

User's Manual



CTL208CM

8-Button Control Panel Module with Serial Control Output

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Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol 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.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conservier les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



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



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaución

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité: n'essayez pas de le contourner ni de la désactiver.

Déconnexion de l'alimentation • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à des opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluss, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

FCC Class A Notice

Note: 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. These limits are designed to 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 harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

Extron's 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, USA

Asia:

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

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Japan:

Extron Electronics, Japan
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Chiyoda-ku, Tokyo 102-0074
Japan

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 non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, and 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.

Quick Start Guide — CTL208CM

CAUTION *Installation and service must be performed by authorized personnel only. These units must be installed in accordance with national and local electrical codes.*

Step 1

Power off all devices and disconnect them from the power source, if necessary.

Step 2

Run the serial cable between the control panel module's installation location and the device to be controlled.

Step 3

As necessary, install a wall box, table connector bay, or other mini-AAP mounting option into which the control panel module will be installed.

Step 4

Configure the control panel module's rear panel DIP switches.

Step 5

Connect a serial cable between the control panel module and a computer.

Step 6

Connect the external power supply to the control panel module.

Step 7

Program the control panel module's buttons as desired, using either the Extron ICS100 control software or the Extron ASCII character command set.

Step 8

If necessary, set the control panel module's serial control settings to match those of the device to be controlled using the Extron ASCII character command set.

Step 9

Disconnect the serial control cable from the computer and install the serial control cable between the control panel module and the device to be controlled.

Quick Start Guide — CTL208CM, cont'd

Step 10

NOTE *If the rear of the control panel module will be inaccessible when the installation is complete, the module should be powered up and its operation should be tested before the final installation.*

Apply or connect power to all devices in the system.

Step 11

Test the system: Ensure that the controlled device responds as desired to the control panel module buttons. Correct the programming or system wiring as necessary. Ensure that you remove electrical power if you need to change the system wiring.

Step 12

Mount the control panel module into any Extron four-space mini-AAP panel.

NOTE *If the rear of the control panel module will be inaccessible when the installation is complete, all cables, including the power connector on the CTL208, must be connected before the permanent installation.*

Step 13

Mount the mini-AAP connector panel as necessary. See chapter 2, *Installation*, for further wall mounting details.

Step 14

Restore power to all devices. The installation is now complete.

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CTL208CM Control Panel Module

Chapter One

Introduction

About the CTL208CM

Features

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All trademarks mentioned in this manual are the properties of their respective owners.

About the CTL208CM

The Extron CTL208CM is a programmable 8-button control panel module that can be connected to any serial-controlled device (figure 1-1). Each button can store one or two command strings that are programmed with either ASCII or hex characters. When you push the button, the control panel module issues the programmed ASCII or hex string to the connected device.

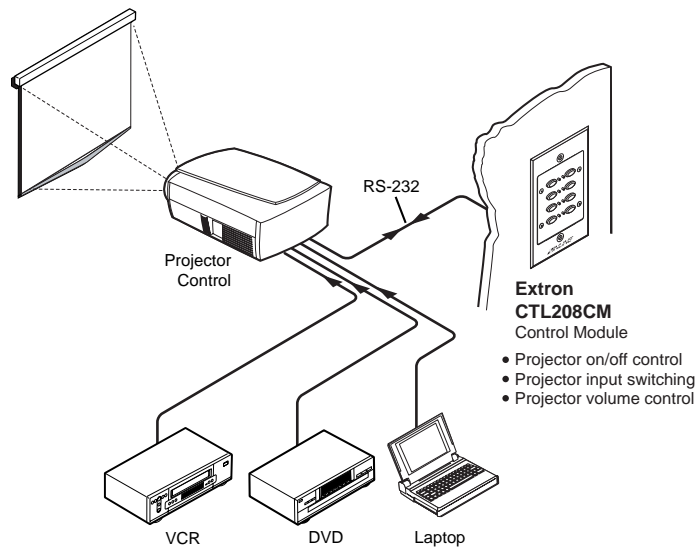


Figure 1-1 — Typical CTL208CM application

The control panel module is incorporated into a four space mini-AAP enclosure that can be mounted into a variety of Extron mini-AAP architectural options, including wall plates (such as the CPM101), table-mounted connector bays (such as the CPM208), or an interface or other device that has its own mini-AAP mounting bays (such as the CIA111).

The control panel module requires 9VDC to 13VDC and ships with an external 12VDC power supply.

Features

Eight buttons with indicator LEDs — Each button can be programmed with one or two (primary and secondary) ASCII or hex strings.

Four operating modes per button — Each button can be set to one of four operating modes: single (default), toggle, press/release, or continuous

- **Single mode** — The control panel module sends the primary ASCII or hex string programmed to a button when you press that button.
- **Toggle mode** — The control panel module sends the primary ASCII or hex string programmed to a button when you press that button. The module sends the secondary string when you press the button a second time.
 - **Button grouping** — Buttons that are in toggle mode can also be assigned to a group. When one button is selected, the control panel module deselects all other buttons in the group.
 - **Button timeout** — Buttons that are in toggle mode can be further set to automatically toggle off after a user-defined period of time, up to 255 minutes.
- **Press/release mode** — The control panel module sends the primary ASCII or hex string programmed to a button when you **press** that button and the secondary string when you **release** the button.
- **Continuous mode** — The control panel module repeatedly sends the primary ASCII or hex string programmed to a button for as long as you press and **hold** that button.

Serial programming — The buttons are programmable, under RS-232, RS-422, and RS-485 serial control, using either the included Extron ICS100 control software or the Extron ASCII character command set.

Serial outputs — The control panel module outputs the ASCII or hexadecimal strings to the connected device using either RS-232, RS-422, or RS-485 serial protocol.

Four space mini-AAP enclosure — The CTL208 can be mounted into a variety of Extron mini-AAP architectural options, such as wall plates, table-mounted connector bays, or interfaces with their own mini-AAP mounting bays.

2 colors — Available in either a black or white finish.

Custom engraved front panels — Extron can create custom front panels, in either the black or the white finish, to neatly and professionally label each button. Contact the Extron S³ Sales & Technical Support Hotline to order the panels.



Chapter Two

Installation

Installation Overview

UL Requirements for Wall Box Installation

Wall Mounting Site Preparation

Device Configuration

Wall Mounting

Rear Panel Setup

Installation Overview

CAUTION *Installation and service must be performed by authorized personnel only. UL Listed electrical boxes are recommended. See UL Requirements for Wall Box Installation in this chapter.*

- 1 If desired, order a custom engraved front panel. Contact the Extron S³ Sales & Technical Support Hotline to order the panel.
 - 2 **Power off all devices and disconnect them from the power source, if necessary.**
 - 3 Run a serial cable between the site where the CTL208CM control panel module will be installed and the site of the serial-controlled device.
 - 4 **For installation in a wall or furniture**, prepare the site: cut a hole in the surface, install the electrical box or mounting bracket, and prepare the cables. See *Wall Mounting Site Preparation* in this chapter. See appendix A, *Reference Information*, for a partial list of devices that can accept four space mini-AAPs.
 - 5 **For other installations**, install a tabletop or in-table connector bay, or other mini-AAP mounting option. Refer to the manual for the device in which the control panel module will be installed. See appendix A, *Reference Information*, for a partial list of devices that can accept four space mini-AAPs.
 - 6 Connect a serial cable between the control panel module and a computer. See *Rear Panel Setup*, in this chapter for details.
- NOTE** *Alternatively, you can connect the control panel module to an RS-485 serial port daisy chain that includes the programming computer and the device to be controlled. In a daisy-chain configuration, you can make changes to the control panel module's button programming as needed, without removing the panel from its installation.*
- 7 If necessary, configure the control panel module's rear panel DIP switches to match the serial protocol (RS-232, RS-422, RS-485) of the computer used to program the control panel module. See *Rear Panel Setup*, in this chapter for details.
 - 8 Connect the power source to the control panel module. See *Rear Panel Setup*, to wire the power connector.

- 9 Program the control panel module's buttons as desired, using either the Extron ICS100 control software or the Extron serial character command set. See *ICS100 Windows Control Program* and/or *Serial Commands* in chapter 4, *Serial Communications*, for details.
- 10 If necessary, configure the control panel module's serial control protocol settings (baud rate, data bits, and stop bits) to match those of the device to be controlled. See *ICS100 Windows Control Program* and/or *Serial Commands* in chapter 4, *Serial Communications*, for details.
- 11 If necessary, reconfigure the control panel module's rear panel DIP switch 1 to match the serial protocol (RS-232, RS-422, RS-485) of the device to be controlled. See *Rear Panel Setup*, in this chapter for details.
- 12 If the computer, control panel module, and the device to be controlled are not part of an RS-485 serial port daisy chain, disconnect the serial control cable from the computer and install the serial control cable between the control panel module and the device to be controlled.

NOTE *If the rear of the control panel module will be inaccessible when the installation is complete, the operation of the module should be tested before the final mounting.*

- 13 Apply or connect power to all devices in the system.
 - 14 **Test the system:** Ensure that the controlled device responds as desired to the control panel module buttons. If necessary, correct the programming and/or the system wiring. Ensure that you remove electrical power if you need to change the system wiring. Test the system again.
 - 15 **Disconnect power** from the control panel module and other devices.
 - 16 Mount the control panel module into any Extron four-space mini-AAP connector panel.
- NOTE** *If the rear of the control panel module will be inaccessible when the installation is complete, all cables, including the power connector on the CTL208, must be connected before the permanent installation.*
- 17 Mount the mini-AAP connector panel to the mini-AAP mounting option as necessary. See *Wall mounting* in this chapter for details about wall mounting the panel.
 - 18 Restore power to all devices.

UL Requirements for Wall Box Installation

The following Underwriters Laboratories (UL) requirements pertain to the installation of the CTL208CM into a wall or furniture (figure 2-1).

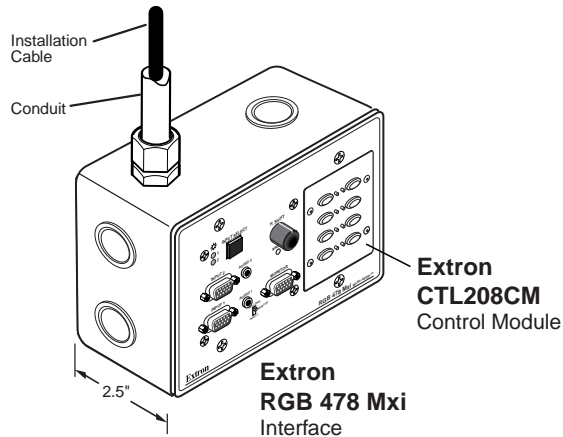


Figure 2-1 — CTL208CM in a four-gang wall box

1. These units are not to be connected to a centralized DC power source or used beyond their rated voltage range.
2. These units must be installed in UL listed junction boxes.
3. These units must be installed with conduit in accordance with the National Electrical Code.

Wall Mounting Site Preparation

The control panel module can be mounted in a wall-mountable four space mini-AAP A/V connector panel (such as a one-gang CPM101) and then set into a wall with either a standard stud-mounted wall box or with a wall mounting bracket (IN9181). The control panel module can also be mounted to any wall-mountable Extron device that incorporates a four space A/V mini-AAP connector panel, such as a three-gang RGB 468 Mxi. See *Mini-AAP mounting options* in Appendix A, *Reference Information*, for a partial list of devices that can accept four space mini-AAPs.

Choose a location that allows power cable and serial control cable runs without interference. Allow enough depth for the wall box and the cables. You should install the cables in the wall or furniture, with or without conduits, before installing the mounting bracket or wall box.

The installation must conform to national and local electrical codes and to the equipment's size requirements.

Installation using a UL listed wall box (available from Extron) is recommended for most mounting options, but the optional wall mounting bracket can be used instead. All wall boxes must be at least 2.5" (6.4 cm) deep.

NOTE Before using the wall mounting bracket, verify that the installation conforms to national and local electrical codes.

Prepare the site as follows:

1. If your wall box or mounting bracket includes a paper template, cut out the indicated portions of the template. If the wall box or mounting bracket does not include a template, use the wall box or bracket itself to size the hole.
2. Place the template, wall box, or mounting bracket against the installation surface, and mark the guidelines for the opening on the wall or furniture.
3. Cut out the wall/furniture material from the marked area.
4. Check the opening size by inserting the wall box or mounting bracket into the opening. The box or bracket should fit easily into the opening. Enlarge or smooth the edges of the opening if needed.
- 5a. If you are using a wall box, feed cables through the wall box punch-out holes, and secure them with cable clamps to provide strain relief.

Exposed cable shields (braids or foil) are potential sources of short circuits. Trim back and/or insulate shields with heat shrink (figure 2-2).

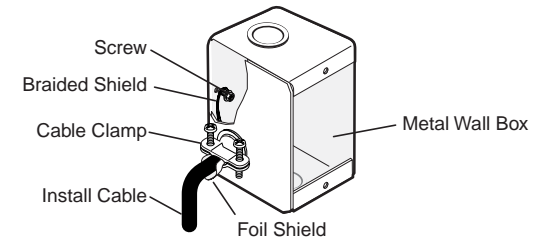


Figure 2-2 — Grounding outer braided and foil shields

WARNING To prevent short circuits, the outer foil shield can be cut back to the point where the cable exits the cable clamp. Both braided and foil shields should be connected to an equipment ground at the other end of the cable.

- 5b. If you are using a wall box, insert the wall box into the opening, and attach it to the wall stud or furniture with nails or screws, leaving the front edge flush with the outer wall or furniture surface (figure 2-3). The illustration applies to both two-gang and four-gang wall boxes.

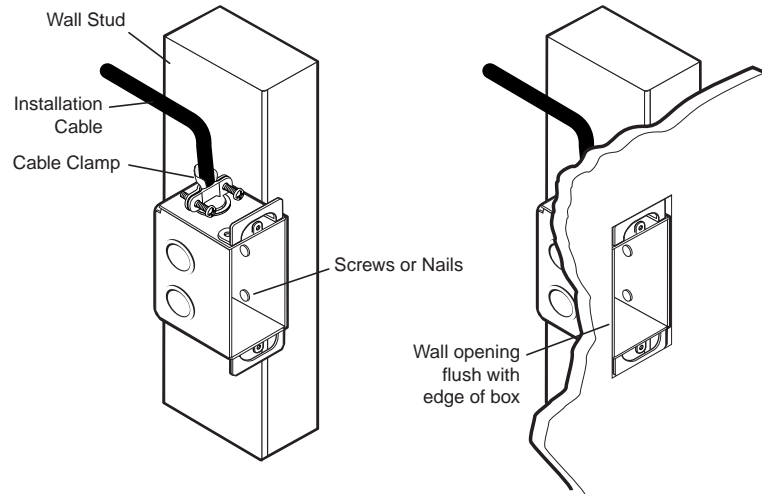


Figure 2-3 — Attaching a wall box to a stud

If attaching the wall box to wood, use four #8 or #10 screws or 10-penny nails. A minimum of 1/2 inch (1.3 cm) of screw threads must penetrate the wood.

If attaching the wall box to metal studs or furniture, use four #8 or #10 self-tapping sheet metal screws or machine bolts with matching nuts.

6. If you are using a mounting bracket, follow the directions, if any, that came with the mounting bracket to attach the

clips that fasten the ring to the wall or furniture (figure 2-4).

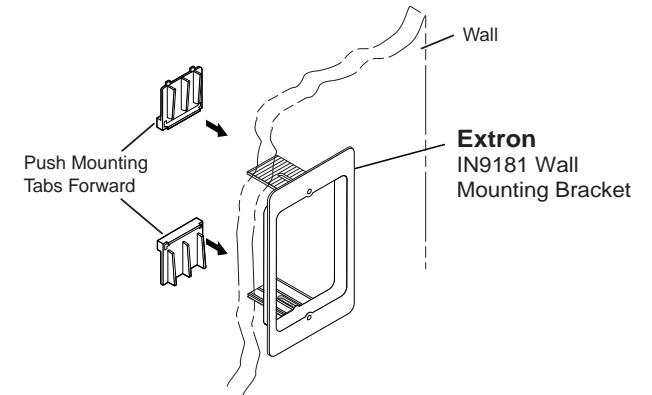


Figure 2-4 — Attaching a mounting bracket to a wall

Device Configuration

NOTE The rear of the control panel module will be inaccessible after installation.

1. Cable the control panel module and set the DIP switches. See *Rear Panel Setup* in this chapter.
2. Program the buttons. See chapter 4, *Serial Communications*, to program the control panel module.
3. Test the control panel module before installing it into the wall box.

Wall Mounting

NOTE The physical orientation of the control panel module is important when you are programming and operating the buttons. Buttons 1 and 5 (figure 2-5) are on top when the CTL208 is right-side up. Orient the CTL208 so that the text on the rear of the unit is right-side up to determine the top of the module.

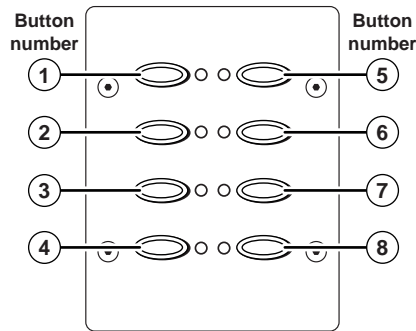


Figure 2-5 — Button locations

1. Sandwich the mini-AAP panel (such as a CPM101) between the control panel module (without its front panel) and the module's front panel. Secure the front panel to the control panel module with the included #4-40 screws (figure 2-6).

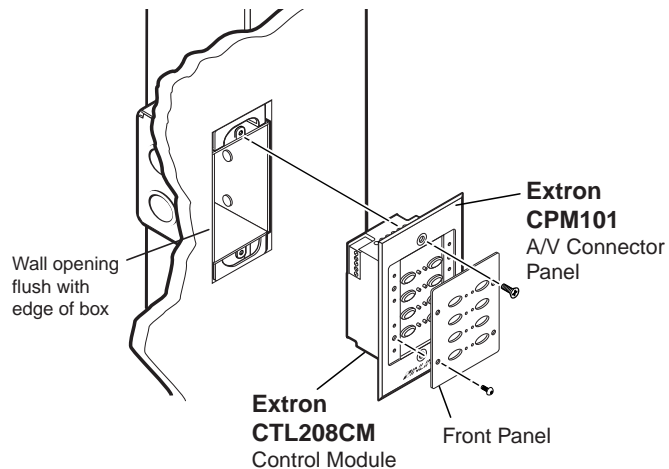


Figure 2-6 — Attaching the mini-AAP panel to a wall box

2. If not already accomplished, attach the power and serial cables to the rear of the control panel module. Power on the control panel module now if the external power supply cannot be accessed once the module is mounted.
3. Mount the CPM101 or other mini-AAP panel (with the attached control panel module) to the wall box or mounting bracket using the two included mounting screws (figure 2-6).

NOTE Figure 2-6 shows a wall box installation. Mounting the mini-AAP panel to a mounting bracket is identical.

4. Power on all devices.

Rear Panel Setup

All of the connectors and DIP switches necessary for connecting and configuring the CTL208CM are on the rear panel (figure 2-7).

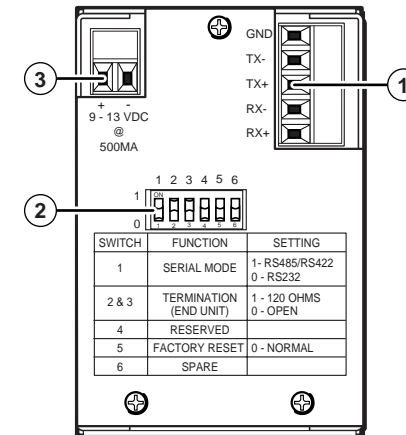


Figure 2-7 — Rear panel view

Installation, cont'd

- 1 **Serial port connector** — This port is a 3.5 mm, 5-pole captive screw connector for serial RS-232, RS-422, or RS-485 communications. Connect to the port as shown in figure 2-7.

The port serves two functions:

- Connects the control panel module to a computer to program the module's buttons.
- Connects the control panel module to the device to be controlled, such as a projector or switcher.

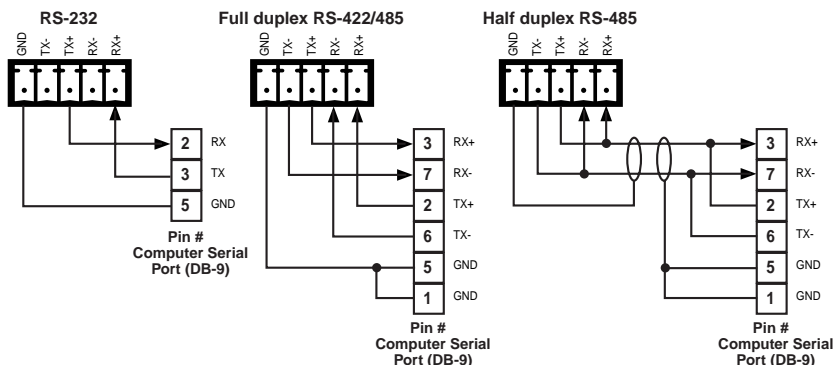


Figure 2-7 — Serial port pin assignments

NOTE RS-485 implementation may vary between computers or control systems. Connect the control cable as shown in figure 2-7. If the serial communications link with the control panel module switcher does not work, try reversing the polarity of the TX and RX signal lines.

- 2 **Serial port configuration DIP switches** —

DIP switch 1 configures the control panel module's serial port to operate as RS-232, RS-422, or RS-485. DIP switches 2 and 3 are used to terminate the RX and TX lines when the control panel module is at the end of a line of serial devices. The table below defines the switch positions.

Switch	Function	RS-485 position	RS-422 position	RS-232 position
1	Serial mode	On (1)	On (1)	Off (0)
2	Rx termination	On (1)* or Off (0).	On (1)* or Off (0).	Off (0)
3	Tx termination	On (1) if full duplex* or Off (0) if half duplex.	Off (0)	Off (0)

* If the CTL is the last unit in a daisy chain.

NOTE The default settings for all switches for an RS-232 connection is off (0).
DIP switch 3 should be turned on for an RS-485 full duplex connection only, and only if the CTL is the first or last unit in a daisy chain.

DIP switch 5 is a factory reset control. See *Factory Reset* in chapter 3, *Operation*.

- 3 **Captive screw power connector** — Power the control panel module one of two ways:

- Connect the control panel module to a device with auxiliary 12VDC outputs, such as an Extron MSV0502-3 or MSV0804-3 matrix switcher. Figure 2-8 shows how to wire the power connector.
- Connect the included 12VDC external power supply to the 2-pole female direct insertion captive screw connector. Figure 2-8 shows how to wire the power connector.

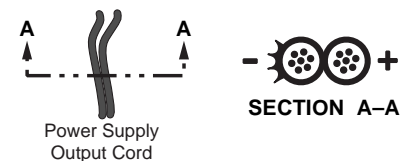


Figure 2-8 — Power connector wiring

NOTE Do not tin the stripped power supply leads before inserting them into the captive screw connector. Tinned leads are not as securely attached as untinned leads and could slip out.

WARNING The two power supply leads must be kept separated while the power supply is plugged into an electrical outlet. Remove power before wiring.

To verify correct polarity before connection, check the power supply's no load output with a voltmeter.



3

Chapter Three

Operation

Button Modes

Send Programmed Commands

Factory Reset

Button Modes

Before a control panel module button is programmed, it has **no** function. See chapter 4, *Serial Communications*, to program the buttons. Programming includes:

- Assigning the **program string(s)** to the button. One or two strings (primary and secondary) can be assigned to each button.
- Setting each program string to be either ASCII or hexadecimal.
- Setting the **mode** for each button. The **mode** for each button can be any one of the following:
 - **Single** — Sends the primary program string when pushed.
 - **Toggle** — Sends the primary program string when pushed once. Sends the secondary program string when pushed a second time.
 - **Press/release**— Sends the primary program string when pushed. Sends the secondary program string when released.
 - **Continuous** — Sends the primary program string when **pressed** and continues to repeat sending the primary command string for as long as the button is **held**.
- For **toggle mode**, if desired, setting a group or timeout:
 - **Group** — Buttons that are in toggle mode can also be assigned to a group. When one button is selected, the control panel module deselects all other buttons in the group.

NOTE *Groups cannot be assigned to buttons that are set to operate with a timeout.*

- **Timeout** — Buttons that are in toggle mode can be further set to automatically toggle off after a user-defined period of time, up to 255 minutes.

NOTE *Timeouts cannot be assigned to buttons that are set to operate in groups.*

Send Programmed Commands

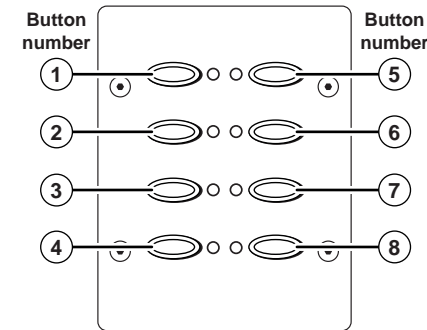


Figure 3-1 — Power connector wiring

The actions that occur when you push a programmed button vary, depending on how the button is programmed.

- **Single mode** — Push the button to send the primary program string. The button's LED flashes once.
- **Toggle mode** — Push the button to send the primary program string. The button's LED lights. Push the button a second time to send the secondary string. The button's LED goes out.
- **Press/release mode** — **Press and hold** the button to send the primary program string. The button's LED lights. **Release** the button to send the secondary string. The button's LED goes out.
- **Continuous mode** — **Press and hold** the button to repeatedly send the primary program string. The button's LED lights. **Release** the button to stop sending the string. The button's LED goes out.
- Two or more buttons set to **toggle mode** and **grouped** — Push a button in the group to send that button's primary program string. That button's LED lights. If another button in the group was selected, that button is deselected (its LED goes out).

NOTE *When buttons are grouped, the CTL208 does **not** send the secondary command string for the button it deselects when you select a new button in the group.*

Operation, cont'd

- **Toggle mode** and a **timeout** set — Push a button to send the primary program string. The button's LED lights. When you **push the button** a second time **or** when the **timeout expires**, the control panel module sends the secondary program string. The button's LED goes out

NOTE *If you push the button a third time, the timeout interval starts over; that is, if the timeout is set to 30 minutes, the control panel module will send the secondary string 30 minutes later.*

NOTE *The CTL208's clock is always running and the programmed timeout occurs on the full minute. Thus, the timeout can occur up to 59 seconds earlier than the number of minutes programmed. Over the length of the average timeout setting, this "early" timeout is considered of no consequence.*

Factory Reset

With power removed, set rear panel DIP switch 5 to on (up). Reapply power. Set switch 5 back to off (down). The DIP switch factory reset performs the following functions:

- Resets the control panel module's serial port to 9600 baud, no parity, Xoff, and half duplex mode
- Resets the module's address to 97;
- Enables the front panel
- Erases all button codes
- Resets all buttons to single mode
- Resets all button groups and timeouts to 0.

NOTE *Ensure that you reset switch 5 to off (down). If you leave the switch on (up), the control panel module will reset every time you power it on.*



CTL208CM Control Panel Module

4 Chapter Four

Serial Communications

ICS100 Windows Control Program

Serial Commands

Serial Communications

The control panel module must be programmed before it can be operated. Programming can include setting several serial port variables to match the device to be controlled and includes entering the primary and secondary (if applicable) code for each button.

You can program the control panel module either by using the ICS100 windows control program or by sending individual ASCII commands. Both programming methods require that a serial port cable be connected between a computer and the control panel module's serial port.

ICS100 Windows Control Program

The ICS100 Control Program, a graphical control software for Windows, provides a way to program the control panel module.

System requirements

- **Operating system** — Windows 95 / 98 / ME / NT / 2000 / XP / XP Pro

NOTE *If using Windows NT, Service Pack 6 must be installed.*

- **Hardware** — Pentium 150 or faster CPU
- **Memory** — Minimum: 128 MB
Recommended: 256 MB
- **Screen resolution** — Minimum: 800 x 600
Recommended: 1024 x 768
- **Disk space** — 5 MB

Installing the software

The control program is contained on a CD-ROM, and must be installed on the hard drive.

1. Click *Start > Run*.
2. Click the *Browse* button. An open file window appears.
3. Navigate to the drive or folder that contains the software.
4. Double click the setup icon.
5. Click *Ok* in the Run window.
6. Click *Ok* in the InlineControl Setup window.
7. Click the icon button in the next InlineControl Setup to install the software in the default (Extron) directory in the Program group.

If you want to specify a different directory, click on the *Change Directory* button.

8. The next InlineControl Setup window that appears indicates when setup is complete. Click *Ok*.

Starting the program

Start the control program and establish communications with the CTL208 as follows:

1. Click *Start > Programs > Extron > ICS100*. The control program window (figure 4-1) appears.

The CTL208 will **not** respond until it has been contacted with the valid address; after a moment, the program reports a failure to connect (figure 4-1).

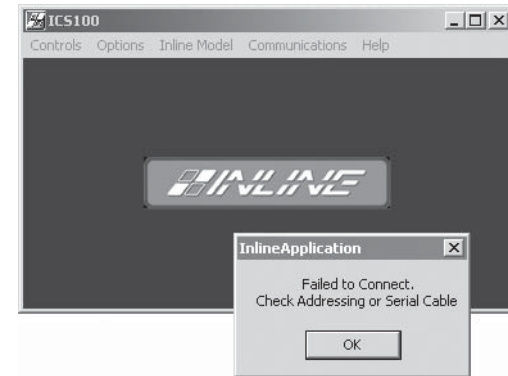


Figure 4-1 — ICS100 program window and warning

2. Click *OK*.

NOTE *The control panel module's serial port is factory-configured to 9600 baud, no parity, no flow control, half-duplex mode. If desired, serial port settings can be changed from within the ICS100 program.*

3. If you need to change serial port settings, click *Communications > Comm Port > Comm 1* (or the correct *Comm* port). The Serial Port Setup window appears (figure 4-2).

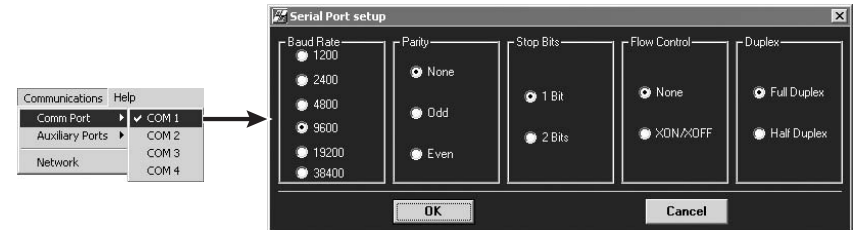


Figure 4-2 — Serial Port Setup window

- a. Click in the appropriate radio buttons to select the desired settings.
- b. Click *Ok*.

NOTE *If you change the serial protocols, communications between the computer and the control panel module are lost until the computer is updated to match the new control panel module settings).*

4. Click *Inline Model > Select Address*. The *Addresses* window (figure 4-3) appears.

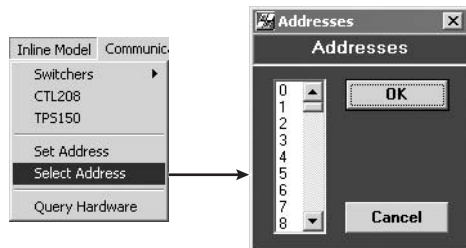


Figure 4-3 — Addresses window

NOTE *The control panel module must be addressed before it will accept and respond to commands. The addressing operation routes setup information to a particular unit on a network and enables command responses. Once the control panel module is addressed, it can accept an unlimited number of commands. If a different unit is addressed, the CTL208 ignores subsequent commands until it is addressed again.*

The factory-installed default address is 97, but this number can be changed. The control panel module can also take commands after receiving a broadcast address of 00, but it will not send responses. Broadcast addressing is for multiple units on an RS-485 serial line in half duplex mode.

After you are finished sending commands to the control panel module, always end the session by selecting a different address than the one assigned to the CTL208. This prevents the module from responding to commands meant for another unit.

5. Click and drag on the slider or click the scroll up (▲) or down (▼) button until the desired address is visible.
6. Click on the desired address. The default address is 97.
7. Click *Ok*.

Using the software to program the CTL208CM

Use the control program to program the CTL208 buttons as follows:

1. Click *Inline Model > Query Hardware* to configure the ICS100 program to communicate with the CTL208 and to confirm that communications have been established with the control panel module. The *Connected* window appears (figure 4-4).

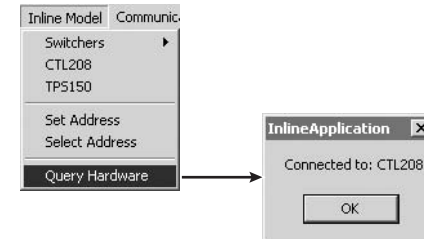


Figure 4-4 — Connected window

Click *Ok*.

2. Click *Controls > Control Panel*. The CTL208 control panel (figure 4-5) appears.

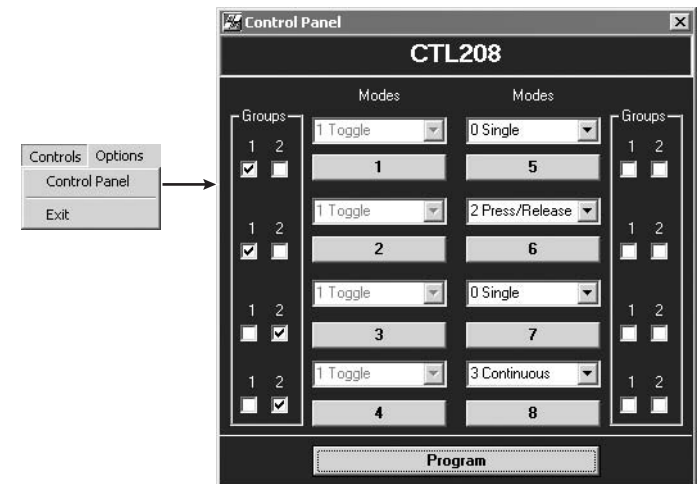


Figure 4-5 — CTL208 control panel window

3. For each button to be programmed, click the pull down menu above the numbered panel button and select a mode: 0 Single, 1 Toggle, 2 Press/Release, or 3 Continuous. See *Button Modes* in chapter 3, *Operation*, for definitions of the various button modes.
4. For each button to be programmed, click the numbered panel button.
 - a. If you selected toggle mode in step 3, the Toggle Mode Timeout window appears (figure 4-6).



Figure 4-6 — Toggle Mode Timeout window

Click and drag the slider to select the number of minutes (1 to 255) interval you want to pass before the button times out. Select 0 for no button timeout.

NOTE Timeouts cannot be assigned to buttons that are set to operate in groups.

Click the in the upper right corner of the window to save the timeout value and close the window. The Button Codes window appears (figure 4-7).

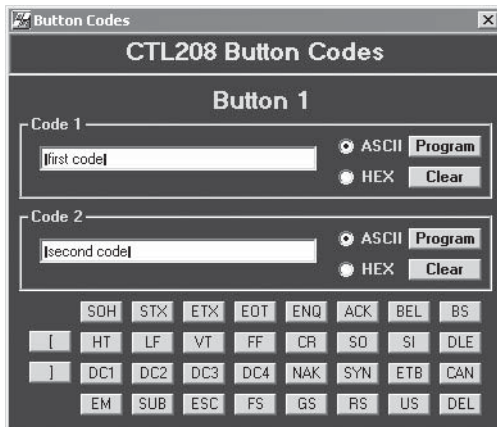


Figure 4-7 — Button Codes window

- b. If you selected single, press/release, or continuous mode in step 3, the Button Codes window appears (figure 4-7).

5. In the Button Codes window, click in the ASCII or Hex radio button to select the appropriate format.

NOTE Selecting the Hex radio button causes the CTL to convert the primary code that you will enter in step 6 to a hex value before saving it. Then, when you press the button, the CTL sends the hex value.

6. In the Button Codes window (figure 4-7), enter the desired primary code in the Code 1 window.

NOTE Codes that are intended to be hex codes must be in pairs. Use a leading 0 if necessary. Letters must be upper case.

NOTE Many common keyboard key codes, which are often required for ASCII or hex control of another device, are available in the selection buttons on the bottom of the window. Selections made in these buttons are displayed in the Code window as 1.

Click *Program* to save the command.

7. In the Button Codes window, click in the ASCII or Hex radio button to select the appropriate format.

NOTE Selecting the Hex radio button causes the CTL to convert the secondary code that you will enter in step 8 to a hex value before saving it. Then, when you press the button, the CTL sends the hex value.

8. In the Button Codes window, if applicable, enter the desired secondary code in the Code 2 window.

NOTE Codes that are intended to be hex codes must be in pairs. Use a leading 0 if necessary. Letters must be upper case.

NOTE The control panel module will only send the secondary code for a button if that button is in toggle or press/release mode.

Click *Program* to save the command.

9. Click the in the upper right corner of the window to close the window.

10. For each button set to toggle mode, if desired, click in the Group 1 or 2 checkbox to assign the button to a group. See *Button Modes* in chapter 3, *Operation*, for a definition of a group.

NOTE Buttons *must* be set to operate in toggle mode to assign groups.

Groups *cannot* be assigned to buttons that are set to operate in toggle mode and are assigned a timeout value.

- When all of the desired programming changes are made, click the Program button at the bottom of the window to send all of the programming entries to the control panel module.

NOTE End the session by selecting a different address than the one assigned to the CTL208. This prevents the module from responding to commands meant for another unit.

- Click Inline Model > Select Address. The Addresses window (figure 4-2) appears.
- Click and drag on the slider or click the scroll up (▲) or down (▼) button until an address other than the CTL208's address is visible.
- Click on the desired address.
- Click *Ok*.
- If necessary, reconfigure the comm port.

NOTE The communications protocols of the control panel module should match the optimum protocols of the device to be controlled.

- If you need to change serial port settings to match the serial communication protocol of the device to be controlled, click *Communications > Comm Port > Comm 1* (or the correct *Comm port*). The Serial Port Setup window appears (figure 4-3).
 - Select the desired settings by clicking in the appropriate radio buttons.
 - Click *Ok*.
- Click the in the upper right corner of the startup window to exit the program.

Using the help system

For information about program features, you can access the help program in the following ways:

- From within the ICS100 startup window, click on the Help entry on the task bar.
- From within the Button Codes window, press the F1 key.

Serial Commands

Communication protocols

The control panel module's serial port is factory-configured to 9600 baud, no parity, no flow control, half-duplex mode.

If you change the serial protocols, communications between the computer and the control panel module are lost until the computer is updated to match the new control panel module settings.

NOTE The communications protocols of the control panel module should match the protocols of the device to be controlled.

Command and response structure

Valid commands consist of a leading delimiter, one or more characters in a command code, and an ending delimiter. The control panel module's response to an RS-232 command also consists of a leading delimiter, a command code, and an ending delimiter.

The control panel module's leading delimiter code is always a left bracket ([). The ending delimiter code is always a right bracket (]).

Example: [CPp@] — where “[” is the leading code, “CPp@” is the command (reset the serial port to default values), and “]” is the ending code.

Addressing the unit

The control panel module must be addressed **before** it will accept and respond to commands. The address packet ([CC##], where ## is the 2-digit address) routes setup information to a particular unit on a network and enables command responses. Once the control panel module is addressed, it can accept an unlimited number of commands. If a different unit is addressed, the CTL208 ignores subsequent commands until addressed again.

The factory-installed default address is 97, but this number can be changed. The control panel module can also take commands after receiving a broadcast address of 00, but it will not send responses. Broadcast is for multiple units on an RS-485 serial line in half duplex mode.

After you are finished programming the control panel module, always terminate the session by sending an address packet to another unit with a different address. This prevents the module from responding to commands meant for another unit.

Control panel module responses

When a command is valid, the module performs the command and sends the following response:

[R0 {address} {echo of the command sent}]

When a command is invalid, either because the command is not recognized or contains invalid parameters, the module sends the following response:

[R1 {address} {echo of the command sent}]

Using the command/response table

The command/response table begins on page 4-13. Upper or lower case letters are acceptable in the command field. The table below shows the hexadecimal equivalent of each ASCII command.

ASCII to HEX		Conversion Table		Esc 1B	CR 0D	LF 0A								
Space 20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27
(28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
0 30	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8 38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@ 40	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 50	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
h 60	a	61	b	62	c	63	d	64	e	65	f	66	g	67
68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p 70	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

Symbols, defined starting on page 4-11, are used throughout the table to represent variables in the command/response fields. Command and response examples are shown throughout the table.

Symbols

↵ = Line feed

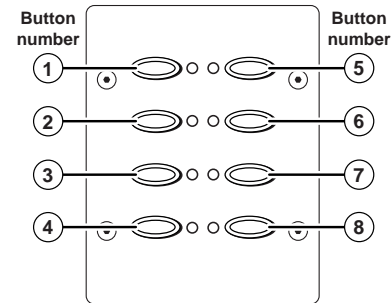
[x1] = Address number 00 - 98 (00 addresses all units but individual units do not respond, 97 is the factory-installed default).

NOTE The very first command that you send to the control panel module must be the connect, [CC[x1]], command, where [x1] is the module's address. The control panel module **will not accept** other commands or respond until it has been addressed.

The very last command that you send to the control panel module should be the connect, [CC[x1]], command, where [x1] is a different address. This prevents the control panel module from accepting and responding to commands for other devices.

[x2] = Button number and string (primary or secondary) (figure 4-8)

NOTE Buttons 1 and 5 are closest to the top of the CTL208. Orient the CTL208 so that the text on the rear of the unit is right-side up to determine the top of the module.



NOTE [x2]s must be 2-digit numbers.

[x2]#	Button/string	[x2]#	Button/string
01	1/primary	11	1/secondary
02	2/primary	12	2/secondary
03	3/primary	13	3/secondary
04	4/primary	14	4/secondary
05	5/primary	15	5/secondary
06	6/primary	16	6/secondary
07	7/primary	17	7/secondary
08	8/primary	18	8/secondary

Figure 4-8 — Button numbers

[x3] = ASCII button code Up to 128 alphanumeric characters.

If you need to use the bracket delimiters in a stored ASCII command, you need to use the insert brackets feature. Under this feature, one character replaces the left bracket ([) and another character replaces the right bracket (]). The default values are a single quote mark (') in place of the left bracket and a double quote (") in place of the right bracket. The CTL208 replaces the characters with the bracket delimiters in the stored ASCII or hex command string.

[x4] = Bracket position 1 = left bracket, 2 = right bracket.

Serial Communications, cont'd

X5 = Bracket character 0 = turn off insert bracket feature. Any character other than 0 is the character that will be replaced by a bracket ([or]) when the **X3** code is saved to a CTL208 button.

X6 = Hex button code Similar to the ASCII button code, **X3**, with the addition of an ASCII-to-hex conversion before the value is stored. For example, if you send the ASCII value 0F, the CTL converts it to the hex value 0F. When you press the button, the CTL sends 0F hex. Entries must be in pairs, use a leading 0 if necessary. Letters must be upper case.

NOTE The insert brackets feature does not work for hex codes.

X7 = Button mode
 0 = Single mode 1 = Toggle mode
 2 = Press/release 3 = Continuous

X8 = Button group number 1 or 2

X9 = Button group assignment 0 = Not assigned, 1 = Assigned

NOTE Groups cannot be assigned to buttons that are set to operate in timeout mode.

X10 = Button timeout interval 0 or 1 - 255 (minutes). 0 = no timeout.

NOTE Timeouts cannot be assigned to buttons that are set to operate in groups.

X11 = Baud rate
 0 = 1200 1 = 2400 2 = 4800
 3 = 9600 (default) 4 = 19,200 5 = 38,400

X12 = Parity mode: 0 = no parity (default), 1 = odd parity, 2 = even parity

X13 = Flow control mode: 0 = Xoff (default), 1 = Xon

X14 = Duplex mode: 0 = full duplex, 1 = half duplex (default)

X15 = Front panel and responses: 0 = disable, 1 = enable (default)

X16 = Reset level: 0 = reset the serial port to 9600 baud, no parity, Xoff, and half duplex mode; reset the address to 97; and enable the front panel.
 1 = perform all of the same resets AND erase all button codes, reset all buttons to single mode, and reset all button groups and timeouts to 0. This reset is identical to the DIP switch reset, see *Factory Reset* in chapter 3, *Operation*.

X17 = Architectural information:
 C208•{serial #}•{Rev level}•{firmware #}•{firmware Rev level}•{available baud rates}1200,2400,4800,9600,19200,38400•{2 bytes for future use}

Command/response table for programming the CTL208

Command	ASCII Command Response (host to CTL208)	Additional description
Addressing		
Connect	[CC X1]	Connect the host computer to the addressed unit. This command is case sensitive.
Specify address number	[ADDR X1]	Change the CTL208's address to X1 .
Example:	[ADDR95]	Change the address number to 95.
Reset address to factory default	[ADDR@]	Reset the CTL208's address to the factory default (97).
Button code programming		
Store ASCII code to a button	[PCLp X2 X3]	Program button X2 to X3 .
Example:	[PCLp02'CH3"]	Programs button 2's primary code to send the command string [CH3]. The ' and " characters insert the delimiter brackets.
View a button's ASCII code	[PCLp X2 ?]	
NOTE Brackets inserted using the insert brackets feature appear as brackets when you use view command.		
Set an insert brackets character	[BKT X4 X5]	Set the X5 character as the insert brackets character for the left or right bracket (X4).
Example:	[BKT1']	Set the single quote (') character as the insert brackets character for the left bracket.
View insert brackets characters	[BKT?]	The replacement characters are listed in the order {left|right}.
Store hex code to a button	[PCHp X2 X6]	Program button X2 to X6 .
Example:	[PCHp030F]	Programs button 3's primary code to send the hex command string 0F.

Command/response table for programming the CTL208 (continued)

Command	ASCII Command Response (host to CTL208)	Additional description
Button code programming (continued)		
View a button's hex code	[PCHp[X2]?]	
Reset button code (ASCII or hex)	[PCLp[X2]@]	Clear any codes assigned to a button. The CTL will not send any code when the button is pressed.
Button mode programming		
Set a button's operating mode	[SWM[X2][X7]	Sets the button's operating mode. See <i>Button Modes</i> in chapter 3, <i>Operation</i> for definitions of the button modes. [X2] is valid between 01 through 08 and 11 through 18. Set button 1 to toggle mode.
<i>Example:</i>	[R0•[X1]•SWM011•]	
View all buttons' operating modes	[R0•[X1]•SWM?•[X7][X7] ² [X7] ³ [X7] ⁴ [X7] ⁵ [X7] ⁶ [X7] ⁷ [X7] ⁸]	[X7] ¹ indicates button 1's mode, [X7] ⁸ indicates button 8's mode. Buttons 1, 5, and 6 are set to single mode. Buttons 2, 7 and 8 are set to toggle mode. Button 3 is set to press/release mode. Button 4 is set to continuous mode.
<i>Example:</i>	[R0•97•SWM?•01230011]	
Button group programming		
NOTE Groups cannot be assigned to buttons that are not set to operate in toggle mode or are set to operate in timeout mode.		
Assign button groups	[SWG[X8][X9][X9] ² [X9] ³ [X9] ⁴ [X9] ⁵ [X9] ⁶ [X9] ⁷ [X9] ⁸]	[X9] ¹ indicates button 1's group, [X9] ⁸ indicates button 8's group.
<i>Example:</i>	[R0•[X1]•SWG[X8][X9][X9] ² [X9] ³ [X9] ⁴ [X9] ⁵ [X9] ⁶ [X9] ⁷ [X9] ⁸ •]	Assign buttons 1, 2, 3, and 5 to group 1.
<i>Example:</i>	[SWG11101000]	

Command/response table for programming the CTL208 (continued)

Command	ASCII Command Response (host to CTL208)	Additional description
Button group programming (continued)		
View all buttons' grouping	[SWG[X8]?]	[R0•[X1]•SWG[X8]?•[X9] ¹ [X9] ² [X9] ³ [X9] ⁴ [X9] ⁵ [X9] ⁶ [X9] ⁷ [X9] ⁸] [X9] ¹ indicates button 1's group, [X9] ⁸ indicates button 8's group.
Button timeout programming		
NOTE Timeouts cannot be assigned to buttons that are not set to operate in toggle mode or are set to operate in groups.		
Assign a timeout to a button	[TOUT[X2][X10]	Set button [X2] to timeout in [X10] minutes.
<i>Example:</i>	[R0•[X1]•TOUT[X2][X10]•]	Button 1 will timeout after 60 minutes.
View a button's timeout	[TOUT0160]	Button [X2] is set to timeout in [X10] minutes.
<i>Example:</i>	[R0•[X1]•TOUT[X2]?•[X10]	
Serial port parameters		
Set the serial port parameters	[CPp[X11][X12]s[X13][X14]]	[R0•[X1]•CPp[X11][X12]s[X13][X14]•]
<i>Example:</i>	[CPp30s00]	[R0•97•CPp30s00•]
Set the control panel module's serial port to 9600 baud, no parity, Xoff, and half duplex mode. The "s" in the command and response is a separator only.		
NOTE If you change the settings, you may not be able to read the response.		
Reset the serial port to default	[CPp@]	[R0•[X1]•CPp@•]
View serial port parameters	[CPp?]	[R0•[X1]•CPp?•[X11][X12][X13][X14]
Reset the control panel module to its default serial port settings: 9600 baud, no parity, Xoff, and half duplex mode.		

Command/response table for programming the CTL208 (continued)

Command	ASCII Command Response (host to CTL208)	(CTL208 to host)	Additional description
Front panel lockout			
Disable front panel	[FP0]	[R0•X1•FP0•]	Disable the control panel module buttons. If programmed, timeouts function normally.
Enable front panel (default)	[FP1]	[R0•X1•FP1•]	Enable control panel module buttons.
Toggle front panel lockout	[FP]	[R0•X1•FP•]	Toggle front panel status (enabled-to-disabled or disabled-to-enabled).
View front panel lockout	[FP?]	[R0•X1•FP?•X26]	
Enable/disable responses			
Enable serial responses	[RES1]	[R0•X1•RES1•]	Control panel module sends responses to serial port commands.
Disable serial responses	[RES0]	(none)	Control panel module does not send responses to serial port commands.
Control panel module reset			
Reset control panel module	[DFLT X16]	(none)	0 = reset without reinitializing buttons, 1 = factory reset
Architectural information			
View architectural information	[ARC]	[R0•X1•ARC•X17↵]	Display the control panel module model, revision, and connection information.



CTL208CM Control Panel Module

Appendix

Reference Information

Specifications

Parts List

Reference Information

Specifications

Control/remote

Serial control port	1 RS-232, RS-422, or RS-485, 5-pole captive screw connector
Baud rate and protocol	1200, 2400, 4800, 9600 (default), 19200, or 38400 baud; 8-bit; 1 stop bit; no parity (default), even parity, or odd parity; half (default)/full duplex
Pin configurations	
RS-232	3 = TX, 5 = RX, 1 = Gnd
RS-422/RS-485	3 = TX+, 2 = TX-, 5 = RX+, 4 = RX-, 1 = GND
Program control	Extron's ICS100 control program for Windows® Extron's ASCII character set

General

Power	9-13VDC from an auxiliary source or the included 100VAC to 240VAC, 50/60 Hz, external, auto-switchable, 12VDC, 1 A max. power supply. Product requires 0.5 A.
Temperature/humidity	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non-condensing
Rack mount	No, but wall- or furniture-mountable with optional CPM connector plates
Enclosure type	Metal
Enclosure dimensions	
Faceplate	2.8" H x 2.2" W x 0.1" D (7.1 cm H x 5.6 cm W x 0.3 cm D)
Device	2.8" H x 1.9" W x 1.4" D (7.1 cm H x 4.8 cm W x 3.6 cm D) (Depth excludes buttons.)
Product weight	0.25 lb (0.1 kg)
Shipping weight	2 lbs (0.9 kg)
Vibration	ISTA/NSTA 1A in carton (International Safe Transit Association)
Listings	ETL (UL1950), UL, CUL
Compliances	CE, FCC Class A
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE Specifications are subject to change without notice.

Parts List

Included parts

Description	Part number
CTL208CM (black)	60-576-10
or CTL208CM (white)	60-576-40
12VDC, 1 A power supply kit	70-055-01
IEC power cord	27-044-01
Tweaker (small screwdriver)	100-014-01
ICS100 Control Software	
CTL208 Control Panel Module manual	

Mini-AAP mounting options

Wall mounting solutions

Description	Part number
CPM101B (one-gang) (black)	60-583-11
CPM101W (one-gang) (white)	60-583-21
CPM102B-1 (two-gang) (black) with cable guards	60-583-12
CPM102W-1 (two-gang) (white) with cable guards	60-583-22
CPM102B-2 (two-gang) (black) without cable guards	60-583-13
CPM102W-2 (two-gang) (white) without cable guards	60-583-23
CPM103B-1 (three-gang) (black) with cable guards	60-583-14
CPM103W-1 (three-gang) (white) with cable guards	60-583-24
CPM103B-2 (three-gang) (black) without cable guards	60-583-15
CPM103W-2 (three-gang) (white) without cable guards	60-583-25
CPM104B-1 (four-gang) (black) with cable guards	60-583-16
CPM104W-1 (four-gang) (white) with cable guards	60-583-26
CPM104B-2 (four-gang) (black) without cable guards	60-583-17
CPM104W-2 (four-gang) (white) without cable guards	60-583-27

Reference Information, cont'd

Architectural solutions

Description	Part number
RGB 468 Mxi (black)	60-591-02
RGB 468 Mxi (white)	60-591-03
CIA111 (black, with cable guards)	CIA111-1
CIA111 (white, with cable guards)	CIA111-2
CIA111 (black, without cable guards)	CIA111-3
CIA111 (white, without cable guards)	CIA111-4
CIA112 (black, with cable guards)	CIA112-1
CIA112 (Inline white, with cable guards)	CIA112-2
CIA112 (black, without cable guards)	CIA112-3
CIA112 (Inline white, without cable guards)	CIA112-4
RGB 478 Mxi (black)	60-592-02
RGB 48 Mxi (white)	60-592-03

Table solutions

Description	Part number
CPM208-1 Mini-AAP bay	60-589-13
CPM212-1 Tabletop mini-AAP bay (black)	60-590-11
CPM212-2 Tabletop mini-AAP bay (white)	60-590-21

Wall mounting hardware

Description	Part number
One-gang "J" box, 2.5" deep	980130
Two-gang "J" box, 2.5" deep	980084
Three-gang "J" box, 2.5" deep	980083
Four-gang "J" box, 2.5" deep	980097
One-gang mounting bracket	IN9181