Intercom HelpDesk software. The Windows®-based MediaLink IP Intercom HelpDesk software is installed on a central office or help desk PC to set up, manage, and monitor IP Intercom System operations. The software also provides the ability for:

- Faster call response by any available help desk in the system
- Enhanced staff use by consolidation of monitoring operations
- Secure administrator configuration and operator log-in
- Making announcements to all intercoms simultaneously

The paging feature allows the help desk operator to page a single room or group of rooms simultaneously.

A line level output is available on the back of each MediaLink Controller and stand-alone IPI model to mix into a local sound system in each room.

Security features

The IP Intercom permits real-time audio monitoring by the help desk of any room where an IPI is installed. Using the IP Intercom HelpDesk software, intercom calls and pages can be logged and date/time-stamped on the help desk computer. Event logs can be accessed and archived for record keeping and tracking purposes.

NOTE: In some states it is illegal to listen in on rooms. To satisfy legal and privacy requirements, the intercom can play a recurring tone during room monitoring. This tone can be turned on or off in the HelpDesk Preferences.

The status monitoring capabilities of the MLC 226 IP and the audio monitoring capabilities of the intercom can be combined to monitor the status of equipment for each room. GlobalViewer software can be configured to automatically notify a help desk operator or security personnel via e-mail. Help desk operators or other authorized personnel can then use the IP Intercom audio monitoring capability to listen to the activity in this room, helping them determine if security personnel should be dispatched to investigate.

Features

- Provides two-way, half-duplex voice communications over an IP network.
- For use with an IP Intercom-enabled MLC 226 IP MediaLink Controller.
- Backlit, configurable Push To Talk buttons for communicating with up to four different recipients.
- Mounts in a four-space Architectural Adapter Plate (AAP) opening.
- Integrated speaker and microphone.
- LED indicator to show when the microphone is on.
- Section 508 Compliant — Meets or exceeds accessibility standards for Electronic Information Technology. For more information about the Extron Commitment to Accessibility please see our **Accessibility Page**.

System Requirements

The IP Intercom HelpDesk software can be downloaded at no charge from **www.extron.com** (see **Installing the Software** on page 22). To install and run IP HelpDesk, you need a PC that meets the following requirements:

- Microsoft® Windows® XP, Windows 7, Windows 8.1, or Windows 10
- 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 1 GB RAM (32-bit) or 2 GB RAM (64-bit)
- 500 MB or more available hard disk space
- Windows-supported sound card, microphone, and speakers
- Microsoft Direct X version 9.0c or later
- Microsoft .NET framework, version 2.0 or later
- Network card and a network connection

UL Requirements

ATTENTION:

- Installation and service must be performed by authorized personnel only. This product should be used with a UL listed electrical box.
- L'installation et l'entretien doivent être effectués uniquement par un technicien qualifié. Ce produit devrait être utilisé avec un boîtier électrique certifié UL.

- This unit is not to be connected to a centralized DC power source or used beyond its rated voltage range.
- Cette unité ne doit pas être connectée à une source d'alimentation CC centralisée ou utilisée au-delà de sa plage de tension nominale.

- The IPI 100 AAP or IPI 200 AAP must be installed in a UL listed junction box (not provided). The installer is responsible for obtaining and installing the box.
- L'IPI 100 AAP ou l'IPI 200 AAP doivent être installés dans une boîte de dérivation certifiée UL (non fournie). L'installateur est chargé d'obtenir et d'installer la boîte.

- The unit must be installed in accordance with the National Electrical Code and with local electrical codes.
- L'unité doit être installée conformément au National Electric Code et aux normes électriques et de sécurité locales.

Installation Overview

Before you start, determine which rooms will have IP Intercoms and HelpDesk PCs and where, in each room, they will be located. Ensure there is a network connection for each intercom and each HelpDesk PC.

For the IPI 100 Series models

1. Connect the IPI to the MLC 226 IP controller, using the provided 12 inch (30.5 cm) network cable (see **figure 3** on page 7).
2. Connect the MLC 226 IP to other devices:
   - Connect the LAN port to the local network, using a standard network cable with an RJ-45 connector.
   - If desired, cable the rear panel audio connector for local audio output (see **figure 2** on the next page).
   - Connect other devices (for example, control modules, SCP, and IR emitters) to the MLC as needed. For more information, see the *MLC 226 IP Installation Manual*, which is available at **www.extron.com**.
3. Install each IPI 100 unit and MLC 226 IP into wall boxes or furniture (see **Mounting the IPI 100 Series** on page 50).
4. Ensure the HelpDesk PCs are connected to the network and powered on.
5. Configure the MLC as described in the *MLC 226 IP Installation Manual* and the *Global Configurator Help File*, which are available at **www.extron.com**.

For the IPI 200 Series models

1. Connect the LAN port to the local network, using a standard network cable, with an RJ-45 connector (see **figure 2**).
2. Connect power, and, if required, contact relay and local audio output, using the rear panel captive screw connectors (see **figure 2**).
3. Mount each IPI 200 into furniture, an AAP wallplate, mounting bracket for 2-gang wallplates, or device faceplate. The AAP version must be secured by attaching a clamp bracket to the back of the intercom after it has been inserted through the front of the AAP plate (see **Mounting the IPI 200 Series** on page 51).
4. Ensure all the HelpDesk PCs are connected to the network and powered on.

For all models

1. Install the Extron IP Intercom HelpDesk software, which is available for download from **www.extron.com** (see **Help Desk Software**, starting on page 21).
2. Use the IP Intercom HelpDesk software to configure all intercom units in the system (see **Help Desk Software**). Full instructions can be found in the *IP Intercom HelpDesk Software Help File*.

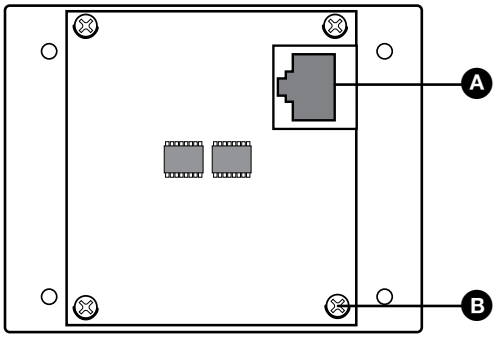
When the front panel button lights amber, the unit is correctly installed and configured. If the button lights red the unit has not been correctly configured. See **Indication (Lighting)** on page 15 or the *IP Intercom HelpDesk Software Help File*.

Installation

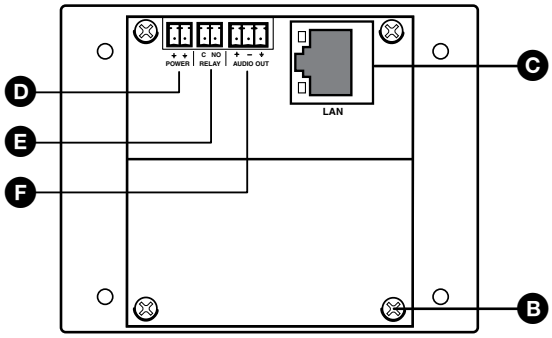
This section describes:

- **IPI Rear Panel Features and Cabling**
- **MLC Audio Connection**
- **Sample Applications**

IPI Rear Panel Features and Cabling



IPI 104 AAP, IPI 101 AAP
Rear Panel



IPI 204 AAP, IPI 201 AAP
Rear Panel

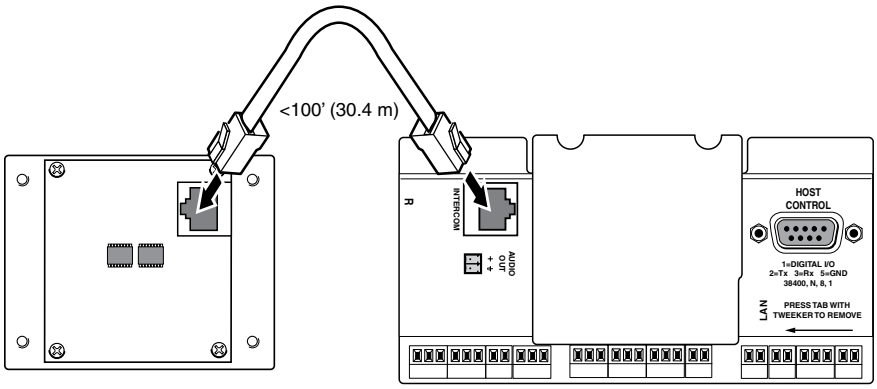
- **A** **Intercom port** (see page 7)
- **B** **AAP mounting screws** (see page 7)
- **C** **LAN port** (see page 8)
- **D** **Power** (see page 8)
- **E** **Contact Relay** (see page 8)
- **F** **Audio Out** (see page 8)

Figure 2. **IPI Rear Panel Features**

All Models

Ⓐ **Intercom port** (IPI 101 AAP and IPI 104 AAP only) (see **figure 2** on page 6) — This port is used for power, control, and voice data communication with the MLC.

- Plug one end of a standard, straight through, CAT 5, CAT 5e, or CAT 6 cable terminated with RJ-45 connectors into this port (see figure 4, below).
- Plug the other end of the cable into the Intercom connector on the MLC 226 IP rear panel, as shown in figure 3.



IPI 101 AAP or IPI 104 AAP Rear Panel **MLC 226 IP Rear Panel**

Figure 3. Connecting the Intercom Port to the MLC 226 IP

ATTENTION:

- This is not an Ethernet LAN connection. Do not connect these ports to the Ethernet.
- Il ne s'agit pas d'une connexion LAN Ethernet. Veillez à ne pas connecter ces ports au réseau Ethernet.

NOTE: A 12 inch (30.5 cm) CAT 6 cable is included with each IPI. If you choose to terminate your own cable, the cable must be no longer than 100 feet (30.4 m). Cables must be terminated to the T586A or T586B standard and both ends of a cable must be wired to the same standard (see RJ-45 wiring in figure 4).

Patch (straight-through) cable

Side 1		Side 2	
Pin	Wire color	Pin	Wire color
1	White-orange	1	White-orange
2	Orange	2	Orange
3	White-green	3	White-green
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Green
7	White-brown	7	White-brown
8	Brown	8	Brown

Crossover cable

Side 1		Side 2	
Pin	Wire color	Pin	Wire color
1	White-orange	1	White-green
2	Orange	2	Green
3	White-green	3	White-orange
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Orange
7	White-brown	7	White-brown
8	Brown	8	Brown

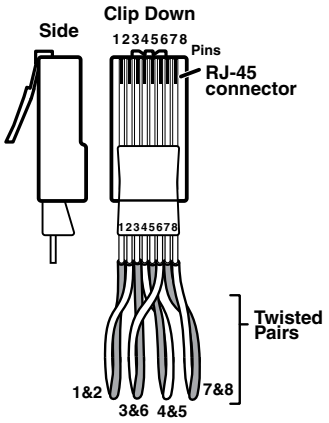


Figure 4. RJ-45 Wiring

Ⓑ **AAP mounting screws** (see **figure 2**) — These four screws are permanently attached to the IPI faceplate. They are used for mounting the faceplate into another device (such as an MLC 226 IP AAP) or a mounting frame.

IPI 201 and IPI 204 Models Only

Ⓒ **LAN port** (IPI 201 AAP and 204 AAP only) (see **figure 2** on page 6) — Plug an RJ-45 jack into the LAN connector to connect to a network. The blinking yellow LED indicates LAN activity. The green LED lights to indicate a good LAN connection. For wiring, see **figure 4** on the previous page.

Ⓓ **Power** (see **figure 2**) — Connect a cable between the 2-pole, 3.5 mm captive screw connector and a 12 VDC, 0.5 A power supply (included).

ATTENTION:

- If not provided with a power supply, this product is intended to be supplied by a UL Listed power source marked “Class 2” or “LPS” and rated output 12V dc, minimum 0.5 A minimum.
- Si le produit n’est pas fourni avec une source d’alimentation, il doit être alimenté par une source d’alimentation certifié UL de classe 2 ou LPS, avec une tension nominale 12 Vcc, 0,5 A minimum.
- The power supply shall not be permanently fixed to the building structure or similar structures.
- La source d’alimentation ne devra pas être fixée de façon permanente à une structure de bâtiment ou à une structure similaire.
- Do not place the power supply within environmental air handling spaces or the wall cavity.
- Ne pas placer les sources d’alimentation dans une zone de traitement de l’air ni dans une cavité murale.
- The installation shall be in accordance with the applicable provisions of the National Electrical Code ANSI/NFPA 70, Article 725 and the Canadian Electrical Code, Part 1, Section 16.
- Cette installation doit toujours être conforme aux dispositions applicables du Code américain de l’électricité (National Electrical Code) ANSI/NFPA 70, article 725, et du Code canadien de l’électricité, partie 1, section 16.
- The power supply is to be located within the same vicinity as the Extron equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium or desk.
- La source d’alimentation doit être située à proximité de l’équipement de traitement audiovisuel dans un endroit ordinaire, avec un degré 2 de pollution, fixé à un équipement de rack à l’intérieur d’un placard, d’une estrade, ou d’un bureau.

Ⓔ **Contact Relay** (see **figure 2**) — The 2-pole, 3.5 mm captive screw contact relay connector is used to control items such as room lighting, window coverings, and door locks. The contact may be used to control any equipment as long as the contact specifications of 24 VDC at 1 A are not exceeded.

Ⓕ **Audio Out** (see **figure 2**) — A 3-pole, 3.5 mm captive screw connector is used for audio output connection. It provides a -10 dBV balanced or unbalanced signal that can be connected to local, powered speakers or to any audio or paging system.

MLC Audio Connection

The MLC 226 IP Series controllers that support IPI intercom panels also have a rear panel, line level audio output port that can be connected to local, powered speakers or to any audio or paging system. See the wiring guide in figure 5, below.

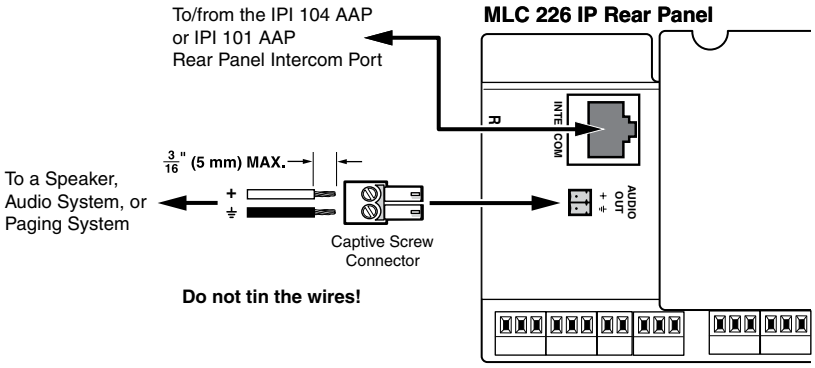


Figure 5. MLC Audio Connection

NOTE: The volume for this audio output can be adjusted via software only.

Sample Applications

There are several ways to make use of an IP Intercom System. To see what you can do with the IPIs, look at the sample scenarios provided in this section.

Single PC to Panel

For a simple intercom system, connect one or more panels to a PC that serves as the help desk console.

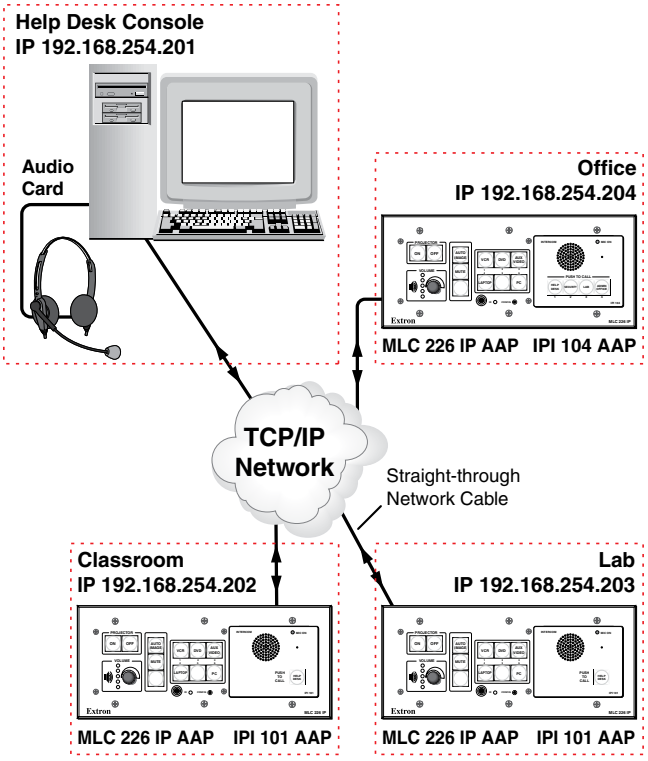


Figure 6. Single PC to One or More Panels

1. Connect one or more IPI 201, IPI 204, or MLC 226 IP units with any combination of one or more IPI 101 AAP or IPI 104 AAP units to a network using straight-through cable.
2. Using a PC on the same network, configure the IPI systems. Configure one button on each IPI with the IP address of the PC by one of the following methods:
   - using Global Configurator
   - using the unit web pages
   - using the ARP command.

   The button light changes from red to low amber to indicate it is configured and connected to the PC.
3. The intercom user presses and holds the button assigned to the PC to initiate talk mode. The button glows bright amber, and the `MIC ON` LED lights.
4. The user speaks into the intercom. Audio is output through the PC speakers at the help desk console.
5. The intercom user releases the button after speaking.
6. The console operator clicks the **`Talk`** button (in the software) or presses the space bar on the PC keyboard to respond.

Multiple PCs to Panel

Some facilities may require a system with more than one console PC. For example, the first could be staffed by a computer applications expert, the second by security personnel, and the third by resource aides or lab stockroom staff. Each console is configured to connect with several intercoms, and each intercom is configured to contact up to four consoles.

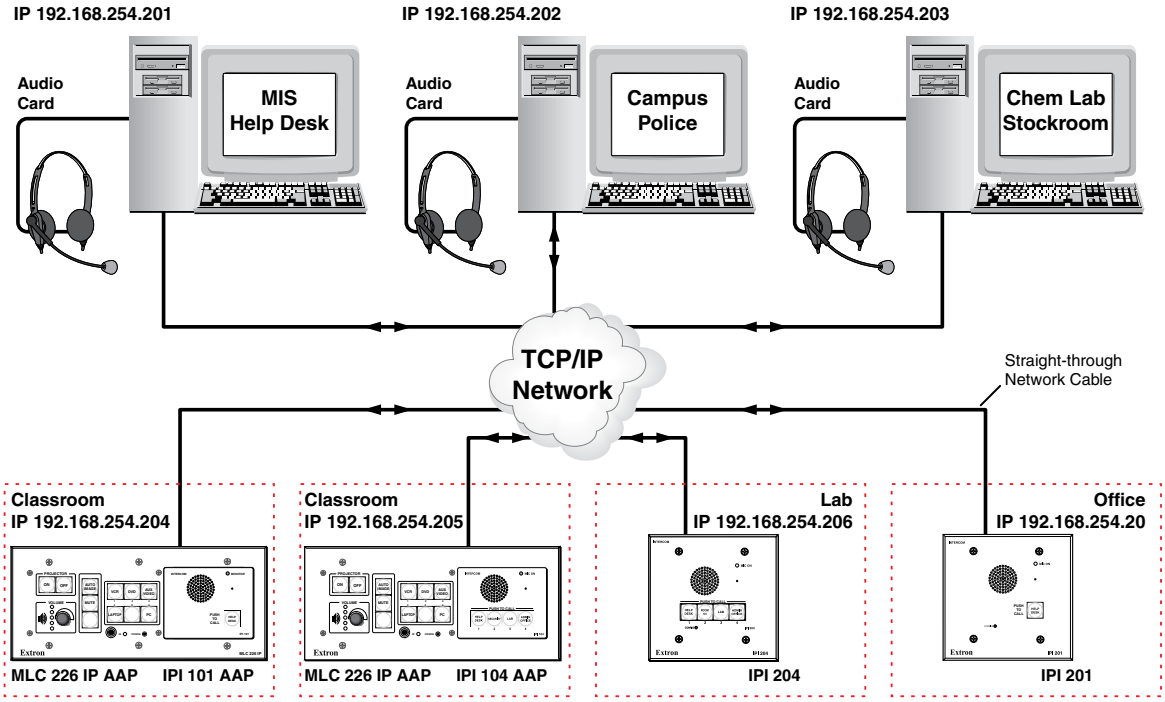


Figure 7. Multiple PCs to Multiple Panels

1. Connect one or more PCs to the network and install the IP Intercom HelpDesk Software on each PC. If call forwarding is used, Extron recommends that no more than six PCs should be set up for call forwarding.

   See **Help Desk Software**, starting on page 21, for instructions on how to install and use the software.
2. Connect up to a maximum of 250 intercoms (per help desk PC) to a network using straight-through cable. Extron recommends that large systems should be segmented, so that no more than 60 intercoms are associated with a single help desk.

3. Configure the intercoms and set up the intercom list for each console PC. Each console could be set up to monitor a different group of intercoms, but most likely the lists will overlap.

   In the example shown in **figure 7**, on the previous page, an installation in one building of a college campus, each room (classroom, lab, or office) contains an intercom.

   Configure one button on each intercom to contact the computer help desk. For IPI 104 or IPI 204 models, configure a second button on each intercom to contact the campus security department. However, only the intercoms located in physical sciences classrooms and laboratories have a third button configured to contact the PC console in the lab stockroom. Only the intercoms installed in offices have a button configured to call the registration department console.

4. Once the system is configured, each intercom user presses and holds a button to initiate talk mode. The button glows bright amber, and the `MONITOR` LED lights.
5. The user speaks into the intercom. Audio plays through the speakers or headset at the console the pressed button was configured to call.
6. The intercom user releases the button after speaking.
7. The console operator clicks the **`Talk`** button (in the software) or presses the space bar on the PC keyboard to reply.

Panel-to-Panel Mode

You do not need to include a console PC as a permanent part of an IP Intercom System. In this example, panels are configured to communicate directly with each other. The software does not need to be running during intercom system operation.

NOTE: Panel to panel mode works only when both panels are in the same network subnet.

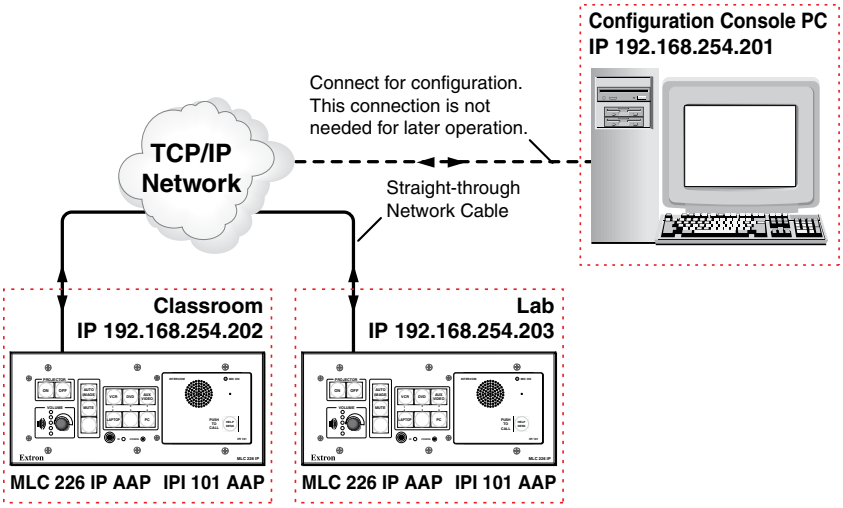


Figure 8. Panel to Panel Mode

1. Connect two IPI 101 AAPs and their MLC 226 IPs to a network using straight-through cable.
2. Using a PC connected to the same network (see figure 8), configure the two IPI systems. See **Help Desk Software**, starting on page 21, for instructions on how to use the HelpDesk software for configuration.
3. Close the configuration program. The PC can be disconnected from the network or used for other functions.
4. Push the button on one IPI to contact the other IPI. On the calling IPI, the microphone is enabled, the `MIC ON` LED lights, and the button light changes from low amber to bright amber. On the IPI being called, the button light changes from low amber to bright amber.

Server Mode

A single PC can act as a server to control the communication between the intercoms and the Help Desks. For complete instructions about configuring a computer as a server or as a client help desk, see **Help Desk Software**, starting on page 21.

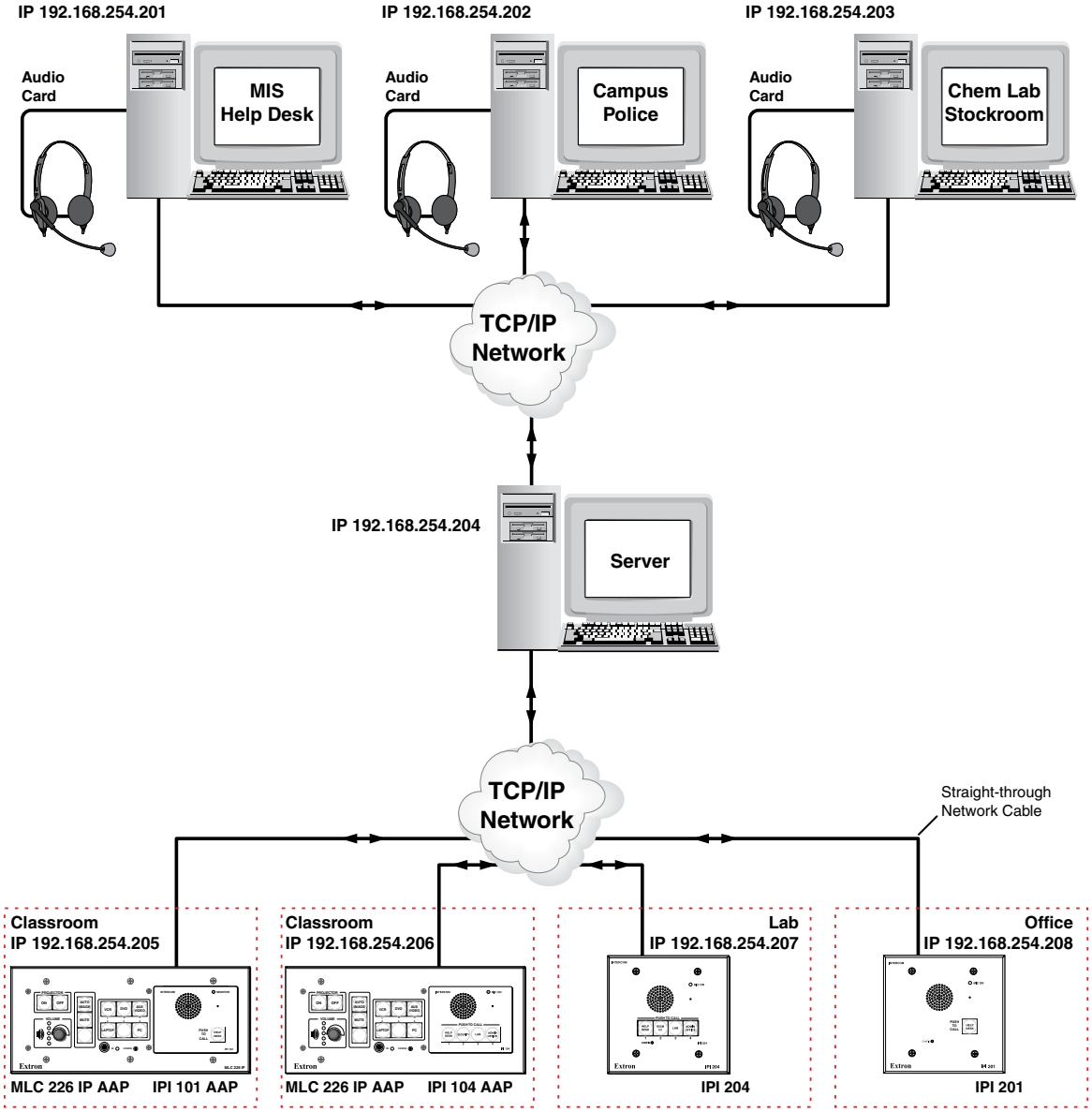


Figure 9. Server Mode

1. Configure one computer as a server. Ensure that all intercoms are listed in the intercom list of the server and each Help Desk. Also ensure that all Help Desks in the system are on the server list of Cooperating Help Desks.
2. Configure one of the buttons on each intercom to communicate with the server.
3. Configure all of the Help Desk PCs so that only the server is listed on the list of Cooperating Help Desks.
4. Set the server to server mode and restart the IPI program on the server.

   Any call from an intercom will now be routed by the server to an available Help Desk. For complete instructions on setting up server and client PCs, see **Setting up one PC as a server**, starting on page 33.

Intercom with Amplifier

The MLC Audio Out 2-pole captive screw connector outputs a -10 dBV audio signal that can be routed to an external audio amplifier and speakers, as shown in figure 10.

1. Cable the system as shown in figure 10.

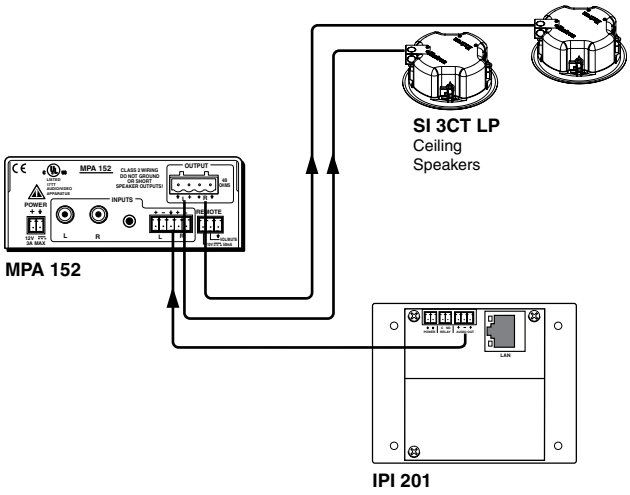


Figure 10. Intercom with an Amplifier

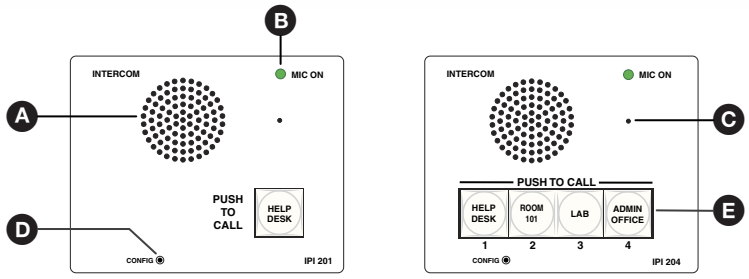
2. Power on the equipment.
3. Make fine adjustments to output level using the Remote Line slider in the Advanced Settings part of the HelpDesk software (see the *HelpDesk Software Help File*). The external amplifier must be adjusted properly to avoid any audio signal clipping or audio distortion.
4. If desired, use the software to adjust to minimum levels the IPI speaker output.

Operation

This section describes:

- **Front Panel Features and Operation**
- **Button Operation**

Front Panel Features and Operation



IPI 201 AAP **IPI 204 AAP**

Figure 11. Front Panels

- **A** **Speaker** — This integrated speaker provides mono output at the IPI panel.
- **B** **Mic On LED** — This LED lights under two circumstances:
  - When a configured `PUSH TO CALL` button is pressed.
  - To indicate that someone at the help desk console is listening and that the intercom is in monitoring mode. Monitoring mode permits hands-free operation: the user does not have to press the Push to Talk button to speak into the intercom. It also lets help desk staff monitor what is happening to determine whether to send security personnel to that room.
- **C** **Microphone** — Push one of the butttons and talk. The microphone is behind this opening.
- **D** **Config Port** (IPI 200 Series only) — This 2.5 mm port is used to configure the IPI 201 and IPI 204 and to upload firmware when necessary.
- **E** **Push to Call buttons** — The IPI 101 AAP and IPI 201 units include one of these buttons, and the IPI 104 AAP and IPI 204 units have four.

NOTE: The MLC and IPI intercoms must be configured (via software) to associate each button with the IP address of a specific console PC or intercoms. Once configured, the IPI 101 AAP and IPI 201 can communicate to one location (one IP address). The IPI 104 AAP and IPI 204 can communicate with up to four different locations.

Button Operation

Push to Call Operation

Press a PUSH TO CALL button to call the help desk or another console. That enables the microphone, causes the MIC ON LED to light, and enables communication to the location associated with that button. When pressed, the button lights bright amber.

- If the console PC being called is busy, the IPI plays a .wav file to tell the caller that the line is busy. A “call received” message appears at the help desk console PC to indicate that the intercom is calling. For informaton about .wav files, see **Loading a Pre-recorded .wav File** on page 31 for information about using .wav files.
- If the console PC being called is not connected to the network, the IPI plays a .wav file stored on its local MLC to notify the intercom user that the connection is not available. Also, the button lights red instead of amber.
- Once a call is successfully connected, press and hold the button when you speak, and release it to allow the other party to speak.

NOTE: You must press and hold an IPI button to speak and to call the help desk or another intercom. When you release the button, the intercom microphone turns off unless the help desk is listening (see **Listen Mode** on page 29).

Indication (Lighting)

Button Color	Indication
Amber (dim)	• The button is in standby. • The device at the IP address associated with that button is turned on and is connected to the network. If that device gets disconnected or if the help desk software is not running on that PC, the button lights red. Once it is reconnected, the button returns to dim amber lighting.
Amber (bright)	• The IPI is communicating with the location the button is configured to call. This happens during a call, a page, or when receiving an announcement from the console PC.
Red	• The device (console) associated with the button is disconnected from the network or is turned off. • The software is not running or has been closed.

Initial Configuration

The IPI 100 Series units must be connected to a MLC 226 IP MediaLink controller with a valid IP address. See the *MLC 226 IP User Manual* for information about configuring the IP address of the MLC controller.

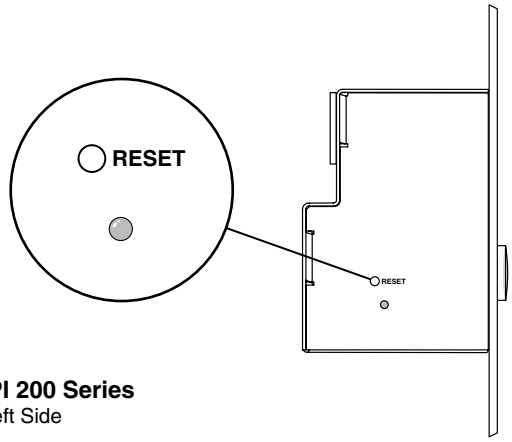
The IPI 200 Series units have a factory default IP address of `192.168.254.254`. This IP address must be changed to an address that will operate on your local network.

This section discusses:

- **Before You Begin**
- **Setting the IP Address Using Global Configurator**
- **Setting the IP Address Using Embedded Web Pages**
- **Setting the IP Address Using the ARP Command**

Before You Begin

1. Obtain an IP address for the IPI 200 Series device from the AV system network administrator.
2. Write down the unit MAC address (a 12-digit number) found on a label on the rear panel of the unit (for example, `ØØ-Ø5-A6-Ø1-ØA-74`).
3. If the unit IP address has been changed from the factory default (`192.168.254.254`), before setting a new IP address, the default IP address must be restored by performing a Mode 4 reset:



IPI 200 Series
Left Side

Figure 12. Reset Button

   a. Hold down the **RESET** button on the left side of the unit (see figure 12, above) until the Power LED blinks twice (6 seconds), then release.

      NOTE: The **RESET** button is recessed. Activate it with an Extron Tweeker or similar tool.

   b. Press and release the **RESET** button again within 1 second.

      The Power LED blinks quickly four times, confirming the Mode 4 reset, which returns the unit to its factory default IP address.

Setting the IP Address Using Global Configurator

The preferred method for setting a unit IP address is to use Extron Global Configurator (GC) application.

If you have Global Configurator installed on a local PC, and have a GC project file open, proceed with the steps below. If you do not have Global Configurator installed, it is available as a free download from **www.extron.com**. The *Global Configurator Help File* steps you through the process of creating a new GC project file, and provides an illustrated version of the procedure below.

NOTE: You must use Global Configurator (version 3.3 or later) to configure the IPI unit. Do not use Global Configurator Plus and Professional.

Before setting the IP address with Global Configurator:

- The IPI 200 Series intercom unit must be physically connected to the network or connected directly to a computer via the front panel **CONFIG** port.
- The IP address of the IPI 200 Series intercom unit must be set to the factory default.

To set an IP address with a GC project file open:

1. From the **Edit** menu, select **Add Device**.

   The Add Device dialog box opens:

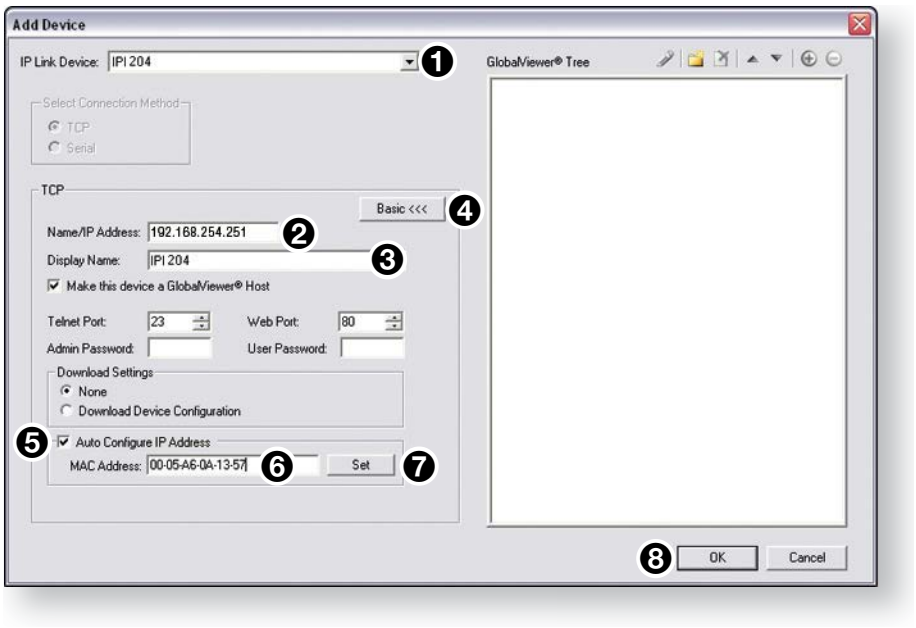


Figure 13. Global Configurator Add Device Dialog

2. Select the appropriate device type (for example, the IPI 204) in the **IP Link Device** drop-down list (❶).
3. Enter the new IP address (for example, **192.168.254.251**) in the **Name/IP Address** field (❷).
4. Enter a unique device name in the **Display Name** field (❸).
5. Click **Advanced >>>** (❹). When the Advanced options of the **Add Device** dialog are displayed, **Advanced >>>** changes to **Basic <<<**.
6. Click the **Auto Configure IP Address** checkbox (❺).
7. Enter the unit MAC address in the **MAC Address** field (❻). The first six digits (00-05-A6) are pre-populated, and identify this unit as an Extron device. You only need to enter the final six digits. Dashes between digits are auto-filled.
8. Click **Set** (❼). The **Auto Configure Successful** dialog box opens.
9. Click **OK** (❽).

Setting the IP Address Using Embedded Web Pages

Each IPI 200 Series intercom unit contains an on-board web server with interactive pages that can be used to configure the device.

The intercom unit must be at its factory default IP address.

To set an IP address via embedded web pages:

1. Connect an Ethernet crossover cable between the device and a local PC.
2. On the PC, locate the `TCP/IP Properties` dialog box.

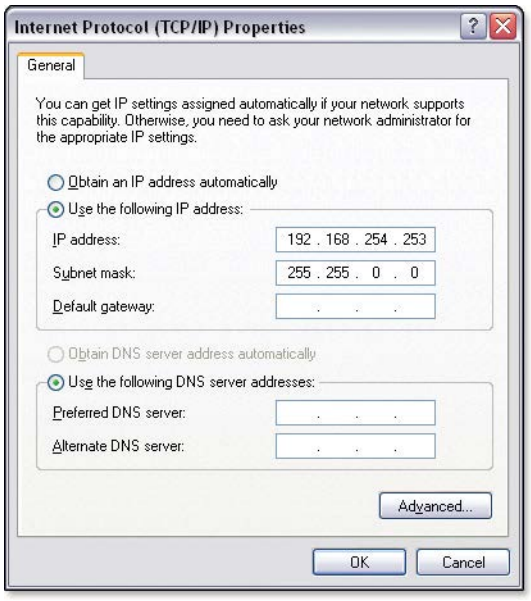


Figure 14. TCP/IP Properties Dialog

3. Record the current IP address, subnet mask, default gateway and DHCP settings.
   You will need this information later to return the PC to its original TCP/IP settings.
4. Enter the following:
   - `IP address: 192.168.254.253`
   - `Subnet mask: 255.255.0.0`
   - Leave the `Default gateway` field blank
5. Click **OK**.
6. Open a web browser on the local PC.

7. Enter `192.168.254.254` in the browser `Address` field and press <**`Enter`**>.

   The embedded web page for the intercom unit is displayed.

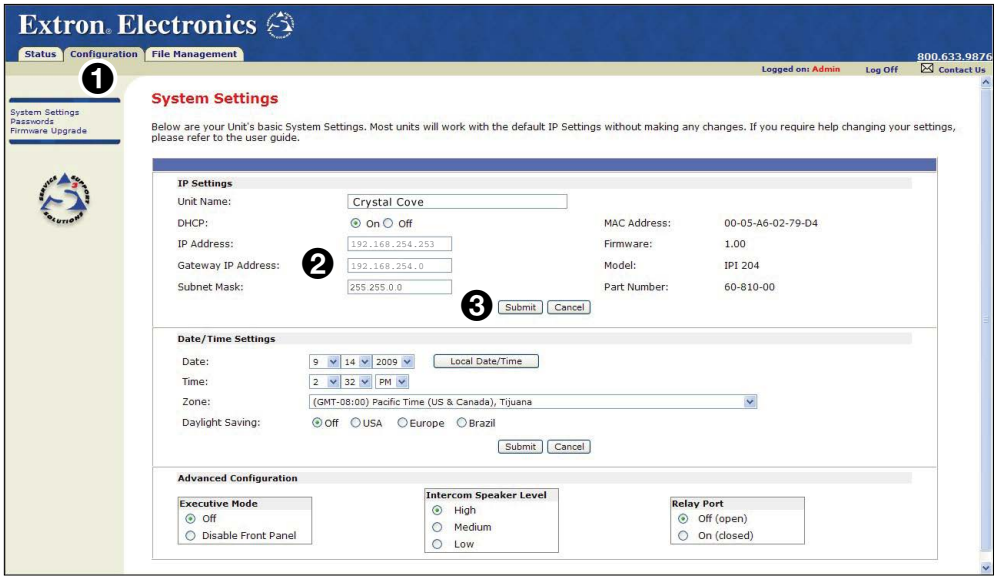


Figure 15. Embedded System Settings Web Page

8. Click the **`Configuration`** tab (❶).
9. Enter the desired values in the `IP Address` and `Subnet` Mask fields (❷).
10. Click **`Submit`** (❸). Once the new IP address and subnet mask are assigned to the device, the connection is lost. The device can now be connected to your AV network.

To return the local PC to its original TCP/IP settings:

1. Close the web browser.
2. Disconnect the Ethernet crossover cable from the PC and the device.
3. Return to the TCP/IP Properties dialog box on the PC.
4. Return the `IP address`, `Subnet mask`, `Default gateway`, and `DHCP` fields to their original settings.
5. Reboot the PC.

Setting the IP Address Using the ARP Command

The IP address for an IPI 200 Series unit can be set using the DOS Address Resolution Protocol (ARP) command. Before setting the IP address with the ARP command:

- The IPI 200 Series intercom unit must be physically connected to the network or connected directly to a computer via the front panel `CONFIG` port.
- The IP address of the IPI 200 Series intercom unit must be set to the factory default.

To set an IP address using the ARP command:

1. Open a command prompt window on a local PC.
2. At the command prompt enter:

   `arp -s` *<IP address> <MAC address>*

   (for example: `C:\>arp -s 192.168.254.254 ØØ-Ø5-A6-ØØ-3Ø-5F` where the IP address `192.168.254.254` is assigned to the device with the MAC address `ØØ-Ø5-A6-ØØ-3Ø-5F`.

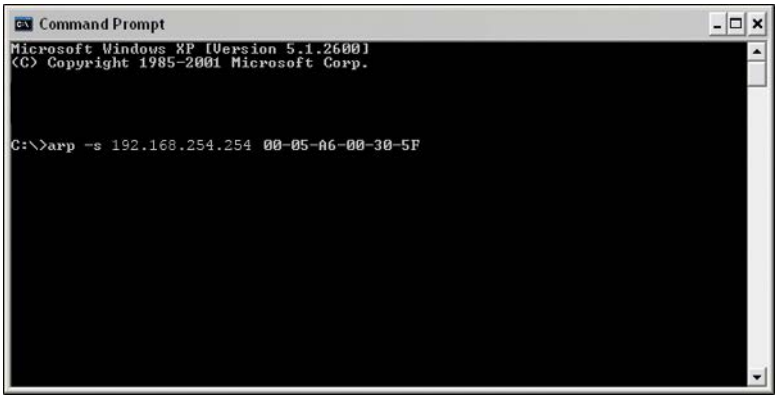


Figure 16. Command Prompt

3. To confirm the new IP address is active, perform a ping command to the new IP address.

   for example: `C:\>ping 192.168.254.254`

   If the IP address setting was successful, the device replies 3 or more times:

   `Reply from 192.168.254.254: bytes=32 time <1ms TTL=64`

Help Desk Software

This section discusses:

- **Introduction to the Software**
- **System Requirements**
- **Installing the Software**
- **Starting the Program**
- **Configuring the IP Intercom System**

Introduction to the Software

The IP Intercom System requires a PC running the IP Intercom HelpDesk software and an IP Intercom unit. The HelpDesk program (provided on the software disk) has a management and monitoring application (the main screen) and a configuration utility.

If an IPI 100 series unit is used, it must be linked to an MLC 226 IP controller. The IPI 200 series are stand-alone units that do not need to be connected to another MediaLink device.

The PC, the IPI 200 series unit, and the MLC 226 IP, when used with an IPI 100 series unit, must all be connected to the Local Area Network (LAN) and each must have a unique IP address. Consult with your IT department to ensure that IP addresses have been correctly allocated.

Network and IT administrators should use information from the following white papers, which can be found at **www.extron.com**, to ensure optimal network configuration and compatibility for the IP Intercom system:

- *IP Intercom Network Impact Statement*
- *IP Intercom Best Installation Practices*

Extron recommends that the IP Intercoms and the HelpDesk be on the same LAN with a static IP address and not be separated by a firewall.

If the IP addresses are on different subnets, it is best to set up a dedicated VLAN. If a firewall is required, the following ports need to be open:

- UDP port **3121** (audio traffic)
- TCP telnet port **23** (control and status)
- UDP port **3122** (inter-helpdesk communication)
- UDP ports **1230** and **1231** (auto discovery)

If you are using an IPI 100 series unit, linked to an MLC 226 IP controller, you must configure the MLC for network communication before you can install and use the intercom system software. For more information about configuring the MLC, see

- "Software-and web page-based Setup and Control" in the *MLC 226 Series User Manual*
- The *Global Configurator Help File* (automatically downloaded and installed along with the Global Configurator software)

System Requirements

Before installing the IP Intercom program, ensure that your computer system meets the minimum requirements (see **System Requirements** on page 4).

Installing the Software

To install the IP Intercom software on the hard drive:

1. Open the Extron web site (**www.extron.com**).

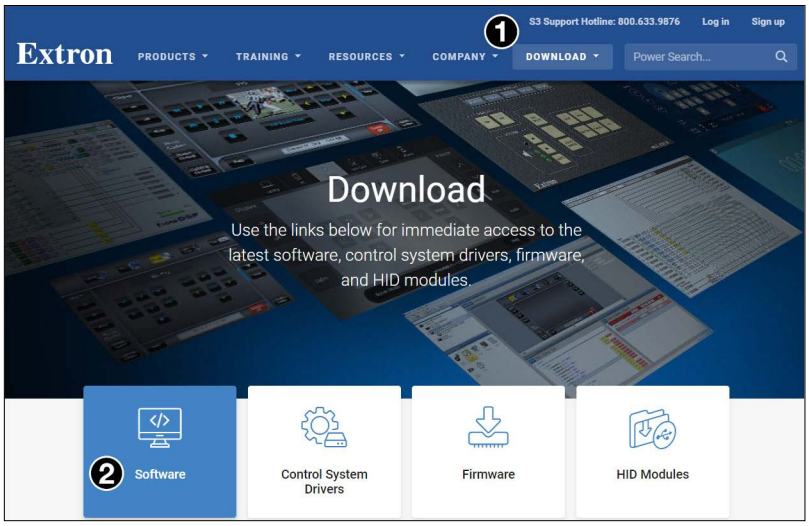


Figure 17. Extron Download Page

2. Click **`Download`** at the top of the page (❶).
3. Click **`Software`** (❷). The Software page opens:

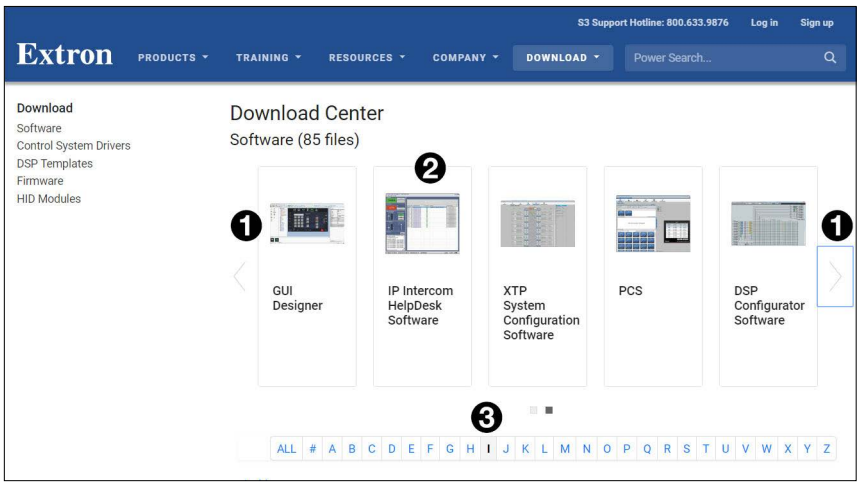


Figure 18. Extron Software Download Center

4. Click **`IP Intercom HelpDesk Software`** (❷). If you do not see this option, use the **`<`** and **`>`** keys (❶). Clicking the icon takes you to the main product page. Click **`Download`** and follow the on-screen instructions.

   Alternatively, use the alphabetic menu and click **`I`** (❸). Extron software products beginning with that letter are listed. Scroll down to `IP Intercom HelpDesk`.Click **`Download`** and follow the on-screen instructions.

   Either method installs the IP Intercom HelpDesk software on the PC. By default the directory is `C:\Program Files\Extron\IPI` or `C:\Program Files(x86)\Extron\IPI`.

   The IPI icon is added to the desktop and a program shortcut is added to the **`Start`** menu in the `Extron Electronics` folder.

Starting the Program

Open the software by clicking the desktop icon, using Windows Explorer, or the Start menu.

The program opens with the **Getting Started** pop-up screen displayed:



Figure 19. IP Intercom HelpDesk Software Getting Started

Use the scrollbar to find basic information about:

- Log-in as User
- Log-in as a HelpDesk Administrator
- Change the Password
- Set Up Intercom-equipped Extron Devices

If you do not wish to see this window when you open the program in the future, check the **Don't show this message upon startup** checkbox.

To close the pop-up window, click **OK**.

The main program window can now be seen:

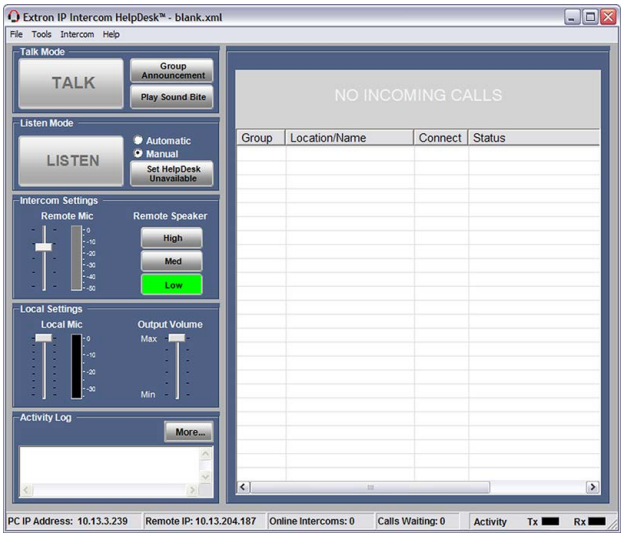


Figure 20. IP Intercom HelpDesk Software Main Page

The following section provides step by step procedures for some of the most common operations performed with the IP Intercom system. For details about operations not shown here, see the *IP Intercom HelpDesk Help File*, which can be accessed by clicking **Help** in the **Help** menu or by pressing <F1> from within the HelpDesk program.

Configuring the IP Intercom System

This section takes you through the step-by-step procedures for carrying out certain basic tasks. The examples in this chapter specifically describe the IPI 204 devices but apply to all IP Intercom models.

For information about more advanced setup and configuration, consult the *IP Intercom HelpDesk Help File*, which can be accessed by clicking **Help** in the **Help** menu or by pressing <F1> from within the HelpDesk program.

Basic Configuration

Using the Configuration Utility

1. In the **Tools** menu, select **Configuration Utility**. The first time the utility is used after opening the program a **Password** pop-up box appears. Enter a password. The default password is extron (all lower case letters).
2. The **Configuration Utility** window opens:

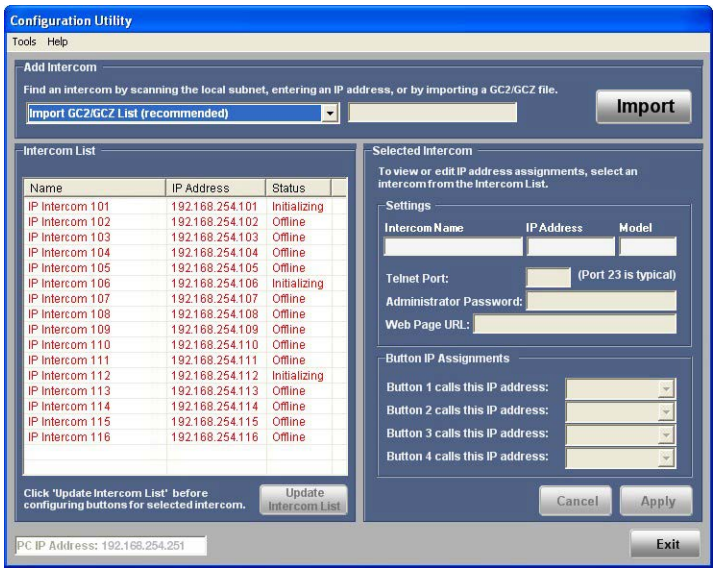


Figure 21. Configuration Utility

3. Create a list of intercom devices. This can be done by:
   - **Importing a GC2/GCZ file**, on the next page, using Global Configurator
   - **Entering the IP addresses manually**, on the next page
   - **Automatically scanning the local subnet** on page 26

   Use the drop-down menu to select the appropriate option.

Importing a GC2/GCZ file

1. Select **Import GC2/GCZ List (recommended)** from the drop-down menu.
2. Click **Import**. An **Open** dialog box opens.

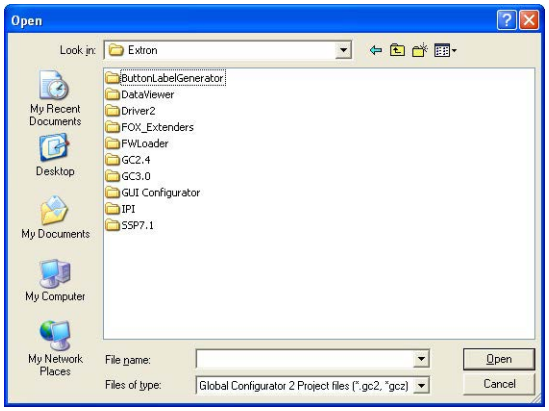


Figure 22. Open Dialog Box

3. Navigate to the folder where you have saved the Global Configurator file and select it.
4. Click **Open**. The Intercom List is updated using devices from the Global Configurator file.
5. Go to **Configuring an IP Device with the Configuration Utility** on page 27.

Entering the IP addresses manually



Figure 23. Enter the IP Addresses Manually

1. Select **Manually by IP Address** from the drop-down menu (❶).
2. Enter an IP address in the text box (❷).
3. The **Import** button is renamed **Add**. Click **Add** (❸).
4. The new IP address appears on the **Intercom List** (❹) and you are prompted to give the device a name.
5. Click **Update Intercom List** to save the device.
6. Go to **Configuring an IP Device with the Configuration Utility** on page 27.

Automatically scanning the local subnet

1. Select **`Automatic (Local Subnet Only)`** from the drop-down menu.
2. The **`Add`** button is renamed to **`Scan`**. Click **`Scan`**.

   NOTE: The computer only scans the local subnet for available intercoms.

3. A `Scan Progress` dialog box opens, indicating the progress of the scan.

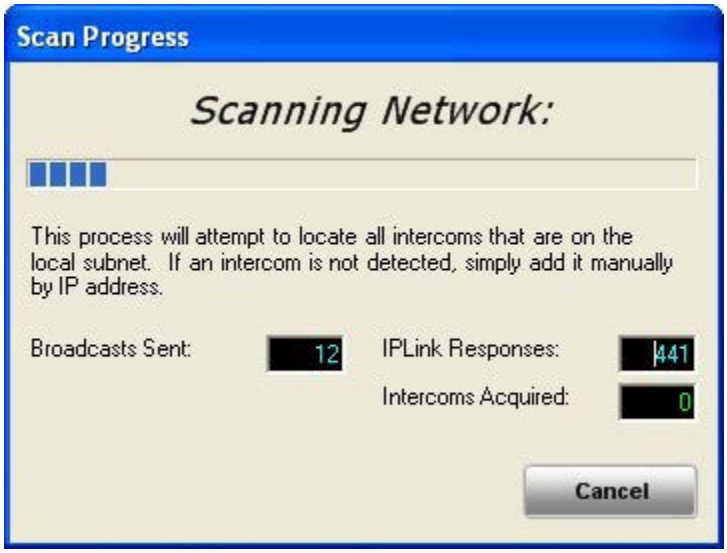


Figure 24. Scanning the Local Subnet

4. The scan detects only intercoms that are on the same local subnet and adds them to the `Intercom List`.
5. Click **`Update Intercom List`** to save the devices that have been added to the list.
6. Go to **Configuring an IP Device with the Configuration Utility** on page 27.

Configuring an IP Device with the Configuration Utility

1. Open the configuration utility and select one of the IP devices in the `Intercom List`.
2. When it is highlighted, its information is displayed in the `Selected Intercom` panel:

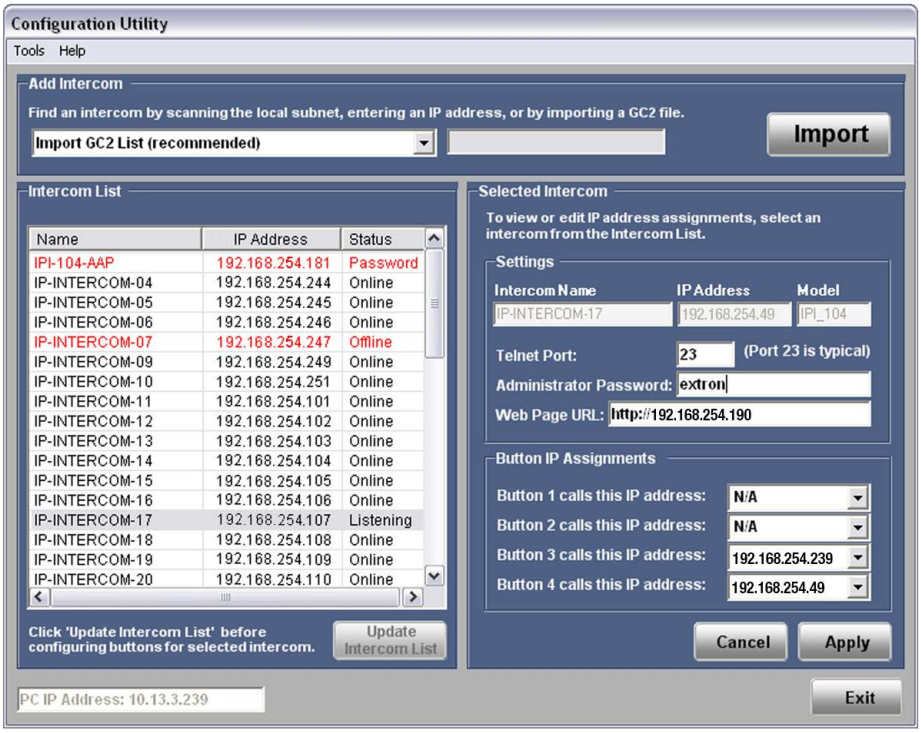


Figure 25. Configuration Utility

3. In the `Selected Intercom` panel, the unit administrator password and the IP addresses associated with each of the four buttons on the intercom can be changed.
4. Click **`Apply`** to save the changes.
5. Click **`Exit`** to close the configuration utility.

Talk Mode

1. Select one of the IP devices on the `Intercom List` in the main screen.
2. To activate Talk mode, left-click **`TALK`** and hold down the mouse button or by press and hold down the keyboard spacebar. The label on the button changes to **`TALKING`**.
3. Speak into the headset microphone. The Local Mic VU meter oscillates in response to the audio being picked up by the microphone.
4. To end talk mode, click **`TALKING`**, or release the mouse or the spacebar.



Figure 26. **Talk Mode On**

Listen Mode

1. In the **Tools** menu open the HelpDesk Preferences dialog box and click on the **User Options** tab.
2. Select the **Play recurring alert tone at intercom panel when panel mic is open** and **Play alert tone at intercom panel when mic is opened or closed** options (they are both selected by default).

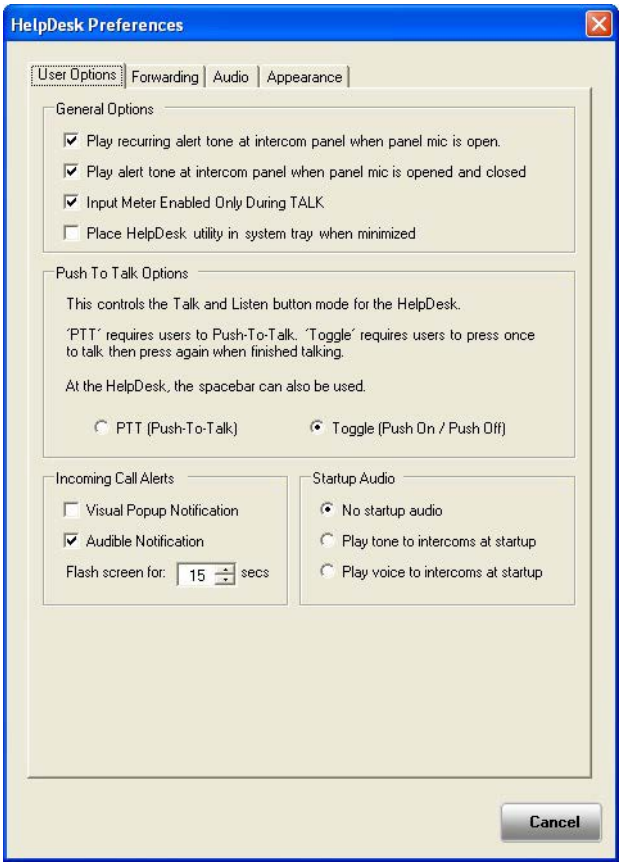


Figure 27. HelpDesk Preferences Dialog Box

3. Close the HelpDesk Preferences dialog box.
4. Select an IP device on the Intercom List.
5. Activate the **LISTEN** button. The label on the button changes to **LISTENING**, the intercom button turns from low amber to high amber color, two audible signals of different frequencies are heard at the intercom to indicate that the intercom mic is opened, and the green MIC ON LED lights.
6. Start speaking. While the **LISTENING** button is active, an audible signal is heard every ten seconds.
7. Deselect the **Listening** button. The button on the intercom returns to a low amber color. A single audible signal is heard at the intercom.

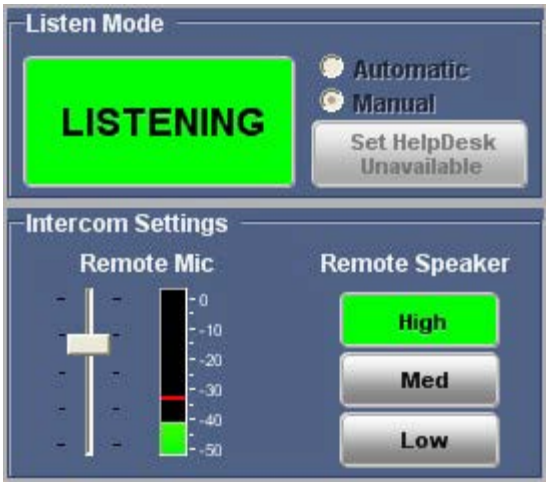


Figure 28. Listen Mode On

8. Press and hold the intercom button. It turns to a high amber color and the MIC ON LED lights green. On the PC monitor, the **LISTEN** button is activated, the "Incoming Call Alert" indicator flashes, and two audible signals of different frequencies are heard at the intercom.
9. Release the intercom button. It turns to a low amber color and the MIC ON LED turns off.

Group Announcement

1. Decide which IP devices on the `Intercom List` you wish to group together. Select each device one at a time and use the Group drop-down menu to assign all of them to the same group.

   NOTE: Each device on the `Intercom List` can only belong to one group.

2. Click the **`Group Announcement`** button.
3. The `Group Selection` panel becomes visible. Groups that are available are listed in black text; groups that are not available are grayed out. Select an available group or **`All Intercoms`**.
4. The selected button turns green and the intercom devices belonging to that group are highlighted in the `Intercom List`.
5. Activate the Talk mode (**Talk Mode** starting on page 28). When you have finished talking inactivate the Talk mode.

   or

   Click **`Play Sound Bite`**. A list of available sound bites appears. (For information about managing the Sound Bites list, see **Loading a Pre-recorded .wav File**, starting on the next page) Select the sound bite and click **`Play to Intercom(s)`**. The button turns green and the text changes to **`Stop Playing`**.
6. When the sound bite has finished playing, click **`Exit`**.
7. Close the Group Selection panel by clicking **`Exit`**.



Figure 29. Group Selection



Figure 30. Sound Bite Selection

Loading a Pre-recorded .wav File

The software allows you to load up to ten pre-recorded .wav files. The software comes with a library of .wav files in the `C:\Program Files\Extron\IPI\wav` folder. You can use these .wav files or record your own messages. For example, non-English speakers may find it easier to have the files in their native language. After recording the .wav file, it should be saved in the same folder.

NOTE: The .wav file must be saved as 8 kHz, 16 bit, mono audio in PCM format.

To load a pre-recorded file:

1. Open the configuration utility. Under the **Tools** menu, select the **Manage Sound Bites** option.

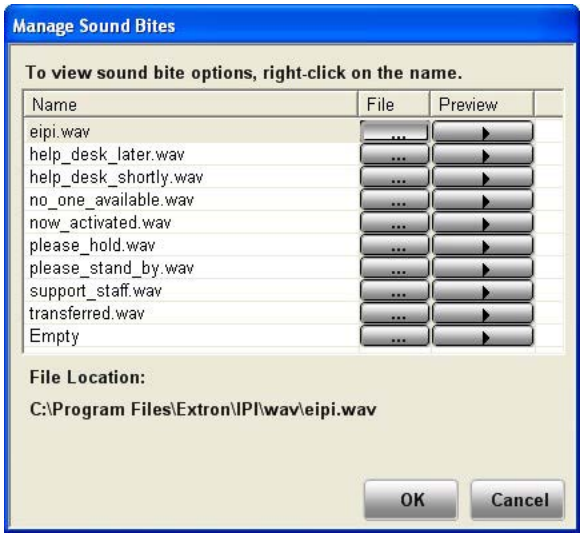


Figure 31. Manage Sound Bites Dialog Box

2. Click on the file button (...) and go to `C:\Program Files\Extron\IPI\wav` folder. Select the .wav files that you wish to be available.
3. Click **OK** to close the Manage Sound Bites box and then click **Exit** to close the Configuration Utility.

Changing the Default .wav File for Intercom Events

Certain situations lead to default .wav files being played. It is possible to customize those files.

1. Under the **Tools** menu, open the `Help Desk Preferences` dialog box and click on the **Audio** tab.
2. For each event, click on the corresponding file button (...) and navigate to `C:\Program Files\Extron\IPI\wav` folder. Select the .wav files that you wish to associate with that event.
3. As soon as a change is made, an **OK** button appears. When all the changes have been made, click **OK** to close the `Help Desk Preferences` dialog box.

Call Forwarding

The IP Intercom HelpDesk provides two ways of handling call forwarding:

1. A single PC, acting as a server, forwards calls to the next available help desk.
2. A peer-to-peer network allows calls to be forwarded to any available help desk.

Setting up a peer-to-peer network

All PCs must be running the IP Intercom HelpDesk software.

1. All PCs must have all available intercoms on their **Intercom List**.
   a. On the first computer, add all intercoms to the **Intercom List** (see **Using the Configuration Utility** starting on page 24).
   b. In the **File** menu, click **Save** or **Save As...** to save the .xml configuration project file.
   c. On each of the other help desks, in the file drop-down menu, select **Load Project**. Load the project file saved in the previous step onto the help desk PC.
2. All intercoms must be linked to the IP address of one of the available help desks:
   a. Open the **Configuration Utility** and select an intercom in the **Intercom List**.
   b. In the **Button IP assignments** panel, enter the IP address of the server PC or select it from the dropdown list.
   c. Click **Apply**.
   d. Repeat steps a through c until all intercoms have been linked to one of the available help desk computers.
3. All help desk computers must have a list of all other available help desks, which are added as follows:
   a. Open the **Configuration Utility** window and, in the **Tools** menu, click **Multiple HelpDesk Configuration...** The **HelpDesks** dialog box opens (see figure 31).
   b. Add the name and IP address of a HelpDesk in the text boxes at the bottom of the window.
   c. Click **Add**. The computer is added to the **Cooperating HelpDesks** list.
   d. Repeat steps b and c until all cooperating HelpDesks have been added.

      NOTE: There is no automated way to add multiple HelpDesks; they must be added individually.

   e. When all HelpDesks have been added, click **OK**.
4. None of the PCs can be set to Server Mode:
   a. Under the **Tools** menu, click **Preferences**. The **Preferences** box opens.
   b. Click the **Forwarding** tab.
   c. Uncheck the **Mode** box. This box is left unchecked by default.
   d. If necessary, shut down and restart the IP Intercom HelpDesk program.



Figure 32. Adding HelpDesks

Setting up one PC as a server

All PCs (the server and the help desks) must be running the IP Intercom HelpDesk software.

1. The server PC and all HelpDesk PCs must have all available intercoms on their intercom list.
   a. Add all intercoms to the **Intercom List** of the computer that has been designated the server.
   b. In the **File** menu, click on **Save** or **Save As...** to save the .xml configuration project file.
   c. On each help desk computer, in the **File** drop-down menu, select **Load Project**. Load the project file saved in the previous step onto the help desk PC.
2. All intercoms must be linked to the IP address of the server:
   a. Select an intercom in the intercom list.
   b. In the **Button IP assignments** panel, enter the IP address of the server or select it from the dropdown list.
   c. Click **Apply**.
   d. Repeat steps a-c until all intercoms have been linked to the server.
3. The server PC must have a list of all client HelpDesks. These are added as described in **steps 3a to 3e of Setting up a peer-to-peer network** on the previous page.

   The first name on the list will be the first choice HelpDesk. If the first PC is busy, the next call will be passed to the second PC on the list. If all HelpDesks are busy, any new incoming call will hear a pre-recorded .wav file. This pre-recorded .wav file will usually inform the caller that all help desks are busy and suggest calling back later.
4. All HelpDesks must be linked to the Server PC:
   a. On each HelpDesk PC, open the **HelpDesks** window as described in step 3a on the previous page.
   b. Add the name and IP address of the server PC in the text boxes at the bottom of the window.
   c. Click **Add**.
   d. Click **OK**.
5. The server PC must be set to Server Mode:
   a. Under the **Tools** menu, click **Preferences**. The **HelpDesk Preferences** box opens (see figure 29).
   b. Click the **Forwarding** tab (❶).
   c. Check the **Mode** box (❷).
   d. An **OK** button appears. Click **OK** (❸).
   e. Exit and restart the program. When the program restarts, the window has changed (see **figure 34** on the following page).

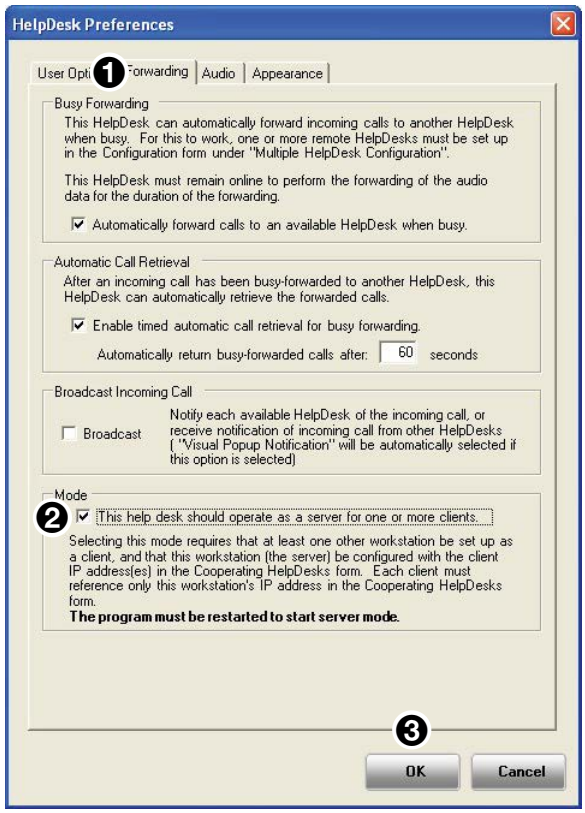


Figure 33. HelpDesk Preferences

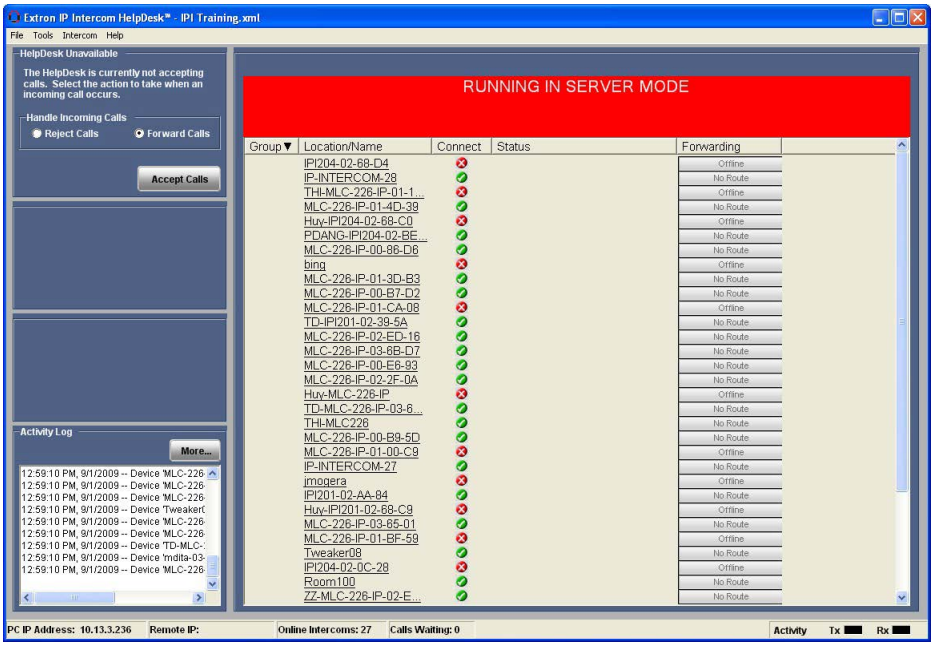


Figure 34. Server Mode

SIS Programming and Control

This section of the guide discusses:

- **Introduction to SIS**
- **Host-to-IPI Communications**
- **IPI-initiated Messages**
- **Error Responses**
- **Symbols Used in the Command and Response Table**
- **Command and Response Table**

Introduction to SIS

The Extron MediaLink IP Intercom 201 and 204 modules can be remotely set up and controlled via a host computer or other device (such as a control system) by using the Extron Simple Instruction Set (SIS) commands. Connect the module to the host computer via RS-232 or an Ethernet LAN connection.

NOTE: The following SIS commands are for use with the IPI 201 and 204 models only. Refer to the *MLC 226 IP Series Installation Manual* for IPI 101/104 series SIS command and control information.

IPI RS-232 protocol:

- 38400 baud
- 8 data bits
- 1 stop bit
- No parity
- No flow control

NOTE: The configuration port requires 38400 baud communication. This is a higher speed than many other Extron products use. If using HyperTerminal or a similar application, make sure the PC or control system connected to these ports is set for 38400 baud.

LAN port defaults:

- IP address: `192.168.254.254`
- Gateway IP address: `0.0.0.0`
- Subnet mask: `255.255.0.0`
- DHCP: off

NOTE: The IP Intercom (IPI) must be configured before use.

Host-to-IPI Communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the IPI determines that a command is valid, it executes the command and sends a response to the host device. All responses from the IPI to the host end with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

IPI-initiated Messages

If you are communicating with the IPI via RS-232 or via a verbose Telnet connection when a local event such as a front panel selection or adjustment takes place, the IPI responds by sending a message to the host. No response is required from the host. The IPI-initiated messages are listed here (underlined).

(c)Copyright 2007, Extron Electronics, IPI 201 V*x.xx*, 60-809-00 ↵

Mon Day, DD Mon YYYY HH:MM:SS

(c)Copyright 2007, Extron Electronics, IPI 204, V*x.xx*, 60-810-00 ↵

Mon Day, DD Mon YYYY HH:MM:SS

where V*x.xx* is the firmware version number.

The IPI sends the boot and copyright messages under the following circumstances:

- If the IPI is off and an RS-232 connection is already set up (the PC is cabled to the IPI 200 series unit and a serial terminal emulation program such as HyperTerminal is open), the connected unit sends these messages via RS-232 when it is first powered on.
- If the IPI is on, it sends the boot and copyright messages when you first open a Telnet connection to the IPI. You can see the day of the week, date, and time if the IPI is connected via Telnet, but not via RS-232. If you are using a Telnet connection, the copyright message, date, and time are followed by a password prompt.

Additional messages may be sent by the IPI in response to front panel selections and volume adjustments and when scripts are executed during scheduled events.

Password Information

The ↵Password: prompt requires a password (administrator level or user level) followed by a carriage return. The prompt is repeated if the correct password is not entered.

If the correct password is entered, the unit responds with ↵Login Administrator↵ or ↵Login User↵, depending on the password entered. If passwords are the same for both administrator and user, the unit will default to administrator privileges.

Error Responses

When the IPI receives a valid SIS command, it executes the command and sends a response to the host device. If the IPI is unable to execute the command because the command is invalid or it contains invalid parameters, it returns an error response to the host.

The error response codes and their descriptions are as follows:

E12 – Invalid port number

E13 – Invalid value (the number is out of range/too large)

E14 – Not valid for this configuration

E17 – System timed out

E22 – Busy

E24 – Privilege violation

E26 – Maximum number of connections has been exceeded

E27 – Invalid event number

E28 – Bad filename or file not found

E3Ø – Hardware failure (followed by colon and descriptor number) (unsolicited response.)

E31 – Attempt to break port pass-through when not set

Error Response References

The following superscripted numbers are used within the command descriptions in the Command and Response table to identify commands that may respond as shown:

[14] = Commands that give an E14 (not valid for this configuration) response if the current configuration of the unit does not support that command.

[22] = Commands that yield an E22 (busy) response.

[24] = Commands that give an E24 (privilege violation) response if you are not logged in at the administrator level.

[27] = Commands that may yield an E27 (invalid event number) response.

[28] = Commands that may give an E28 (file not found) response.

Symbols Used in the Command and Response Table

The IPI 201/204 Series intercom can be controlled via a Telnet (port 23) or RS-232 connection using ASCII commands. Alternatively, it can be controlled via a web browser (port 80) connection using URL-encoded commands.

The ASCII and URL commands listed in the **Command and Response Table**, starting on page 40, perform the same functions, but they are encoded differently to accommodate the requirements of each port (Telnet or browser).

The ASCII to hexadecimal (HEX) conversion table shown below is for use with the Command and Response table.

ASCII to HEX Conversion Table																								Esc	1B	CR	ØD	LF	ØA
Space	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27	(| 28 |)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37	8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	4Ø	A	41	B	42	C	43	D	44	E	45	F	46	G	47	H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	5Ø	Q	51	R	52	S	53	T	54	U	55	V	56	W	57	X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	6Ø	a	61	b	62	c	63	d	64	e	65	f	66	g	67	h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	7Ø	q	71	r	72	s	73	t	74	u	75	v	76	w	77	x	78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL	7F

The Command and Response table lists valid ASCII (for Telnet or RS-232) command codes, the corresponding URL encoded (for web browsers) command codes, the responses to the host from the IPI, and a description of the command function or the results of executing the command.

- Upper and lower case characters may be used interchangeably in the command field unless otherwise specified.
- Commands may be sent back-to-back without spaces (for example, `11SØX4Q`).
- Numbers can be entered with leading zeroes, as 1, 2, or 3 digits.
- There are a few differences in how to enter the commands depending on whether you are using Telnet or a web browser.

When using these commands through a web browser, the URL reference is used to shorten the examples. “URL” refers to the full URL of the intercom and web page reference including all path information (for example, `http://192.168.100.10/myform.htm`).

To send any of the commands using a web browser you must prefix them with the full URL followed by `?cmd=`, followed by the command.

For control via a web browser, all non-alphanumeric characters must be represented as the hexadecimal equivalent, `%xx`, where `xx` represents the two-character hex byte. For example, a comma (,) would be represented as `%2C`.

Characters such as %, +, and the space character, must be encoded as hex bytes, or they will be misinterpreted by the IPI.

Some characters differ depending on the method you use to send the commands:

Telnet	Web Browser
Escape (hex 1B)	W (must not be hex encoded)
Carriage return (hex 0D)	Pipe character (|) (must not be hex encoded)

NOTE: With Telnet you can use either an “Escape” (Esc) command or a “W” command, and the carriage return or the pipe character. With the web browser, you are required to use a “W” command and the pipe character.

In either method, {Data} = data that will be directed to a specified port and **must be hex encoded if non-alphanumeric**.

NOTE: If you make adjustments (changes to volume, etc.), whether via the front panel or via RS-232 or IP communication, it will take 1 minute 40 seconds (100 seconds) for the data in the IPI 200 series’ RAM to be saved to flash memory.

Symbol Definitions

•	=	Space character
↵	=	CR/LF (carriage return/line feed) (hex ØD ØA)
←	=	Carriage return (no line feed, hex ØD) (use the pipe character, |, instead for URL-encoded commands)
|	=	Pipe (vertical bar) character
Esc	=	Escape key (hex 1B) (use W instead of Esc for web browsers)

NOTE: For web encoding only: data will be directed to the specified port and must be encoded (URL encoding) if it is non-alphanumeric. Change any non-alphanumeric character (%, +, |, }, etc.) within the data section into the corresponding hexadecimal equivalent, %xx, where xx represents the two-character hex byte. For example, a space (hex: 20) would be encoded as %20 (hex: 25 32 30) and a plus sign (hex: 2B) would be encoded as %2B or hex 25 32 42.

X3	=	Greenwich Mean Time (GMT) offset value (-12.00 to +14.00) represents the time difference in hours and minutes (+/-hh:mm) relative to Greenwich, UK. The leading zero is optional. For example, 5:30 = 05:30. Do not use a plus (+) sign if the GMT offset is positive.
X5	=	On/off status — Ø = off or disabled 1 = on or enabled
X11	=	Firmware version (typically listed to two decimal places, for example, *x.xx*)
X12	=	IPI 200 series name. The name is a text string of up to 24 characters drawn from the alphabet (A-Z), digits (0-9), and minus sign (or hyphen, -). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be a letter. The last character must not be a minus sign/hyphen.
X13	=	Local date and time format Set format (MM/DD/YY-HH:MM:SS). For example: Ø1/18/Ø5-1Ø:54:ØØ. Read format (day of week, date month year HH:MM:SS). For example: Tue, 18 Jan 2ØØ5 18:19:33.
X14	=	IP address or subnet mask (*xxx.xxx.xxx.xxx*). Leading zeros in each of four fields are optional in setting values, and they are suppressed in returned values. IPI default address: 192.168.254.254 Default broadcast address: 255.255.255.255.
X18	=	Hardware (MAC) address (*xx-xx-xx-xx-xx-xx*) (ØØ-Ø5-A6-*xx-xx-xx*)
X22	=	Verbose/response mode status: Ø = clear/none, default for Telnet connections; responses are not echoed to the host 1 = verbose mode is on, default for RS-232 host control; responses are echoed to the host and displayed to the user 2 = send tagged responses for queries 3 = verbose mode is on and tagged responses are sent for queries

NOTE: If tagged responses are enabled, all read commands return the constant string + data, the same as for setting a value. For example, for Esc CN ←, the response is Ipn•X12↵ rather than just the data.

X33	=	Password (minimum length = 4 characters, maximum length = 12 characters, no special characters are allowed)

NOTE: A user password cannot be assigned if no administrator password exists; the E14 error code will be returned. If the administrator password is cleared, then the user password is also removed.

X34	=	Daylight saving time — Ø = Daylight Saving Time off/ignore 1 = Daylight Saving Time on (USA/Canada) 2 = Daylight Saving Time on (Europe) 3 = Daylight Saving Time on (Brazil)
X41	=	Password to display on screen (response to password query or set) — When the IPI unit connects to a host device via RS-232, the password itself (X33) is the response. When the connection is via IP, X41 is 4 asterisks (****) if a password has been assigned, or it is an empty field if a password hasn't been assigned.
X49	=	Name — By default, this is a combination of the model name and the last three pairs of the unit MAC address.
X52	=	Security level — 11 = user 12 = administrator
X63	=	Pulse time in 20 ms per count. If this parameter is missing or = Ø, then pulse length = default = 25 = 500 ms. 1 = 20 ms (minimum pulse time) to 65535 = 1310700 ms (maximum pulse time).
X64	=	Broadcast repetition interval in seconds Ø to 255 (4.25 minutes) Default = Ø = off
X71	=	Hardware (MAC) address — 4 most-significant hex nibbles converted into single 16-bit decimal number.

X72 = Hardware (MAC) address — 8 least significant hex nibbles converted into single 32-bit decimal number.

NOTE: This could be as large as 10 digits.

X206 = Voltage (in volts)

X207 = Temperature in degrees Celsius (the response is 3 digits including leading zeros)

X209 = Front panel lockout (executive mode) status —
Ø = off — front panel is unlocked (default)
1 = on — the front panel is locked (disabled)

Command and Response Table

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Relay Functions				
Force relay on	1*10	1%2A10	Rly 1*1↵	
Force relay off	1*Ø0	1%2AØ0	Rly 1*Ø↵	
Toggle relay	1*20	1%2A20	Rly 1*X5↵	
Pulse relay	1*3*X630	1%2A3%2AX630	Rly 1*X5↵	

KEYS:

X5 = On/off status (Ø = off or disabled; 1 = on or enabled)

X63 = Pulse time in 20 ms per count. If this parameter is missing or = Ø, then pulse length = default = 25 = 500 ms. 1 = 20 ms (minimum pulse time) to 65535 = 1310700 ms (maximum pulse time).

NOTE: If the verbose mode is enabled, there are two responses from the unit because the relay is pulsed. During a pulse, the relay is toggled to its opposite state and then back to the original state.

View the relay state	10	10	Rly 1*X5↵	
Front panel security lockout modes (executive modes)				
Off[24]	ØX	ØX	Exe Ø↵	
On[24]	1X	1X	Exe 1↵	
View lockout mode status	X	X	X209↵	
Example:	*X*	*X*	Ø↵	*Executive mode is off*

KEY:

X209 = Front panel lockout (executive mode) status
Ø = off — front panel is unlocked (default);
1 = on — the front panel is locked (disabled)

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Status commands				
View all voltage and temperature status	11S	11S	12S•13S•14S•15S•2ØS ↵	
View +12 V P/S voltage	12S	12S	+X206↵	
View +5 V IR receiver port voltage	13S	13S	+X206↵	
View +3.3 V IP Link/ FPGA voltage	14S	14S	+X206↵	
View +1.5 V FPGA voltage	15S	15S	+X206↵	
View internal temp. status	2ØS	2ØS	+X207↵	

KEYS:

X206 = Voltage (in volts)

X207 = Temperature in degrees Celsius (the response is 3 digits including leading zeros)

Firmware version, part number & information requests

NOTE:

- In a query response, an asterisk (*) after the version number indicates the version that is currently used.
- A question mark (? or ?.??) indicates that the factory default firmware is the only firmware loaded in the IPI.
- A carat (^) indicates the version of firmware that should be running, but, since a mode 1 reset was performed, the factory default firmware version is loaded and running instead.
- An exclamation point (!) indicates that the firmware is corrupted.

Query firmware version	Q or 1Q	Q or 1Q	X11↵ or Ver Ø1*X11↵
Example	*1Q*	*1Q*	*1.Ø1*↵ or *VerØ1*1.Ø1*↵
Verbose firmware version query	ØQ	ØQ	X11 • X11 • X11↵
Example	*ØQ*	*ØQ*	1.Ø3•1.ØØ*(1.18-IPI 2Ø1/IPI 2Ø4 - Thu, 2Ø Jan 2ØØ5 Ø9:41:47 GMT)•*1.Ø1*(1.31-IPI 2Ø1/ IPI 2Ø4 -Tue, 14 Jun 2ØØ5 ØØ:54:58 GMT)*↵

KEY:

X11 = Firmware version (typically listed to two decimal places, for example, *x.xx*)
Verbose query shows bootstrap, factory-installed, and current versions of firmware, along with model description and date and time of installation for each firmware version.

Query bootstrap firmware version	2Q	2Q	X11↵ or Ver Ø2*X11↵
Example	*2Q*	*2Q*	*1.Ø3*↵

KEY:

X11 = Firmware version (typically listed to two decimal places, for example, *x.xx*)
Verbose mode shows bootstrap, factory-installed, and current versions of firmware, along with model description and date and time of installation for each firmware version.
The bootstrap firmware is not user-replaceable, but you may need this information during troubleshooting.

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Query factory firmware version	3Q	3Q	X11 ↵ or VerØ3*X11 ↵	
Example	*3Q*	*3Q*	*1.ØØ*(1.18-IPI 2Ø1/IPI 2Ø4-Thu, 2Ø Jan 2ØØ5 Ø9:41:47 GMT)* ↵	

KEY:

X11 = Firmware version (typically listed to two decimal places, for example, *x.xx*)
Verbose mode shows bootstrap, factory-installed, and current versions of firmware, along with model description and date and time of installation for each firmware version.
The factory-installed firmware is different from the bootstrap version but is also not user-replaceable. This firmware was installed at the factory and is the version the controller reverts to after a mode 1 reset.

Query updated firmware version	4Q	4Q	X11 ↵ or VerØ4*X11 ↵	
Example	*4Q*	*4Q*	*1.ØØ*(1.64-IPI 2Ø1/IPI 2Ø4 -Mon, 28 Feb 2ØØ5 23:16:55 GMT)* ↵	

KEY:

X11 = Firmware version (typically listed to two decimal places, for example, *x.xx*)
Verbose mode shows bootstrap, factory-installed, and current versions of firmware, along with model description and date and time of installation for each firmware version.
Use this command to find out which version of the firmware, if any, was uploaded into the controller after it left the factory.

Query FPGA version	32Q	32Q	X11 ↵	

KEY:

X11 = the field-programmable gate array (FPGA) firmware version, shown to two decimal places (x.xx).

Request the unit part number	N	N	6Ø-8Ø9-Øn ↵ or 6Ø-81Ø-Øn ↵ or Pno6Ø-8Ø9-1n ↵ or Pno6Ø-81Ø-1n ↵	

NOTE: See **www.extron.com** for part numbers.

Request the model name	1I	1I	IPI 2Ø1 ↵ or IPI 2Ø4 ↵	
Request the model description	2I	2I	One-Button IP Intercom ↵ or Four-Button IP Intercom ↵	
Request system memory usage	3I	3I		

NOTE: Shows the amount of memory used and total available memory for system operations.

Request user memory usage	4I	4I		

NOTE: Shows the amount of memory used and total available memory for user memory.

Query IPI module	32I	32I	IPI2Ø1 ↵ or IPI2Ø4 ↵	

NOTE: 2Ø1 = IPI 201 AAP or 2-gang; 2Ø4 = IPI 204 AAP or 2-gang.

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
IP setup commands				
Set the unit name[24]	Esc X12 CN←	W X12 CN|	Ipn• X12 ↵	
Set unit name to factory default[24]	Esc •CN←	W%2ØCN|	Ipn• X49 ↵	
Read the unit name	Esc CN←	WCN|	X12 ↵ or X49 ↵	

KEYS:

X12 = The unit name of your choosing, for example, *exec-boardroom-ctrl*.

The name consists of up to 24 alphanumeric characters (and the minus sign). The first character must be a letter, the last character cannot be a minus sign (hyphen). Case does not matter.

X49 = The factory default name, which is a combination of the model name and the last 3 pairs of hex numbers in the controller MAC address (for example, IPI-1Ø4-IP-ØØ-Ø2-3D).

Set date/time[24]	Esc X13 CT←	W X13 CT|	Ipt• X13 ↵	
Read date/time	Esc CT←	WCT|	X13 ↵	

KEY:

X13 = Local date and time in the format: MM/DD/YY-HH:MM:SS. For example: Ø9/Ø7/Ø6-1Ø:54:ØØ.

Set GMT offset[24]	Esc X3 CZ←	W X3 CZ|	Ipz X3 ↵	
Read GMT offset	Esc CZ←	WCZ|	X3 ↵	

KEY:

X3 = The Greenwich Mean Time (GMT) offset value (-12.ØØ to +14.ØØ) represents difference in hours and minutes between the local time zone and Greenwich, UK. The leading zero is optional. Do not use a plus (+) sign.

Set daylight saving time[24]	Esc X34 CX←	W X34 CX|	Ipx X34 ↵	
Read daylight saving time	Esc CX←	WCX|	X34 ↵	

KEY:

X34 = Daylight saving time: Ø = Daylight Saving Time off/ignore; 1 = Daylight Saving Time on (USA/Canada); 2 = Daylight Saving Time on (Europe); 3 = Daylight Saving Time on (Brazil)

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Set DHCP on[24]	Esc 1 DH←	W1DH|	Idh1↵	
Set DHCP off[24]	Esc Ø DH←	WØDH|	IdhØ↵	
View DHCP mode	Esc DH←	WDH|	X5↵	

KEY:

X5 = Ø (off) or 1 (on). Setting DHCP to off also resets the unit IP address to the factory default (192.168.254.254). Default is off.

Set IP address[24]	Esc X14 CI←	W X14 CI|	Ipi• X14↵	
Read IP address	Esc CI←	WCI|	X14↵	
Set subnet mask[24]	Esc X14 CS←	W X14 CS|	Ips• X14↵	
Read subnet mask	Esc CS←	WCS|	X14↵	
Set gateway address[24]	Esc X14 CG←	W X14 CG|	Ipg• X14↵	
Read gateway address	Esc CG←	WCG|	X14↵	

KEY:

X14 = IP address, subnet mask, or gateway address (*xxx.xxx.xxx.xxx*). Leading zeros in each of the four fields are optional in setting values. The leading zeros are suppressed in the unit response.

Read hardware address (MAC)	Esc CH←	WCH|	X18↵ or Iph• X18↵ (verbose mode 2/3)	

KEY:

X18 = hardware (MAC) address (xx-xx-xx-xx-xx-xx).

Set verbose response mode on/off[24]	Esc X22 CV←	W X22 CV|	Vrb X22↵	
Read verbose mode status	Esc CV←	WCV|	X22↵	

KEY:

X22 = verbose mode status:

Ø = clear/none, default for Telnet connections; responses are not echoed to the host;
1 = verbose mode is on, default for RS-232 host control; responses are echoed to the host and displayed to the user;
2 = send tagged responses for queries;
3 = verbose mode is on and tagged responses are sent for queries.

If tagged responses are enabled, all read commands return the constant string + data, the same as for setting a value. For example, for Esc CN←, the response is Ipn• X12↵ rather than just the data.

Verbose mode is a communication mode in which the device responds with more information than it usually would (more than the device, itself, requires). For example, the controller can send out unsolicited information (such as notice of a volume or input change or a change in some other setting). That is an example of a verbose (wordy) relationship between the controller and a connected device. Verbose mode creates more network traffic than usual, which can slow down network performance.

Verbose mode is usually enabled for troubleshooting and disabled for daily use.

- For a direct RS-232 connection, the controller is set for verbose mode by default.
- When the IPI is connected via Ethernet, verbose mode is disabled (by default) in order to reduce the amount of communication traffic on the network. If you want to use the verbose mode with an IPI device connected via Ethernet, this mode must be set to “on” each time you reconnect to the IPI device.

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Set the broadcast interval[24]	Esc X64 , X14 EB ←	W X64 %2C X14 EB |	Bmd X64 , X14 ↵	
Set broadcast interval to default address[24]	Esc X64 EB ←	W X64 EB |	Bmd X64 , X14 ↵	
Clear broadcast interval[24]	Esc Ø EB ←	W Ø EB |	Bmd X64 , X14 ↵	
View broadcast interval	Esc EB ←	W EB |	X64 , X14 ↵	
Set broadcast port	Esc {port#}* X71 , X72 PB ←		Bpt {port#}* X18 ↵	
View broadcast port and MAC	Esc PB ←	W PB |	{port#}* X18 ↵	
Get connections listing	Esc CC ←	W CC |	{# of connections} ↵ or Icc {# of connections} ↵ (verbose mode 2/3)	

KEYS:

X14 = Broadcast subnet address (*xxx.xxx.xxx.xxx*). Leading zeros in each of the four fields are optional in setting values. The leading zeros are suppressed in the unit response. Default broadcast address: 255.255.255.255.
X64 = Broadcast repetition interval in seconds from Ø to 255 seconds (4.25 minutes). Default = Ø = off.
{port #} = UDP outgoing port
X71 * X72 = MAC address for UDP unicast transmissions
X71 = Hardware (MAC) address: 4 most-significant hex nibbles converted into single 16-bit decimal number.
X72 = Hardware (MAC) address: 8 least significant hex nibbles converted into single 32-bit decimal number.

Password and security settings

Set administrator password[24]	Esc X33 CA ←	W X33 CA |	Ipa• X41 ↵	
Clear administrator password[24]	Esc • CA ←	W%2Ø CA |	Ipa• ↵	
Read administrator password	Esc CA ←	W CA |	X41 ↵	
Set user password[14, 24]	Esc X33 CU ←	W X33 CU |	Ipu• X41 ↵	
Clear user password[24]	Esc • CU ←	W%2ØCU |	Ipu• ↵	
Read user password	Esc CU ←	W CU |	X41 ↵	
Read connection security level	Esc CK ←	W CK |	X52 ↵ or Pvl X52 ↵ (verbose mode 2/3)	

KEYS:

X33 = Password (minimum length = 4 characters, maximum length = 12 characters, no special characters are allowed). A user password cannot be assigned if an administrator password does not exist. Also, clearing the administrator password clears all passwords (administrator and user). Clearing the user password clears only the user password.
X41 = Response: unit responds with **** if a password exists. Otherwise, an empty string.
X52 = Security level: 11 = user; 12 = administrator

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Remapping port designations				
Set Telnet port[24]	Esc {port#}MT ←	W{port#}MT|	Pmt {*port#*} ↵	
Reset Telnet port[24] to default (**23**)	Esc 23MT ←	W23MT|	Pmt 00023 ↵	
Disable Telnet port[24]	Esc ØMT ←	WØMT|	Pmt 00000 ↵	
Read Telnet port	Esc MT ←	WMT|	{*port#*} ↵	
Set HTTP port[24]	Esc {port#}MH ←	W{port#}MH|	Pmh {*port#*} ↵	
Reset HTTP port[24] to default (**8Ø**)	Esc 8ØMH ←	W8ØMH|	Pmh 00080 ↵	
Disable HTTP port[24]	Esc ØMH ←	WØMH|	Pmh 00000 ↵	
Read the web port map	Esc MH ←	WMH|	{*port#*} ↵	
Set Direct Access port[24]	Esc {port#}MD ←	W{port#}MD|	Pmd {*port#*} ↵	
Reset Direct Access port[24]	Esc 2ØØ1MD ←	W2ØØ1MD|	Pmd Ø2ØØ1 ↵	
Disable Direct Access port[24]	Esc ØMD ←	WØMD|	Pmd 00000 ↵	
Read Direct Access port	Esc MD ←	WMD|	{*port#*} ↵	

NOTES:

For security reasons the network administrator may wish to assign new or different port numbers to the controller Telnet, web browser, and direct access ports or to disable one or more ports. Typically Telnet uses port 23, web access is via port 80 (HTTP), and direct access is via port 2001.

Do not set two or more ports to the same port number. Setting two ports to the same number could cause networking conflicts and will also result in an E13 (invalid parameter) error.

If you remap a port, you must set the port number to 1024 or higher, unless you reset the port to the default number or disable the port by setting it to 0.

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Directory commands				
Change to or create a directory	Esc path/directory/ CJ ←	W path%2F directory%2F CJ|	Dir•path/directory/ ↵	

NOTES:

The directory name is a text string drawn from the alphabet (A~Z), digits (0~9), minus sign/hyphen (-), plus sign (+), or colon (:). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case.. The first character must be a letter. Case does not matter. Include the full path, not just the name of the directory. Nonalphanumeric characters are not permitted in the web browser.

A directory does not fully exist until a file has been copied into that path. Also, the IPI operates differently from PC operating systems: files stored in and directories created in the IPI may have the same names.

In example 1 the path is `majordir/subdir/`. The command created or moved to a directory called next-level.

Example 1: Esc majordir/subdir/next-level/ CJ ←

W majordir %2F subdir%2F next-level %2F CJ|

Dir•majordir/subdir/next-level/ ↵

In example 2 a directory called `HTMLfiles` was created inside the `custompages` directory..

Example 2: Esc custompages/HTMLfiles/ CJ ←

W custompages %2F HTMLfiles %2F CJ|

Dir•custompages/HTMLfiles/ ↵

In example 3 the user moved to a directory called oak.

Example 3: Esc oak/CJ ← W oak%2F CJ| Dir•oak ↵

Change back to the root directory	Esc /CJ ←	W%2F CJ|	Dir•/ ↵
Go up one directory level	Esc .. CJ ←	W%2E%2E CJ|	Dir•path/directory/ ↵
View the current directory	Esc CJ ←	WCJ|	path/directory/ ↵

NOTE: The current directory is determined on a per-connection basis. At the beginning of each IP connection/session, the current directory is selected as the root directory.

Stream Files via Telnet or RS–232		
Load a file to user flash memory	Esc + UF filesize, filename ←	Upl ↵
Retrieve file from user flash memory	Esc filename SF ←	Responds with 4-bytes of file-size + raw unprocessed data in file ←.

NOTE: If there is insufficient space on a box to store the sent file, response will be `Fld` ↵ instead of `Upl` ↵ to denote failure. Updating firmware can be done by loading an .S19 file with this command. If the box determines that the .S19 file is not intended for this product, the `Upl` ↵ response is followed by an `Fwm` ↵ response (Firmware mismatch).

Stream Files via Port 80	
Load file to user flash memory	Use a POST on port 80 followed by the delimited data to be written to the flash file memory.
Retreive file from user flash memory	Send a page GET on port 80 followed by: WSF| for example: *http://192.168.254.254/mypage.html?cmd=WSF*| Responds with raw unprocessed data in file.

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
File handling commands				
Erase user-supplied web page and files[24,28]	Esc filename EF↵	W filename EF|	Del • filename↵	
Erase current directory and its files[24,28]	Esc /EF↵	W%2F EF|	Ddl↵	
Erase current directory and sub-directories[24,28]	Esc //EF↵	W%2F%2F EF|	Ddl↵	
List files from the current directory	Esc DF↵	WDF|	See Note	

NOTE: The response is a list of files stored in the controller. Each line of the response lists a different filename and its corresponding file size. The last line of the response indicates how much available file space there is:

[filename 1]•[day, date time of upload] GMT • [file size 1 in bytes]↵
[filename 2]•[day, date time of upload] GMT • [file size 2 in bytes]↵
[filename 3]•[day, date time of upload] GMT • [file size 3 in bytes]↵
…
[filename *n*]•[day, date time of upload] GMT • [file size *n* in bytes]↵
[space remaining (to 7-digits)]•Bytes Left ↵↵

When working with the IPI embedded web pages, the response visible in HTML source code follows this structure:

```
var file=new Array();
file[1]="[filename 1],[day, date time1 of upload] GMT,[file size 1 in bytes]";↵
file[2]="[filename 2],[day, date time2 of upload] GMT,[file size 2 in bytes]";↵
file[3]="[filename 3],[day, date time3 of upload] GMT,[file size 3 in bytes]";↵
…
file[n]="[filename n],[day, date timen of upload] GMT,[file size n in bytes]";↵
file[n+1]="[space remaining (to 7-digits)],Bytes Left";↵
```

Example (via Telnet or HyperTerminal)	Esc *DF*↵	*WDF*|	*4.evt Tue, 01 Mar 2005 02:03:07 GMT 42233*↵ *1.eml Tue, 01 Mar 2005 02:03:34 GMT 200*↵ *2.eml Tue, 01 Mar 2005 02:03:34 GMT 300*↵ *2.eir Tue, 01 Mar 2005 02:03:34 GMT 1683*↵ *6.evt Tue, 01 Mar 2005 02:03:36 GMT 17956*↵ *4.eir Tue, 01 Mar 2005 02:03:47 GMT 6849*↵ *IPImain.sc Tue, 01 Mar 2005 02:03:52 GMT 8515*↵ *0.evt Tue, 01 Mar 2005 02:03:56 GMT 34413*↵ *99.eml Tue, 01 Mar 2005 02:04:19 GMT 178*↵ *buttons.xml Tue, 01 Mar 2005 02:04:19 GMT 17214*↵ *IPI.cfg Wed, 16 Mar 2005 21:34:45 GMT 7188*↵ *6568448 Bytes Left*↵↵
List files from current directory and subdirectories	Esc LF↵	WLF|	

NOTE: The response is the same as the response to Esc *DF*↵ except that the path/directory preceeds filenames for files within the subdirectories.

Command	ASCII (Telnet) (host to device)	URL encoded (host to intercom)	Response (intercom to host)	Additional description
Event Control				
Start events	Esc 1AE ←	W1AE|	Ego ↵	
Stop events	Esc ØAE ←	WØAE|	Est ↵	
Query number of events running	Esc AE ←	WAE|	##### ↵ or Enm ##### ↵ (verbose mode 2/3)	
NOTE: The response is the quantity of currently running events, and it includes leading zeros. For example, if two events are running, the response is ØØØØ2 ↵.				
Reset (zap) and Erase Commands				
Erase all files from flash memory	Esc ZFFF ←	WZFFF|	Zpf ↵	
Reset all devices settings to factory presets	Esc ZXXX ←	WZXXX|	Zpx ↵	
NOTE: This reset excludes IP settings such as IP address, subnet mask, gateway address and IP Security-level table. User files in flash memory are not deleted.				
Reset all device settings and delete files	Esc ZY ←	WZY|	Zpy ↵	
NOTE: This is an absolute system reset but excludes IP settings such as IP address, subnet mask, gateway IP address, unit name, DHCP setting and port mapping (Telnet/web/direct access) in order to preserve communicaiton with the device. This reset is recommended after a firmware update.				
Absolute system reset	Esc ZQQQ ←	WZQQQ|	Zpq ↵	
NOTE: Mode 5 resets all device settings, including IP settings, to factory default. Also erases flash memory. Firmware version remains the same (see **Mode 5: Reset to Factory Defaults** on page 58).				

Mounting

This section describes:

- **Mounting the IPI 100 Series**
- **Mounting the IPI 200 Series**

Mounting the IPI 100 Series

The IPI intercom and any other adapter plates must be attached to a device faceplate or AAP wall plate and cabled before the device or wall plate is installed in a wall or furniture. The screws needed for installing the IPI are built into its front panel.

1. Before cables are attached, insert the IPI screws through the holes in the device faceplate or AAP mounting frame. Secure the intercom module to the faceplate/wall plate with the provided captive washers and #4-40 nuts, as shown below:

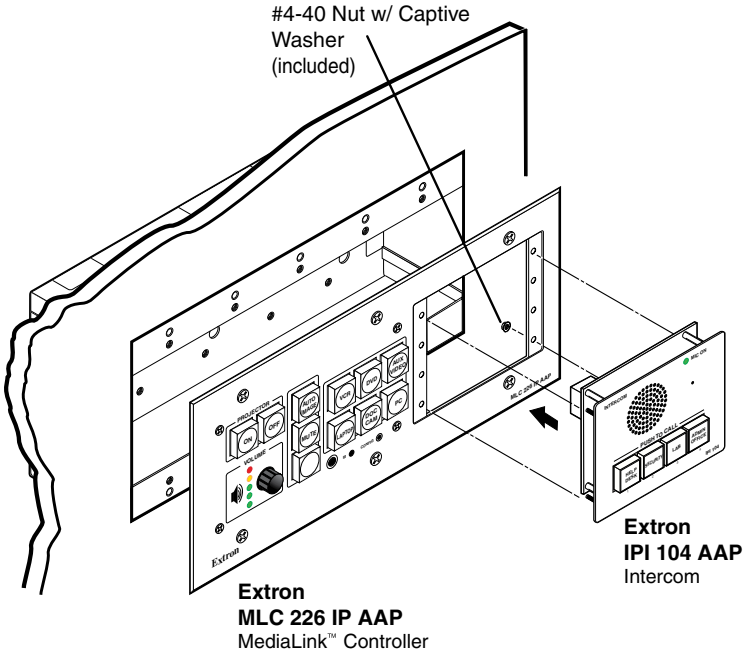


Figure 35. Mounting the IPI 100 Series

2. Connect each IPI to an MLC via the RJ-45 intercom ports on both devices using the included cable. If a longer cable is required, use a standard CAT 5, CAT 5e, or CAT 6 straight through network cable. See **IPI Rear Panel Features and Cabling** on page 6.
3. Mount the AAP mounting frame or other device to the wall, furniture, or rack panel. Follow any special mounting instructions that came with that device.

Mounting the IPI 200 Series

The IPI 201 and IPI 204 intercoms must be attached to a device faceplate or AAP wall plate and cabled before the device or wall plate is installed in a wall or furniture. Unlike the IPI 100 Series intercoms, the IPI 200 AAP Series intercoms are secured by attaching a clamp bracket to the back of the intercom after it has been inserted through the front of the AAP plate.

1. Before cables are attached, insert the IPI through the front of the device faceplate or AAP mounting frame. Secure the IPI to the faceplate/wall plate by attaching the provided clamp bracket.

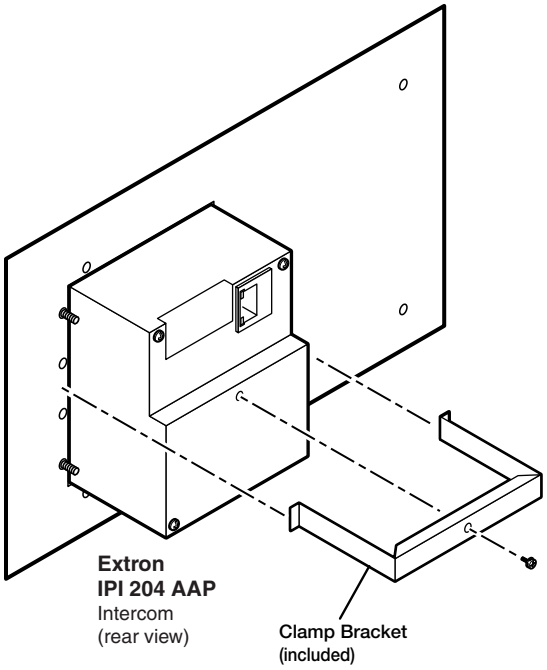


Figure 36. Mounting the IPI 200 Series

2. Connect cables to the IPI. See **IPI Rear Panel Features and Cabling** on page 6.
3. Mount the AAP mounting frame or other device to the wall, furniture, or rack panel. Follow any special mounting instructions that came with that device.

Reference Information

Installing or Replacing Button Labels

Printed labels are included with the IPI 100 Series and IPI 200 Series. In addition, users can write on blank labels, purchase additional sheets of printed button labels from Extron (see **www.extron.com**) or print their own customized button labels with the Button Label Generator program. Replacement button caps are also available for purchase.

Button Label Generator Software

The Button Label Generator software creates labels that you can place in the translucent covers above the buttons. You can create labels with names, alphanumeric characters, or color graphics for easy and intuitive input and output selection.

Downloading and Installing the Button-Label Generator Software

The Extron Button Label Generator software is available at **www.extron.com**.

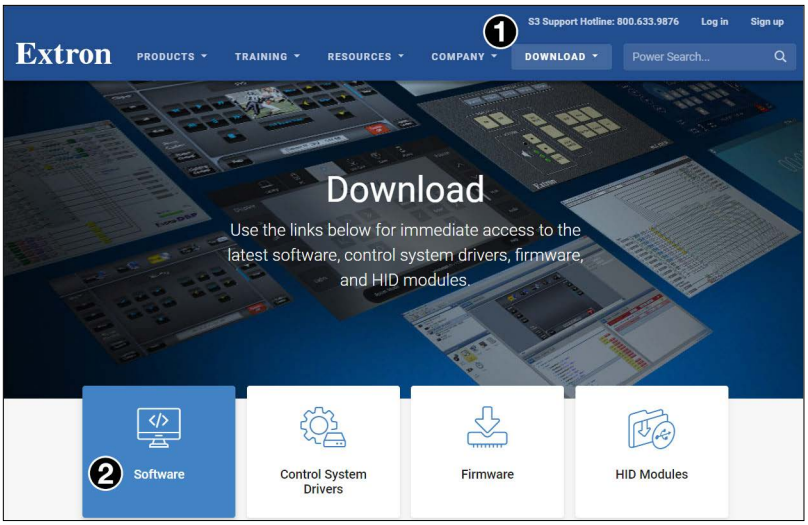


Figure 37. Download Extron Software

1. Select **`Download`** (❶).
2. Click **`Software`** (❷).

The Software page opens:

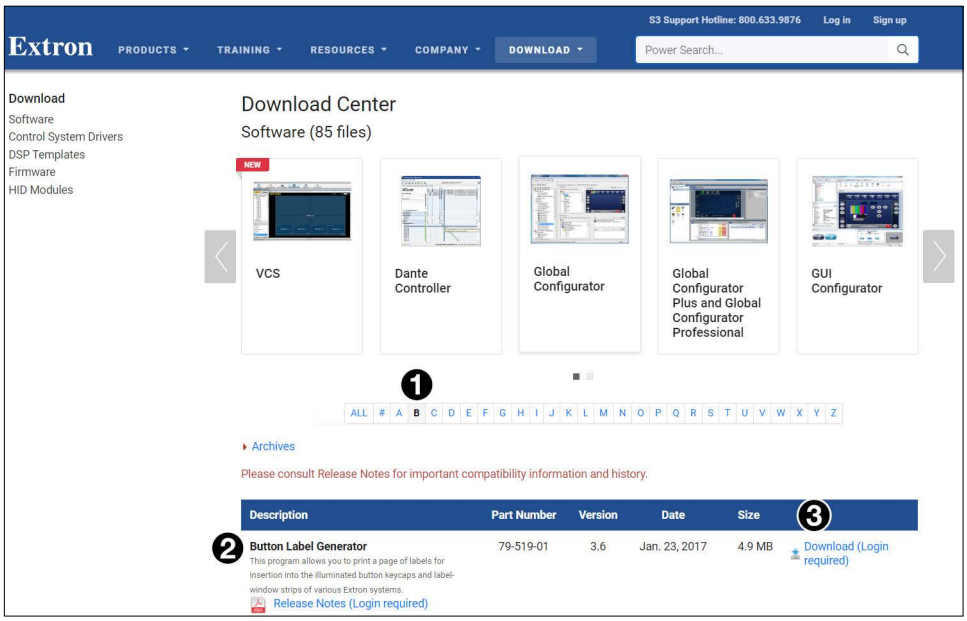


Figure 38. Download Button Label Generator Software

3. Scroll down to the alphabetic menu and click **B** (❶). Extron software products with names beginning with the letter "B" are listed.
4. Scroll down to locate the **Button Label Generator** software (❷).
5. Click **Download** (❸).
6. Provide the requested information and follow the on screen instructions to download and install the program.

   Unless you specify a different directory, the Windows installation creates a `C:\Program Files\Extron\ButtonLabelGenerator` directory and places the Button Label Generator icon into a group or folder named `Extron Electronics`. A shortcut icon can also be placed on the PC desktop.

Using the Button-Label Generator Software

1. To run the Button-Label Generator program, click on the desktop icon or open the program from the start menu. The `Button-Label Generator` window opens.

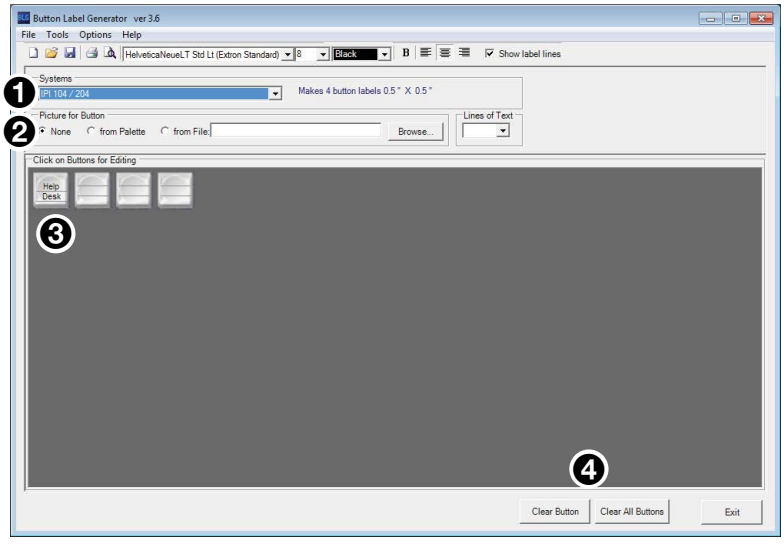


Figure 39. Button-Label Generator Software

2. In the **Systems** menu (see figure 39, ❶, on the previous page), choose **IPI 101/201** or **IPI 104/204** to match the button label size and quantities for your device.

   You can place text or images (❷) on the button. The buttons are shown in the main panel.

3. Using standard Windows controls, you can save the buttons you have created and print labels that can be placed in the clear button caps on the front panel of the switcher.

4. Click **Clear All Buttons** to create new labels as many times as necessary to make all of the button labels that you need.

   For further information, click the **Help** menu to open the *Button Label Generator Help File*.

Installing Button Labels

The button assembly consists of a clear lens cap, the label and a white diffuser. To remove a button assembly and replace a label:

1. Use a small flat-blade screwdriver to gently pry the button assembly away from its base (see figure 40).
2. Locate the small corner notch on the lens cap and slide the screwdriver between the lens cap and the diffuser (see figure 41, Ⓐ).

   Using a rotating motion of the screwdriver, carefully pry the two pieces apart (Ⓑ).
3. Replace the label with the new button label (Ⓒ).
4. Press the lens cap and diffuser together and reinstall the button assembly into its base (Ⓓ).
5. Repeat steps 1 through 4 for each button you plan to re-label.

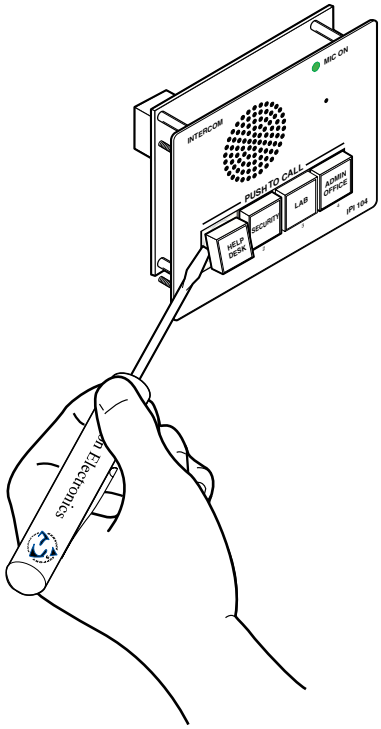


Figure 40. Remove Buttons

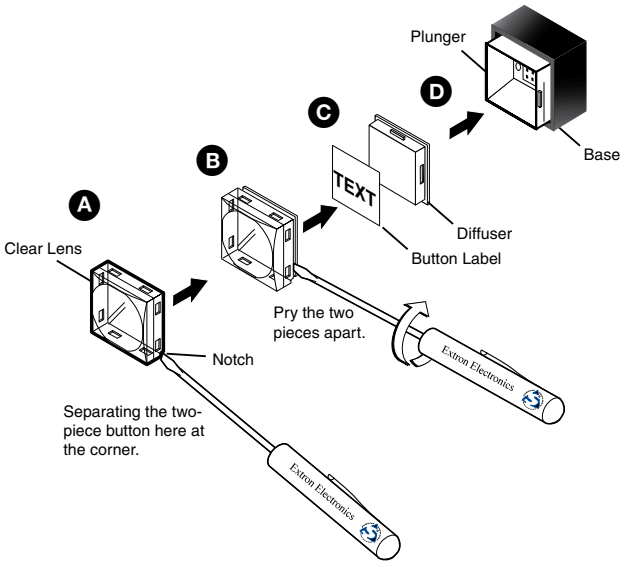


Figure 41. Replace Buttons

Updating Firmware

To upload firmware to the intercom module, you need to install Firmware Loader on your PC. Follow the procedure described in **Downloading and Installing the Button-Label Generator Software** on page 52.

The latest version of the firmware is available at **www.extron.com**.



Figure 42. Download Extron Firmware

1. Select **`Download`** (see figure 42, ❶).
2. Click **`Firmware`** (❷).

   The Firmware Download Center page opens.

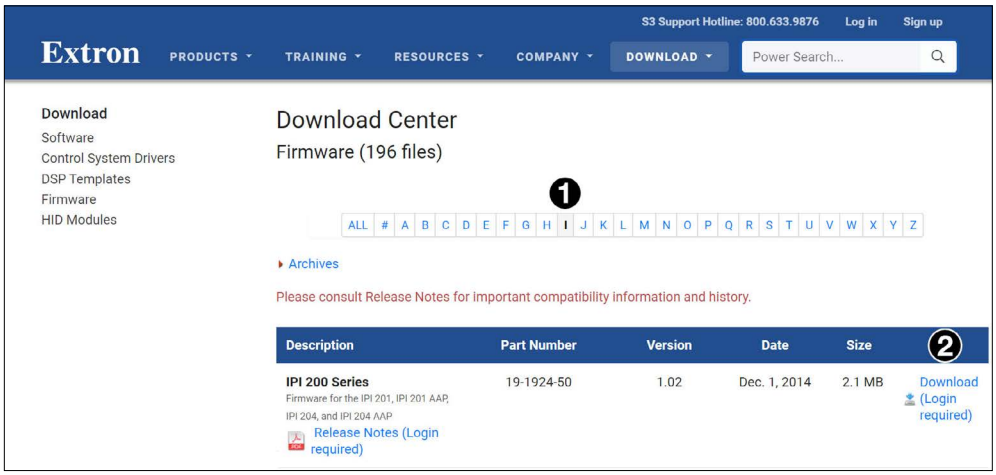


Figure 43. Firmware Download Center Page

3. Navigate to the alphabetic menu and click **`I`** (see figure 43, ❶).
4. Scroll down to the firmware that you need and click **`Download`** (❷).

   Click on **`Release Notes`** to download a PDF that lists the changes in this firmware version.
5. Follow the on-screen instructions to download an executable (.exe) file.
6. Execute that file and save the resulting firmware file on your PC. Make a note of the folder where the firmware is saved.
7. Connect the PC directly to the Config port of the intercom module (see **figure 11**, Ⓓ, on page 14).
8. Open the Extron Firmware Loader software on the PC.
9. Follow the on-screen instructions to upload the firmware to the intercom module.

Reset Modes

The intercom modules described in this guide have four reset modes that are initiated by pressing the **Reset** button:

Mode 1: Use Factory Firmware

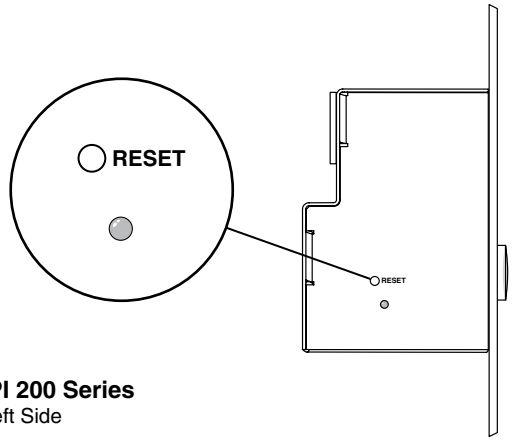
Mode 3: Run or Stop Events

Mode 4: Reset All IP Settings

Mode 5: Reset to Factory Defaults

NOTE: The numbering of the modes is derived from the reset modes for Extron IP Link control processors. Mode 2 for control processors does not apply to the intercom modules.

The **Reset** button is found on the left side of the unit.



IPI 200 Series
Left Side

Figure 44. Reset Button

ATTENTION:

- Review the reset modes carefully. Using the wrong reset mode may result in unintended loss of flash memory programming, port reassignment, or a controller reboot.
- Analysez minutieusement les différents modes de réinitialisation. Appliquer le mauvais mode de réinitialisation peut causer une perte inattendue de la programmation de la mémoire flash, une reconfiguration des ports ou une réinitialisation du processeur.

NOTE: If you hold down the reset button continuously, every 3 seconds the LED blinks, the unit enters a different mode from Modes 3 through 5. For Mode 5, the LED blinks three times, the third blink indicating the last mode. The modes are separate functions, not a continuation from Mode 1 to Mode 5.

Mode 1: Use Factory Firmware

This mode is used to revert to factory-installed firmware for a single power cycle in the event of a firmware update that failed or incompatibility issues arising with user-loaded firmware.

Activation

To start the reset Mode 1 to replace firmware:

1. Remove power from the IPI unit.
2. On the left side of the unit, hold down the recessed **Reset** button (see figure 44) while re-applying power to the unit. When power is restored, the Reset LED lights. Hold the **Reset** button for a further 2 seconds before releasing it. The intercom module enters factory firmware mode.
3. Upload new firmware to the unit as desired (see **Updating Firmware** on page 55).

   If you do not want to update firmware, or you performed a mode 1 reset by mistake, cycle power to the unit to return to the firmware version that was running prior to the mode 1 reset.

   Use the ØQ SIS command to confirm that the factory default firmware is no longer running (look for asterisks following the version number).

   NOTE: Do not operate the firmware version that results from the mode 1 reset. This mode temporarily resets the unit to factory default until power is recycled. If you want to use the factory default firmware, you must upload that version again (see **Updating Firmware**).

Result

The unit reverts to factory-installed firmware. Event scripting does not start if the unit is powered on in this mode. All user files and settings such as drivers, adjustments, and IP settings are maintained.

NOTE: To return the unit to the firmware version that was running prior to the reset, cycle power to the unit.

Mode 3: Run or Stop Events

Mode 3 turns events on and off. It is useful for troubleshooting.

Activation

To start the reset Mode 3:

Hold down the **Reset** button for about 6 seconds until the Reset LED blinks twice (once at 3 seconds, again at 6 seconds).

Release and press **Reset** momentarily (for <1 second) within 1 second. Nothing happens if the momentary press does not occur within 1 second.

Result

- If the events are currently stopped following the momentary press, the Reset LED flashes twice indicating the starting of events.
- If the events are currently running following the momentary press, the Power LED flashes three times indicating the stopping of events.

Mode 4: Reset All IP Settings

This mode resets all IP settings to factory defaults.

Activation

To reset all IP settings:

1. Hold down the **Reset** button for about 6 seconds until the Power LED blinks twice (once at 3 seconds and again at 6 seconds).
2. Release and press **Reset** momentarily (for <1 second) within 1 second. Nothing happens if the momentary press does not occur within 1 second.

Result

During the reset process, the Reset LED flashes four times in quick succession. After activation, mode 4:

- Enables ARP capability
- Sets the IP address back to factory default (192.168.254.254)
- Sets the subnet back to factory default (255.255.0.0)
- Sets the default gateway address to the factory default (0.0.0.0)
- Sets port mapping back to factory default
- Turns DHCP off
- Turns events off

Mode 5: Reset to Factory Defaults

This mode performs a complete reset to factory defaults (except firmware) and removes all configurations. It allows you to start over with configuration and uploading and to replace events.

Activation

To reset the unit to all factory default settings:

1. Hold down the **Reset** button for about 9 seconds until the Power LED blinks three times (once at 3 seconds, again at 6 seconds, and again at 9 seconds).
2. Release and press **Reset** momentarily (for <1 second) within 1 second. Nothing happens if the momentary press does not occur within 1 second.

Result

During the reset process, the Reset LED flashes four times in quick succession. Reset to Factory Defaults mode performs a complete reset to factory defaults (except the firmware):

- Does everything **Mode 4: Reset All IP Settings** does.
- Resets almost all the real-time adjustments: all audio settings and miscellaneous options.
- Resets all IP options
- Removes/clears all files

Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

Japan:
Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe and Africa:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Electronics Asia Pte. Ltd.
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F13, PO Box 293666
Dubai, United Arab Emirates

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA:	714.491.1500 or 800.633.9876	**Europe:**	31.33.453.4040
Asia:	65.6383.4400	**Japan:**	81.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.