Extron® Electronics
INTERFACING, SWITCHING AND DISTRIBUTION

User's Manual

SCP 150, SCP 150 AAP, and SCP 150 L

Secondary Control Panels for the System 5 IP Switcher

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.

Conserver 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.

Precaucion
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 las instrucciones 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 podrian 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 la 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 ces 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'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement 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 Erdanschluß, 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 Stomversorgung (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 dagegengestellt 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 puentearia ni eliminaria.

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.

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

Europe, Africa, and the Middle East:

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

Asia:

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

Japan:

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

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SCP 150

Chapter One

Introduction

About the SCP 150, SCP 150 AAP, and SCP 150L

Features

Introduction

About the SCP 150, SCP 150 AAP, and SCP 150 L

The Extron SCP 150, SCP 150 AAP, and SCP 150 L are hardwired remote control panels for the Extron System 5 IP switcher. All models replicate the switcher's volume, input switching, and system controls. The SCP 150 AAP also provides four spaces for the addition of optional architectural adapter plates (AAPs) or audio, relay, or IR control modules (ACMs, RCMs, IRCMs).

Unless otherwise noted or implied, the term "SCP" refers to all three models of the SCP 150 (SCP 150, SCP 150 AAP, and SCP 150 L).

NOTE	*The System 5 IP cannot be configured from the SCP control panels. All switcher setup must be done from the switcher or via RS-232. Refer to the System 5 IP manual for information on setting up the switcher.*

The System 5 IP supports up to two SCPs. Up to four control modules and one IR Link infrared signal repeater can be daisy-chained with the panels. The SCP accepts signals from the optional IR 402 remote control.

The panels can be mounted in or on walls or furniture. The SCP 150 mounts in a 2-gang electrical box, surface mount box, or mounting bracket and the SCP 150 AAP mounts in a 4-gang electrical box, surface mount box, or mounting bracket.

The SCP 150 L fits into a compact lectern space, into a wall, or into an Extron UCM RAAP or UCM 10X8P faceplate.

Features

Gray, black, white, and RAL9010 white faceplates — The SCPs are available in four colors for integration into a variety of environments.

Customizable, illuminated buttons — The panel buttons can be easily identified, even in low light.

System expandability — The panels can be daisy-chained with Extron's control modules (IRCMs, ACMs, RCMs) and an IR Link to provide versatile remote control options.

Furniture and wall mountability — The SCPs can be mounted in or on walls or furniture with the use of optional electrical boxes, surface mount boxes, or mounting brackets.

SCP 150

Chapter Two

Installation and Operation

Installation and Operation

Installation Overview

To install and set up an SCP 150, SCP 150 AAP, or SCP 150L, follow these steps:

1 Turn the equipment off. Make sure that the SCP and the System 5 IP switcher are disconnected from the power source.

2 Run cables through the wall or furniture where the SCP will be installed.

3 Prepare the site and install and ground the electrical box, surface mount box, or mounting brackets.

4 Set the panel address DIP switch on the back of the SCP.

5 Wire the 5-pole captive screw connectors on both ends of the cable that was installed in the wall or furniture in step **2** .

6 Plug the wired connectors into the CM/IR/SCP connectors on the back of the SCP and on the rear panel of the switcher.

7 Restore power to the switcher.

8 Press an input selection button. If the corresponding LED does not light or the switch to the selected input is not made, disconnect power from the switcher and verify correct connector wiring at both ends of the cable.

9 Mount the SCP in the electrical box, surface mount box, or mounting brackets. Make sure the faceplate is tied to an earth ground to prevent damage caused by electrostatic discharge.

10 Reconnect the switcher to the A/C power source.

Installing or Replacing Button Labels

You may wish to customize the SCP's button labels. The labels can be changed at any time, but it is convenient to change them before you mount the panel. Follow these steps to change the translucent button labels:

1. Remove the button from the panel: use a small, flat bladed screwdriver such as an Extron Tweeker to gently pry a button out from the panel.

2. Locate the notch in the corner of one side of the clear outer layer.

3. Separate the white backing from the clear button cap: insert the blade of the small screwdriver into the corner notch and gently twist the blade.

4. Save the translucent, white backing plate, but remove the text/label insert from the transparent button cap.

5. Select one of the premade button labels from the label sheets included with the SCP. Remove the label from its backing and peel the protective film from the front of the label, if applicable.

NOTE *You may also use a Brother P-Touch label maker to create custom labels. Cut the labels so they are square, 1/2 inch on each side.*

6. Insert the button label into the clear button cap, align the white backing plate with the cap and firmly snap it into place.

7. Gently but firmly press the reassembled button into place in the panel.

8. Repeat steps 1 to 7 as needed to relabel other buttons.
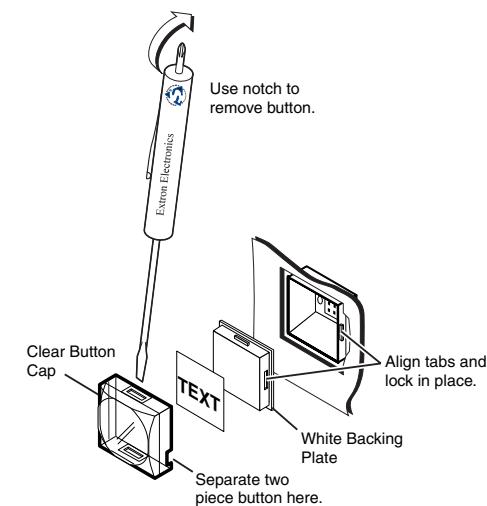
Mounting Options

Mount the SCP 150 or SCP 150 AAP in an electrical box or surface mount box or use a mounting bracket to secure it to a wall, podium, table, or other furniture.

Electrical boxes can be attached to wall studs or to furniture. Use an electrical box deep enough to contain the SCP's electrical components *and* the connected cables.

Installation and Operation, cont'd

To mount the SCP 150 in areas of walls or furniture without studs, use an optional Extron 2-gang mounting bracket, part #70-086-01, -11, or -21. For the SCP 150 AAP, use an Extron 4-gang mounting bracket, part #70-086-03, -13, or -23.

To mount the SCP 150 externally on a wall or desktop, use an optional Extron 2-gang SMB surface mount box, part #60-640-02. For the SCP 150 AAP, use an Extron 4-gang SMB, part #60-642-02.

UL Requirements

The Underwriters Laboratories (UL) requirements listed below pertain to the installation of the SCP into a wall or furniture.

1. This unit is not to be connected to a centralized DC power source or used beyond its rated voltage range.

2. This unit must be installed in a UL listed electrical wall box.

    NOTE   *The UL approved electrical box is not included with the SCP; the installer is responsible for obtaining and installing the box.*

3. This unit must be installed in accordance with the National Electrical Code.

Preparing the Site

To mount the panel using either an electrical box or a mounting bracket, use one of the rough-in templates provided on pages A-7 through A-9 as a guide to measure and mark the hole in the wall or furniture through which the SCP will be mounted. The templates provide measurements for installing the panel with either an electrical box or a mounting bracket. You do not need the template if you are mounting the panel using an SMB.

    NOTE   *The templates are not to scale and are provided for reference only.*

To prepare the site:

1. Choose a mounting location. If using an electrical box to wall-mount the panel, locate a stud to which the box will be attached.

2. Use the appropriate template and panel dimensions in Appendix A to as a guide to measure and mark the area to cut out of the wall or furniture.

3. Cut out the opening in the wall or furniture.

Installing the Electrical Box

If you are using a mounting bracket or SMB instead of an electrical box, follow the mounting instructions that came with the bracket or SMB.

To install the electrical box:

1. Insert the electrical box into the opening, and attach the wall box to the wall stud (2" x 4") or furniture with nails or screws, leaving the front edge flush with the surface, as shown in the following illustration.

Wall Stud

Wall Box

Flush with Wall Surface
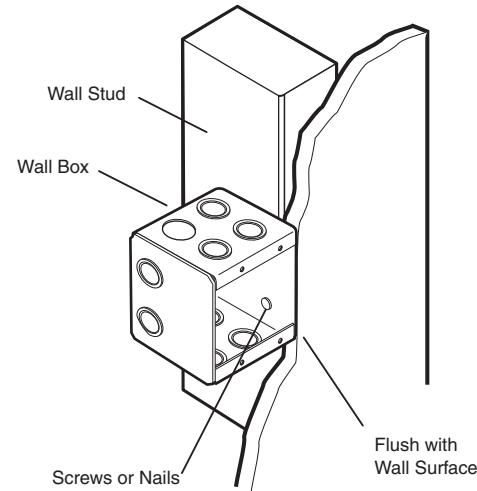
Screws or Nails

To attach the wall box to wood, use four #8 to #10 wood or sheet metal screws. A minimum of 1/2 inch (1.25 cm) of screw threads must penetrate the wood. If the wood is a 2 x 4, such as a wall stud, 10-penny or larger nails can be used.

To attach the electrical wall box to metal, use four #8 or #10 sheet metal screws (self-tapping) or #8 or #10 machine bolts with matching nuts.

2. Feed the cables into the wall box. Cable clamps should be used to hold the cables in place for strain relief.

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

Cabling the Rear Panel
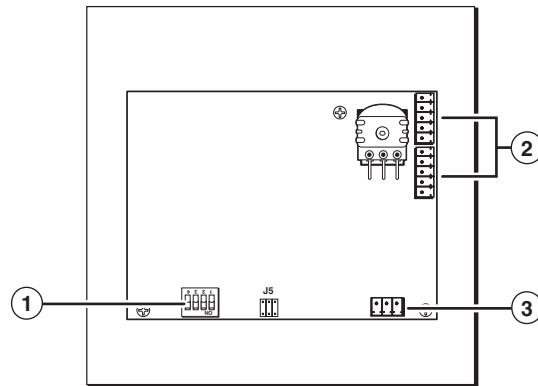
1   **Panel address DIP switch —** If using two SCPs, set DIP switch 1 to assign a unique address to each panel. Set the switch to Off to assign address 00 and On to assign address 01. Switches 2 and 3 are not used.

> **NOTE**   *The System 5 IP can support up to two SCPs. The panels must each have a unique address. DIP switch 4 is used to enable the RS-232/host port of the SCP 150. **Note:** If the SCP is connected to the System 5IP, set switch 4 to the "off" position.*

2   **CM/IR/SCP connectors —** These two 5-pole captive screw connectors function in exactly the same way and can be used interchangeably. Connect one connector to a System 5 IP switcher and the other to a second SCP, an Extron control module (ACM, RCM, IRCM), or an Extron IR Link infrared signal repeater.

Two SCPs, up to four control modules, and one IR Link can be daisy-chained using these connectors. The maximum distance between the System 5 IP and a connected device is 200' (61 m). The switcher provides 12 VDC power to the SCP and any daisy-chained control devices via these connectors, so no additional power supply is required.

Wire the connectors as shown in the illustration on the next page. The illustration is a guide; the SCPs, control modules, and IR Link can be daisy-chained in combinations other than the one shown.

3   **Serial/host port —** Use this 3-pole captive screw connector to connect to your PC's RS-232 port. Extron Simple Instruction Set (SIS) commands can then be issued from the PC to monitor and obtain information from the SCP. This port is also used for uploading firmware to the SCP, if necessary. Refer to chapter 3, *Remote Communication*, for further details.

> **NOTE**   *Do not connect to this port if the SCP is being used with the System 5IP.*
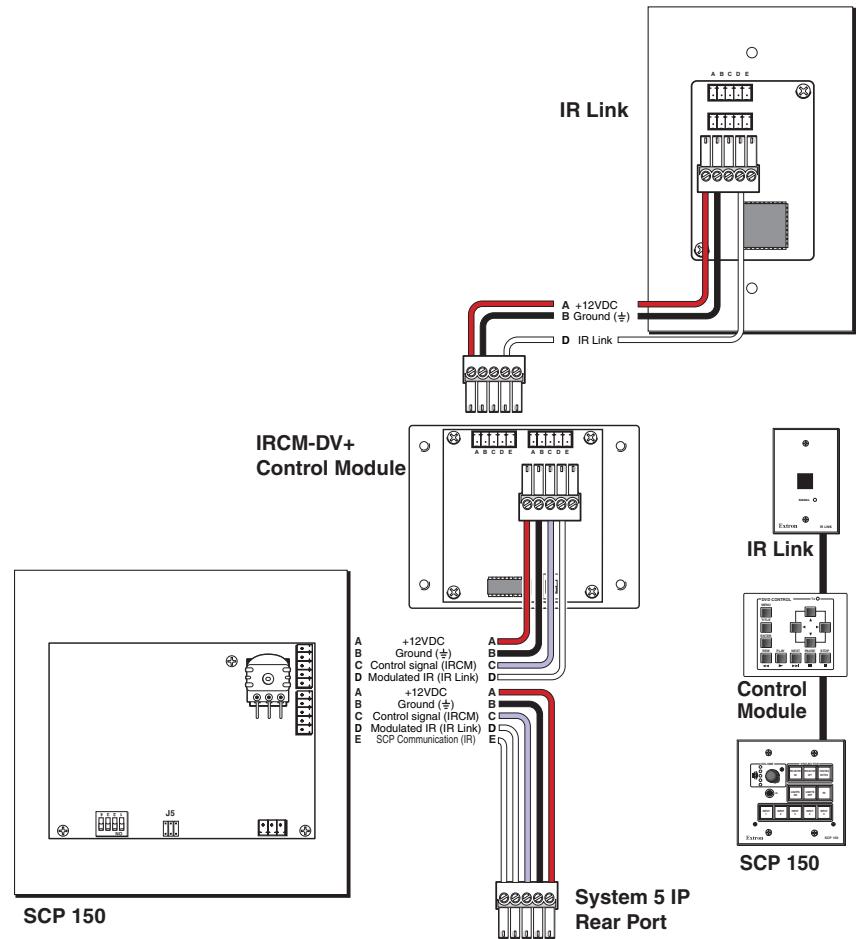
Pre-installation Testing/Troubleshooting

Before mounting the SCP to the wall or furniture, test the system to make sure that the connections are correct and the panel is working correctly. Test the system by powering on the switcher, then pressing the input selection buttons on the SCP and watching the LEDs on the switcher to see if the system switches to the desired inputs.

> **NOTE** *The connections between the SCP and a System 5 IP equipped with front panel controls can be tested even if input/output devices are not available. For a System 5 IP without front panels controls, input 5 will be the only input available to view.*

Mounting the SCP

Once the system has been cabled and tested, the SCP can be mounted to the wall or furniture. See Mounting Options, earlier in this chapter, for a description of the available brackets and boxes in which the SCP may be mounted.

Mounting in a wall box

1. With power removed, insert the SCP into the wall, furniture, or SMB.

2. Secure it to the box or mounting bracket with the provided machine screws. The following illustration shows an SCP mounted in an electrical box.

> **NOTE** *If you are not installing the SCP into a grounded metal electrical box, make sure that the faceplate is grounded to an earth ground.*
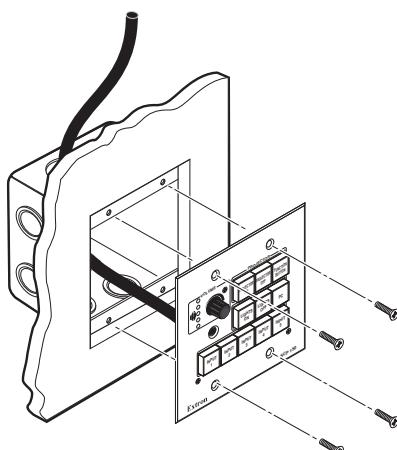
Mounting in a rack

The SCP 150 L is rack-mountable using the full rack width UCM-RAAP mounting plate. Mount the UCM-RAAP using the rack mounting screws included with the monting plate. Next, mount the SCP 150 L to the UCM-RAAP using the SCP's four mounting screws, as show in the following diagram.
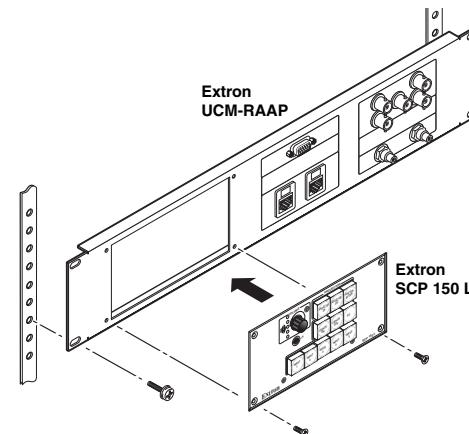

Mounting on a lectern

The SCP 150 L is designed to be mounted on a lectern. To mount the SCP 150 L, cut a hole of the required size (see "Preparing the Site" in this chapter) and attach the SCP 150 L using the provided wood screws.
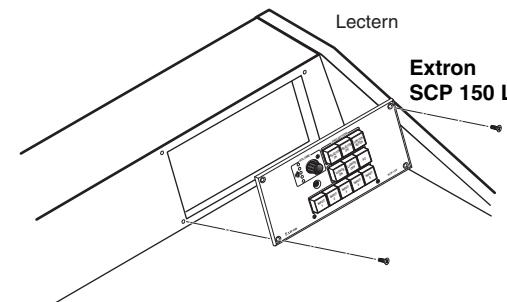
Front Panel Features

The controls on the SCP 150, SCP 150 AAP, and SCP 150 L replicate the System 5 IP's volume, input switching, and system controls. All the button functions for the System 5 IP and the SCPs are configured via RS-232 or Ethernet control. See the System 5 IP user's manual for instructions on configuring the buttons.

SCP 150

SCP 150 AAP
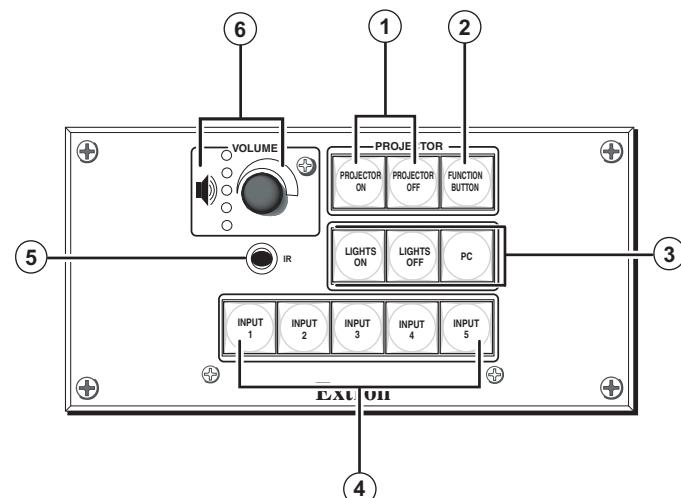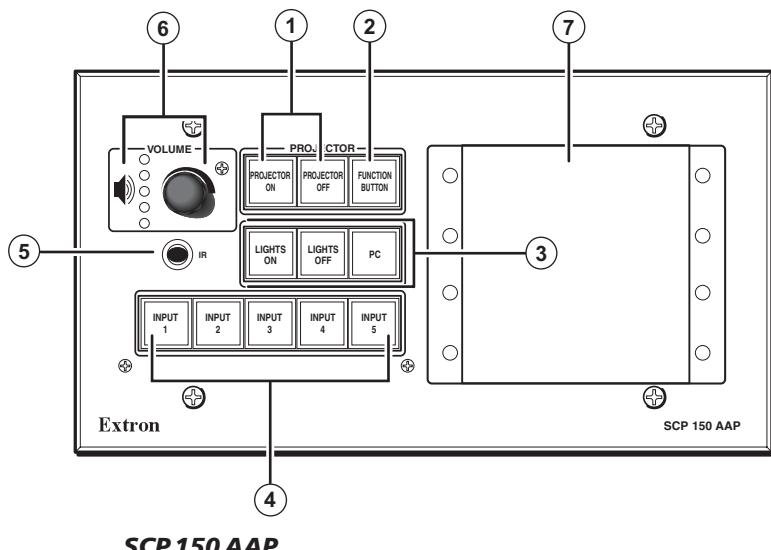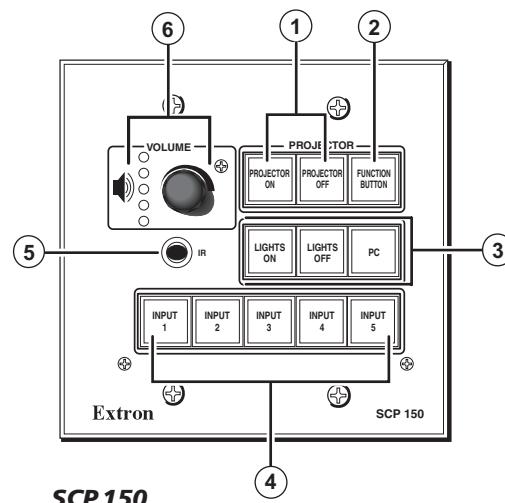
SCP 150 L

NOTE *All the buttons on the SCP can light bright green, red, or amber when selected in stand-alone mode (not connected to the System 5 IP). Unselected buttons light dim amber.*

① **On and Off buttons** — Press these buttons to turn the projector on and off. The buttons flash during the projector's warm up or cool down cycle, and then light steadily.

② and ③ **Function buttons** — These buttons are fully configurable and can be used to control the System 5 IP's relays, execute IR or RS-232 commands, or trigger other buttons. Refer to the System 5 IP user's manual for information on configuring these buttons.

The three function buttons in the middle row (③) replicate the three function buttons on a System 5 IP equipped with front panel controls. The single function button in the top row (②) is an additional function button not found on the switcher.

④ **Input selection buttons** — These buttons replicate the five input selection buttons on a System 5 IP equipped with front panel controls. Press one of these buttons to select an input on the switcher. Refer to the System 5 IP user's manual for more information on input selection.

⑤ **IR signal pickup sensor** — This sensor allows control of the SCP using an optional Extron IR 402 remote control. Point the remote directly at the sensor. The remote has a range of

Installation and Operation, cont'd

approximately 30 feet (9.14 meters) within 40 degrees on either side of the axis. See the following illustration.

SCP 150 L

40˚ **40˚**

30 feet maximum

IR 402 Remote
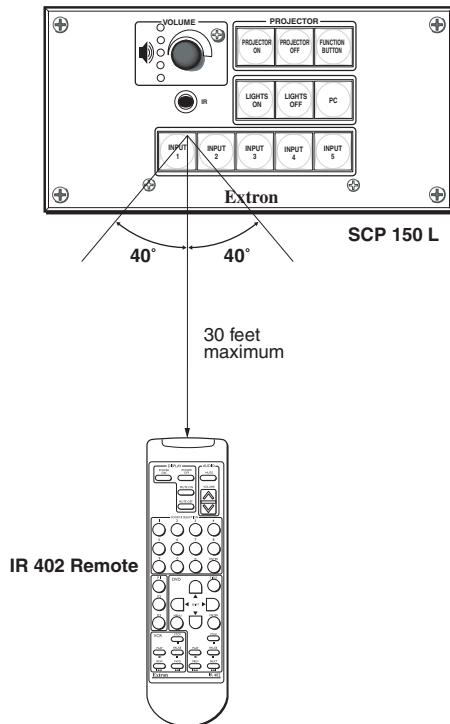
6   **Volume knob and indicator LEDs —** Turn this knob to adjust the volume on the input that is currently selected. The five LEDs indicate the current volume level, as shown in the following illustration. The top LED is red and the others are green.

○ LED Off
◑ LED Blinking
● LED On

0% (Min) or Mute   **1-19%**   **20-39%**

40-59%   **60-89%**   **90-100% (Max)**
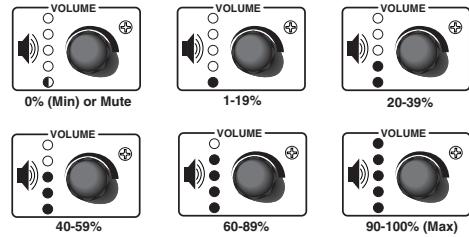
7   **AAP mounting spaces (SCP 150 AAP only) —** Mount up to four single-space AAPs or control modules (IRCMs, ACMs, RCMs) here.

Resetting to Factory Firmware version

To reset the SCP to the firmware version with which it was delivered from the factory, press and **hold** the buttons numbered **1** and **3** on the front panel while applying power to the unit. See the following three illustrations.
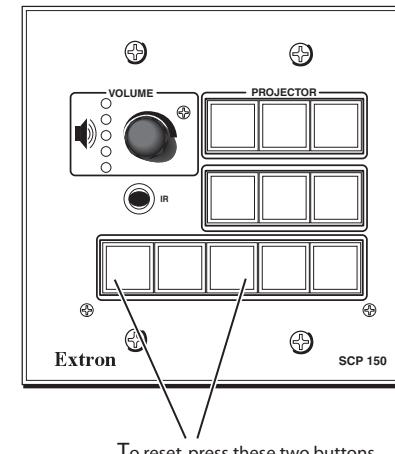

SCP 150

To reset, press these two buttons simultaneously while applying power to the SCP 150.

Resetting the SCP 150 to factory defaults
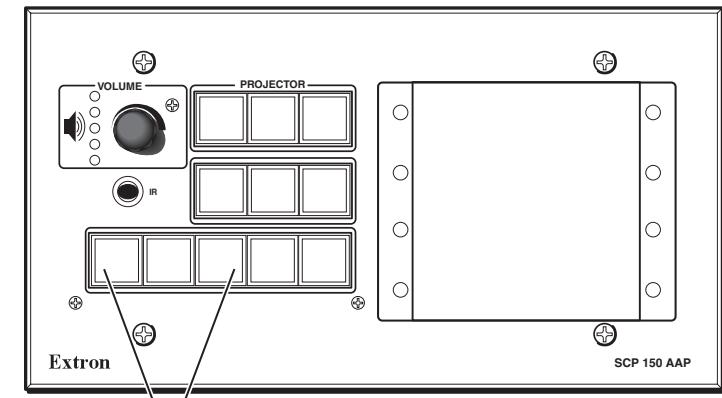
SCP 150 AAP

To reset, press these two buttons simultaneously while applying power to the SCP 150 AAP.

Resetting the SCP 150 AAP to factory defaults
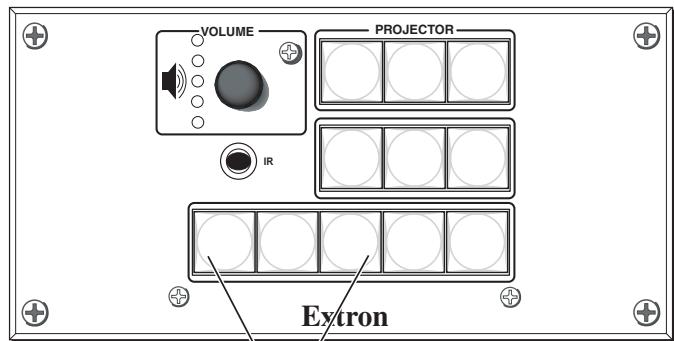
SCP 150

To reset, press these two buttons simultaneously while applying power to the SCP 150L.

Resetting the SCP 150 L to factory defaults

3

Chapter Three

Remote Communication

Remote Communication

Setting Up RS-232 Communication

The RS-232 interface allows you to obtain information about the SCP and to activate certain SCP functions from a host computer or other device (such as a control system) attached to the rear panel RS-232 port (shown below).

Gnd Rx Tx

J1

3-pole captive screw connector for the RS-232 port on the SCP rear panel

Use the following protocol settings for your PC:

Baud rate: 9600
Data bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

The control device (host) can use the Extron Simple Instruction Set™ (SIS™) commands.

> **NOTE** *In order to use the RS-232 port, DIP switch 4 must be set to the "on" position.*

Using Simple Instruction Set (SIS) Commands

SIS commands can be used with the SCP only when it is in stand-alone mode; that is, DIP switch #4 on the rear panel is in the ON position. The available commands enable you to test the front panel LEDs and buttons, and to query for certain information about the SCP.

> **NOTE** *You cannot program any SCP buttons or switches using SIS commands. The SCP's buttons only reflect what is programmed for the System 5 IP to which the SCP is connected.*

Host-to-SCP 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 SCP determines that a command is valid, it executes the command and sends a response to the host device.

Most responses from the panel 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.

SCP-initiated messages

At power-up, the following SCP-initiated message appears:

© Copyright 2004, Extron Electronics, SCP 150, Vx.xx ↵

> **NOTE** *This message is displayed only at power-up.*

When a local event such as a front panel selection takes place, the SCP responds by sending a message to the host indicating what selection was entered (see *Switch responses* on page 3-5).

No response to these messages is required from the host.

Error responses

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

Error response codes and their descriptions are shown below. Each error response is followed by a carriage return.

E10 – Invalid command
E13 – Invalid command parameter
E23 – Bad checksum
E28 – Bad filename/File not found

Using the command/response tables

The command/response tables on the following pages list valid command ASCII codes, the SCP's responses to the host, and a description of the command's function or the results of executing the command.

The ASCII to HEX conversion table on the next page is for use with the command/response tables.

ASCII to HEX Conversion Table				Esc 1B	CR 0D	LF 0A
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
` 60	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 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

ASCII to Hex conversion table

Symbol definitions

↵ = CR/LF (carriage return/line feed) (hex 0D 0A)

◄ = Soft carriage return (no line feed)

Esc = Escape key

● = Space

X1 = Firmware number

NOTE *If a command is not case-sensitive, this is indicated by showing the command letter in uppercase. followed by a slash (/), then the same letter in lowercase.*

Examples: Q/q, I/i

Command/response table for SIS commands

Command	ASCII (Telnet) (host to SCP)	Hex (host to SCP)	Response (SCP to host)	Additional information
Query firmware version				
Query Firmware version	Q/q	51	X1↵	Shows current firmware version. X1 = current firmware version number.
Query firmware version—factory and updated	0Q	30 51	x.xx, y.yyy↵	x.xx = factory firmware version number format y.yyy = updated firmware version number format
Query firmware version—factory	1Q	31 51	x.xx◄	
Query firmware version—updated	2Q	32 51	y.yy◄	
Query part number	N/n	4E	60-495-00↵	
Query firmware and build version	+Q	2B 51	x.xx.xxxx◄	
Query model name/description	I/i	31 49	SCP150↵	
Request control module and slave information.	32I	33 32 49	P1## ● P2##↵	P1## = SCP address # P2## = SCP address #

Command/response table for SIS commands (continued)

Command	ASCII (Telnet) (host to SCP)	Response (SCP to host)	Additional information
Volume relative function			
Volume up	+V/v	VolUp↵	
Volume down	-V/v	VolDn↵	
Upload firmware			
Upload firmware	[Esc] Upload ↵	Go	When you receive the Go response, upload the firmware according to your terminal emulator's procedure.
{Specified number of bytes of data}		Upl↵	When upload is complete, you receive the Upl↵ response.
Reset to default settings (Zap command)			
Reset to factory defaults	[Esc] zXXX	ZapX↵	Sets all button LEDs to amber.

Special Function SIS Commands

The syntax for setting a special function for an SCP 150 is [X?] * [Y?] * __ #, where [X?] is the value of the action to be performed, [Y?] is the value for the button or switch, and __ is the function number. To view a function's setting, use __#, where __ is the function number. In the following table the values of the [X?] and [Y?] variables are different for each command/function. These values are given in the rightmost column.

Remote Communication, cont'd

Command/response table for special function SIS commands

Command	ASCII Command (host to SCP)	Response (SCP to host)	X? and Y? values and additional descriptions
Switch responses			
Button press on front panel or remote	(None)	SwPrs * X? ↵	X? is the switch number for the function or button that was pressed. There are 11 options available (1-11). See the *Switch/Function Button Table*, later in this chapter, for these values.
Button release on front panel	(None)	SwRls * X? ↵	X? is the function switch number or button that was pressed (11 options). See the *Switch/Function Button Table* for the functions associated with the switches.
Front panel button LED control			
FPC lamp control	X? * Y? * 51#	Lmp Y? * X? ↵	X? is the LED state: 0 = all LEDs off 1 = green LED on 2 = red LED on 3 = green and red LEDs on (Button lights amber.) 4 = slow blink green 5 = slow blink red 6 = slow blink amber 7 = fast blink green 8 = fast blink red 9 = fast blink amber Y? is the button: 0 = no button 1 = projector on 2 = projector off 3 = function button 1 4 = function button 2 5 = function button 3 6 = input button 1 7 = input button 2 8 = input button 3 9 = input button 4 10 = input button 5 11 = input button 6

Command/response table for special function SIS commands (continued)

Command	ASCII Command (host to SCP)	Response (SCP to host)	X? and Y? values and additional descriptions
Read FPC lamp	Y? * 51#	Lmp Y? * X? ↵	Indicates the LED color of the selected button.
Volume LED control			
FPC volume LED control	X? * Y? * 52#	Vlmp Y? * X? ↵	X? LED blinking order: 0 = off 1 = bottom 2 = blink on 3 = blink off 4 = chase up 5 = chase down Y? LED selected: 0 = no LED 1 = bottom LED 2 = LED 2 3 = LED 3 4 = LED 4 5 = LED 5
Read volume LED status	Y? * 52#	Vlmp Y? * X? ↵	

Using the Switch/Function Button Table

Switches are assigned to specific buttons on the SCP, any attached remote control module (IRCM/RCM/ACM), or the IR 402 remote. Each time a button is pressed or released, or a knob is turned on the SCP or a control module, the switch number associated with that button appears on your PC terminal emulator screen (HyperTerminal, etc.) as part of the host response.

On most of the special function SIS commands, the switch number is the X? value that you enter as part of the command. (See the *Command/response table for special function SIS commands*, earlier in this chapter.)

The following Switch/Function Button table shows which switch number is associated with each button or knob on the SCP, control module, or IR 402. In the Switch column, locate the switch number displayed on your terminal emulator, then look in the Function Button column beside the number to find out which button was pressed or released.

**NOTE** *The SCP does not use all of the available buttons/ switches.*

NOTE *No buttons can be programmed via the SCP.*

Switch	Function Button
1	Power on
2	Power off
5	Function 1 (room) button
6	Function 2 (room) button
7	Function 3 (room) button
8	Function 4 (room) button
9	Input 1 selection button
10	Input 2 selection button
11	Input 3 selection button
12	Input 4 selection button
13	Input 5 selection button

*Switch/Function Button table*

Switch number locations

The following illustration shows the button/switch memory block numbering on the SCP 150 front panel. Refer to the *Switch/Button table*, on the previous page. The switch locations are the same on the SCP 150 AAP and SCP 150 L models.
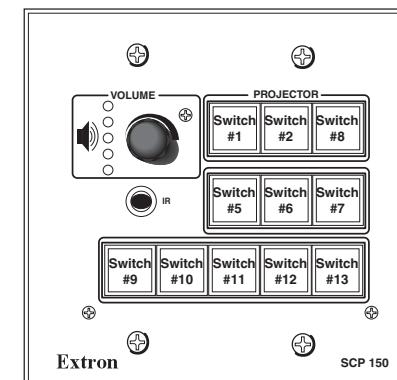
Updating Firmware

If necessary, you can replace the SCP's firmware without changing firmware chips. This procedure must be performed using a PC on which the Firmware Loader Software has been installed. The PC's RS-232 port must be directly cabled to the SCP's RS-232 port.

CAUTION *Do not attempt to upload firmware if a System 5 IP is connected to the SCP with any connections other than power. The RS-232 cable from the PC must be connected __directly__ to the SCP.*

System 5 IP Rear Panel

SCP 150 Rear Panel

Transmit (Tx)
Receive (Rx)
Ground (Gnd, ⏚)

RS-232 to/from Host PC
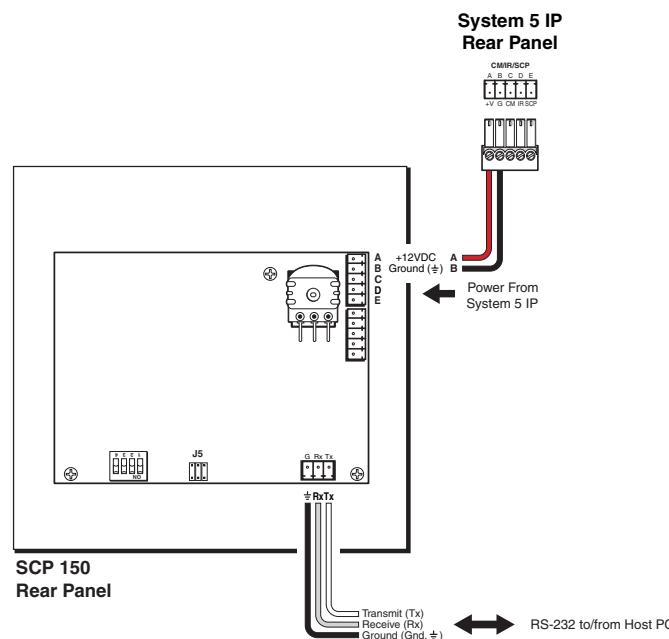
NOTE *Each time that the existing firmware is replaced, the SCP is reset to the factory default settings.*

Follow the directions below.

1. Visit the Extron Web site (www.extron.com) to find the appropriate firmware file for the model of SCP that you want to update. Save the new firmware file to your PC, and write down its filename and save location for later use.

2. Connect a cable between the SCP's RS-232 port and the serial (RS-232) port of the PC (see chapter 2).

3. Set DIP switch 4 to the ON position.

4. Power on the SCP. See the previous caution.

5. On your PC, start the Firmware Loader program. The screen on the right appears:

6. Select the COM port through which the PC will communicate with the SCP via RS-232.

7. If the baud rate is not set to 9600, do the following:

   a. Click the Baud button. A baud rate pop-up menu appears, and the Baud button changes to OK.

   b. From the pop-up menu, select 9600.

8. Click the OK button that was originally the Baud button (circled in the figure above). The following window opens, indicating the current firmware version.

9. Click Upload. You are prompted to select the firmware file that you downloaded in step 1. Click OK.

10. When the browser window opens, locate and select the firmware file, then click Open to upload the firmware to the SCP.
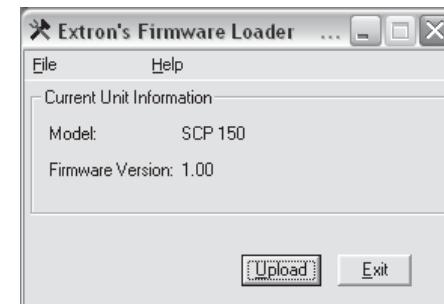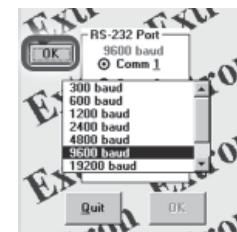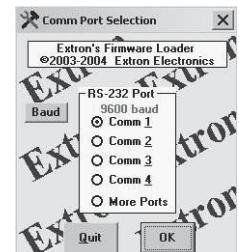
Remote Communication, cont'd

| NOTE | *The firmware update file must have a filename extension of .bin. If the file does not have that extension, it will not work properly.*
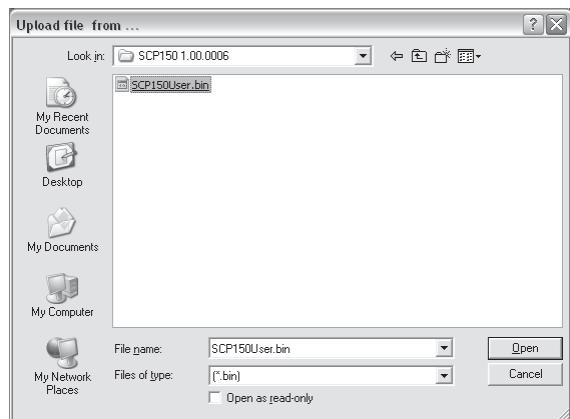
11. Follow the instructions on the screen to upload the firmware.

12. When the firmware uploading is complete, the following dialog box appears:
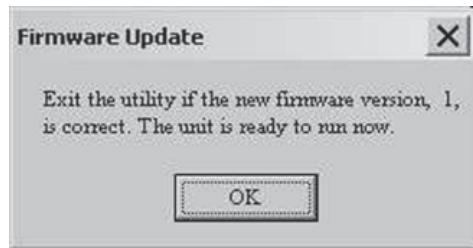
Click OK to exit the Firmware Upload program.

SCP 150

A

Appendix A

Specifications, Part Numbers, Accessories, and Dimensions

Specifications

Included Parts

Accessories

Cables

Panel Dimensions

Templates

Specifications, Parts, Accessories, Dimensions

Control/remote — control pad

Serial control port	RS-232, via a 3.5 mm captive screw connector, 3 pole
Baud rate and protocol	9600 baud, 8 data bits, 1 stop bit, no parity
Serial control pin configurations	A = TX, B = RX, C = GND
IR remote control	IR 402 (optional) 30' maximum, 40 degrees off axis
Program control	Extron's Simple Instruction Set (SIS™)

General

Power	12 VDC, at 0.5 A, from the System 5 IP switcher
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount	No, but furniture/wall mountable with included faceplates and electrical boxes or optional mounting bracket kits or AAP wall plates.
Enclosure type	Metal
Enclosure dimensions	
SCP 150 faceplate	4.5" H x 4.6" W x 0.1" D (2 gang) 11.4 cm H x 11.7 cm W x 0.3 cm D
SCP 150 AAP faceplate	4.5" H x 8.25" W x 0.1"D (4 gang) 11.4 cm H x 11.7 cm W x 0.3 cm D
SCP 150 L faceplate	3.2" H x 6.5" W x 0.1"D 8.0 cm H x 16.5 cm W x 0.3 cm D
Circuit board (all models)	2.9" H x 3.5" W x 0.5" D 7.4 cm H x 8.9 cm W x 1.3 cm D [Allow at least 1.5" (3.8 cm) depth in the wall or furniture. Depth excludes connectors, knob, and buttons.]
Product weight	0.3 lbs (0.1 kg)
Shipping weight	2 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL as a component of the System 5 IP
Compliances	CE as a component of the System 5 IP
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE *All nominal levels are at ±10%.*

NOTE *Specifications are subject to change without notice.*

Included Parts

These items are included in each order for an SCP 150, SCP 150 AAP, or SCP 150 L:

Included parts	Replacement part number
SCP 150 (controller only - no faceplate)	60-495-00
or SCP 150 (gray, black, white, RAL9010)	60-495-01, -02, -03, -05
or SCP 150 AAP (gray, black, white, RAL9010)	60-496-01, -02, -03, -05
or SCP 150 L (black, white, RAL 9010)	60-495-32, -33, -35
3.5 mm, 5-pole captive screw connector (2)	10-319-01
3.5 mm, 3-pole captive screw connector (1)	10-265-03
Button labels (text)	33-954-01
Button labels (symbols)	33-955-01
International faceplate labels (gray, black, white)	33-953-01, -02, -03
Tweeker (small screwdriver)	
SCP 150 User's Manual	

Accessories

These items may be ordered separately:

| Accessories	Part number
2-gang mounting bracket (gray, black, white, RAL9010)	70-086-01, -11, -21, -25
4-gang mounting bracket (gray, black, white, RAL 9010)	70-086-03, -13, -23, -25
2-gang SMB surface mount box	60-640-02
4-gang SMB surface mount box	60-642-02
Button labels (international text)	33-956-01
IR 402 remote control	70-207-01

Cables

These cables may be ordered separately:

Comm-Link cable	Part number
50 feet/15.2 meters long	26-461-01
100 feet/30.5 meters long	26-461-02
200 feet/61 meters long	26-461-03
400 feet/122 meters long	26-461-04
Bulk 500 feet/152.4 meters long	22-119-02
Bulk 1000 feet/304.8 meters long	22-119-03

Panel Dimensions

SCP 150

SCP 150 AAP
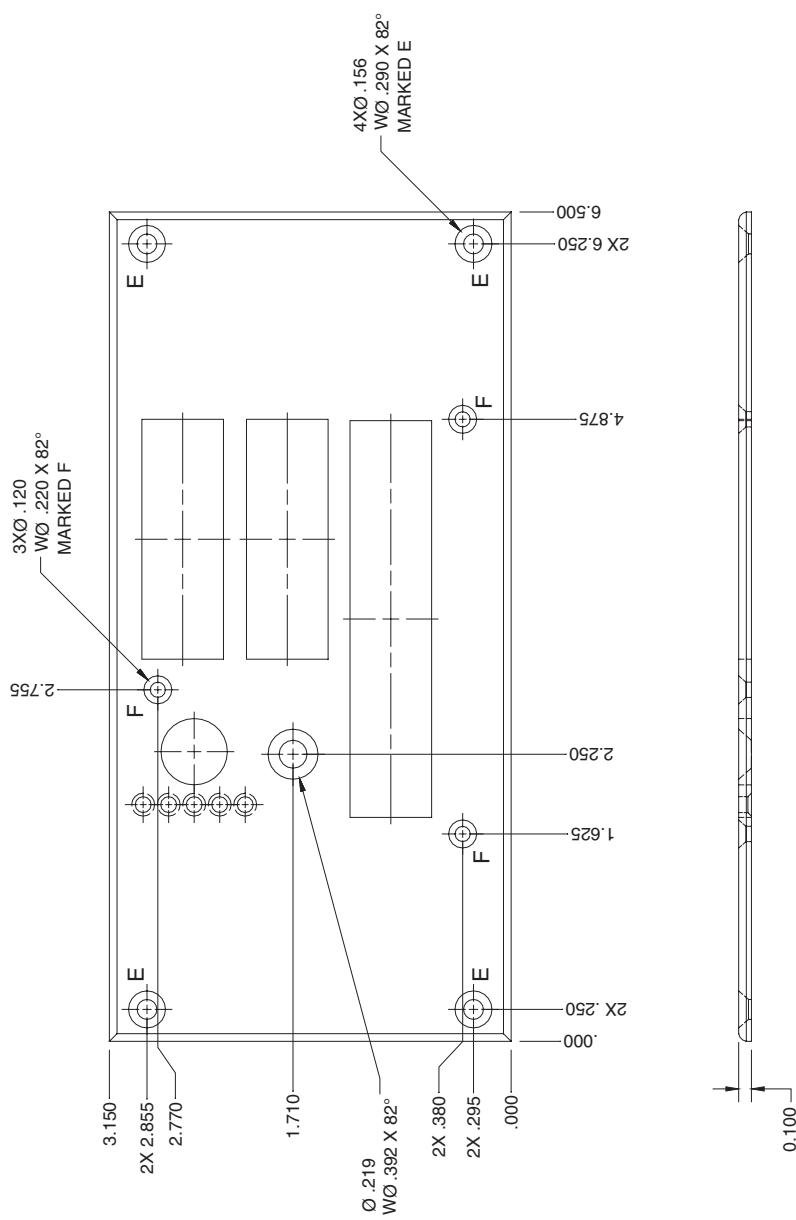
SCP 150 L

Templates

| NOTE | *The templates are not to scale and are provided for reference only.* |

3.6"
(9.15 cm)

SURFACE CUT-OUT AREA
FOR FURNITURE MOUNT

2.8"
(7.1 cm)

Top Panel

Electrical Box

Location of SCP 150

To install SCP 150 directly into furniture, cut along this line.
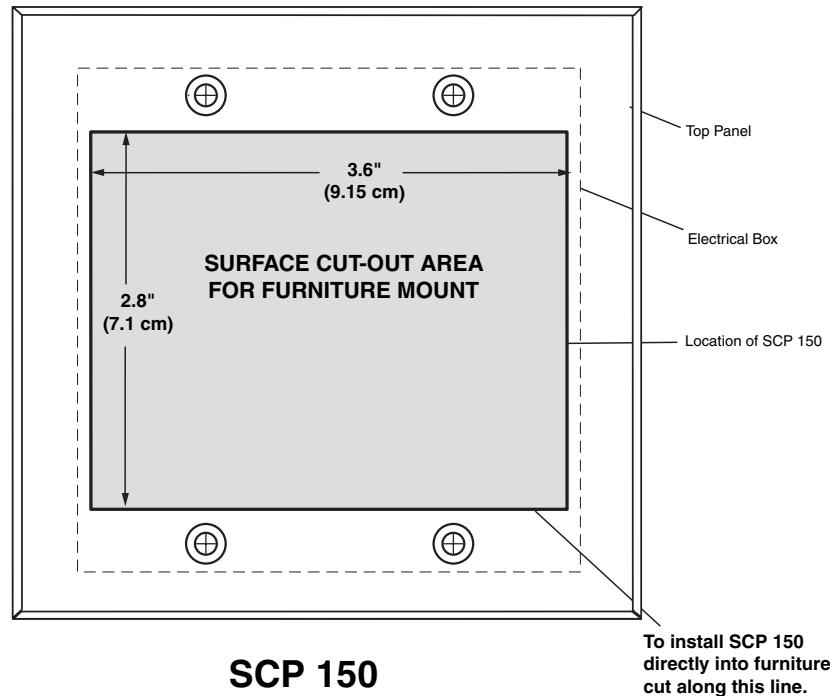
SCP 150

TEMPLATE IS **NOT** FULL SIZE.

Cut-Out Template for Extron's **SCP 150**

SURFACE CUT-OUT AREA FOR FURNITURE MOUNT

7.2" (18.3 cm)

2.8" (7.1 cm)

To install SCP 150 directly into furniture, cut along this line.

Top Panel

Electrical Box
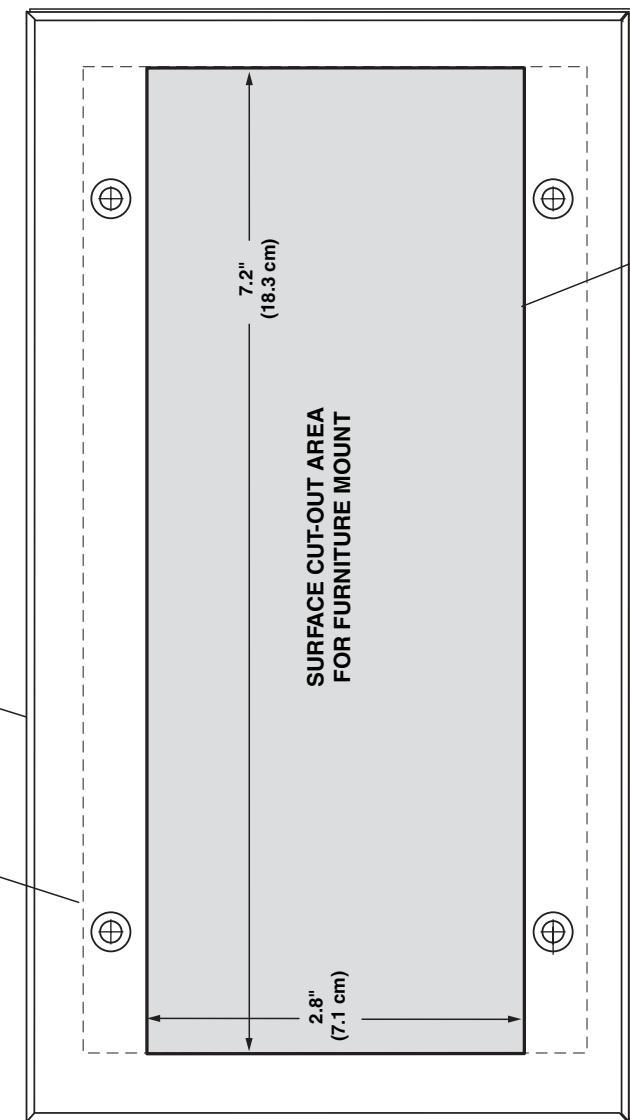
SCP 150 AAP

TEMPLATE IS **NOT** FULL SIZE.

Cut-Out Template for Extron's **SCP 150 AAP**

3.15" (8.0cm)

Top Panel

2.85" (7.2 cm)

SURFACE CUT-OUT AREA FOR FURNITURE MOUNT

3.6" (9.15 cm)

6.5" (16.5 cm)

Location of SCP 150

**To install SCP 150 directly into furniture, cut along this line.**
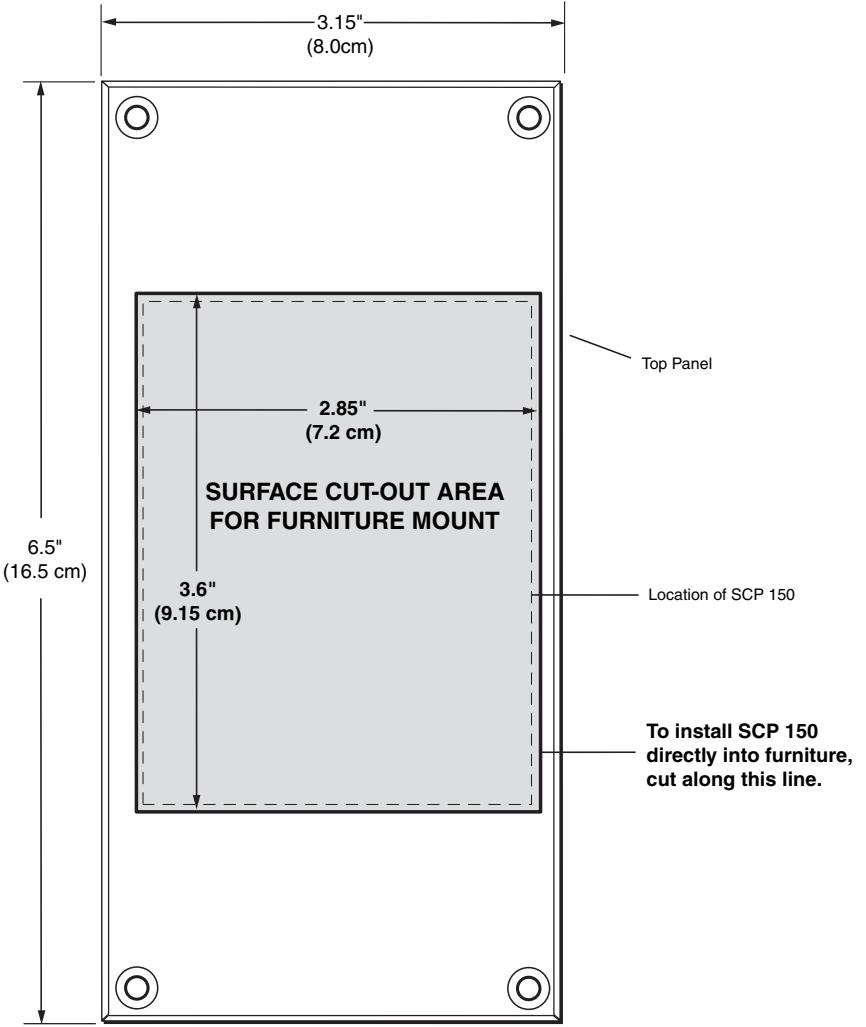
SCP 150 L

TEMPLATE IS **NOT** FULL SIZE.

Cut-Out Template for Extron's **SCM-150L**