

## User's Guide



### *RGB 201 Rxi*

### Universal Video Interface with Audio

68-664-01

Rev. B

03 09

# 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 signes marqués sur le matériel ou présents dans la documentation utilisateur.

**Éviter 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 in 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.

### Precación

**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 le 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'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandée 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 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 anderer 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.

**Lithium-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 cable 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 aberturas 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.

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## 安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

### 注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

### 警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

## 声明

所使用电源为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实可行的措施。

### FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A 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 with FCC emissions limits.*

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# Quick Start Guide — RGB 201 R<sub>xi</sub>

## Step 1

Turn the equipment off and disconnect the equipment from the power source.

## Step 2

For positive or negative output sync (rather than sync following the input), RsGsBs video, or to clamp sync timing to back porch), open the interface's case and configure the jumpers and/or DIP switches. See *Internal Configuration*, beginning on page 2-3, for details.

## Step 3

Rack, under-desk, or through-desk mount the interface as desired.

**Rack mounting** — Use the optional 1U Rack Shelf, part #60-190-01, for rack mounting.

**Under desk mounting** — Use the optional Under-Desk Mount Kit, part #70-077-01, to mount the DA under furniture.

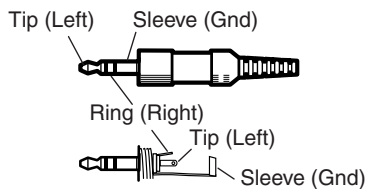
**Thru-desk mounting** — Use the optional Thru-Desk Mount Kit, part #70-077-02, to mount the DA through furniture.

## Step 4

**Video input** — Connect the RGBHV, RGBS, RGSB or RsGsBs video input to the 15-pin HD Input connector.

## Step 5

**Audio input** — Connect an unbalanced stereo audio source (such as a computer or a CD player) to the 3.5 mm mini stereo Audio connector for unbalanced audio input. See the figure below to wire the audio plug.



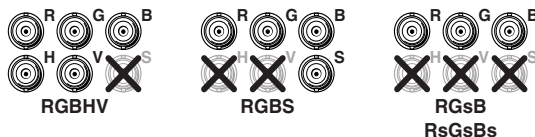
## Step 6

**Buffered monitor output** — If desired, connect a local monitor or other device to this 15-pin HD female connector.

## Step 7

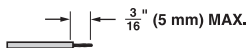
**Video output** — Connect an RGBHV, RGBS, RGSB or (if configured in step 2, above) RsGsBs video display or other device as shown on the next page.

# Quick Start Guide — RGB 201 R<sub>xi</sub>, cont'd



## Step 8

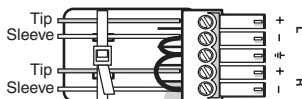
**Audio output** — Connect an audio device, such as powered speakers, to this 3.5 mm, 5-pole captive screw connector for balanced or unbalanced audio output. The figure below shows how to wire the captive screw audio connector.



**Do not tin the wires!**



**Balanced Audio**



**Unbalanced Audio**

### CAUTION

Connect the sleeve(s) to ground ( $\oplus$ ). Connecting the sleeve(s) to a negative (-) terminal will damage audio output circuits.

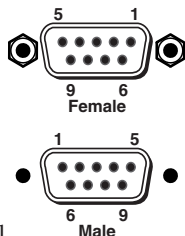
## Step 9

**DIP switches** — Configure the rear panel DIP switches as shown:

Switch	Position	Switch	Position			
1	Up	5	Up	DDSP, no sync processing	Up	Mono on left channel
	Down		ADSP	Down	Stereo audio	
2	Up	6	Up	RGsB or RsGsBs output	Up	LCD backlight off
	Down		RGBHV or RGBS output	Down	LCD backlight on	
3	Up	7	Up	Serration pulses	Up	ID bits 4 & 11 grounded
	Down		No Serration pulses	Down	ID bits unterminated	
4	Up	8	Spare			
	Down		Wide V sync pulse			

## Step 10

**Remote connector** — Connect an RS-232 device to this connector for remote control. See chapter 3, *Remote Control* for details about SIS commands and the control software that is included with the interface.



Pin	RS-232	Function
1	—	—
2	TX	Transmit data (-)
3	RX	Receive data (+)
4	—	—
5	Gnd	Signal ground
6	—	—
7	—	—
8	—	—
9	—	—

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# RGB 201 R<sub>xi</sub> Universal Interface

# 1 Chapter One

## Introduction

About this Manual

About the RGB 201 R<sub>xi</sub>

Features

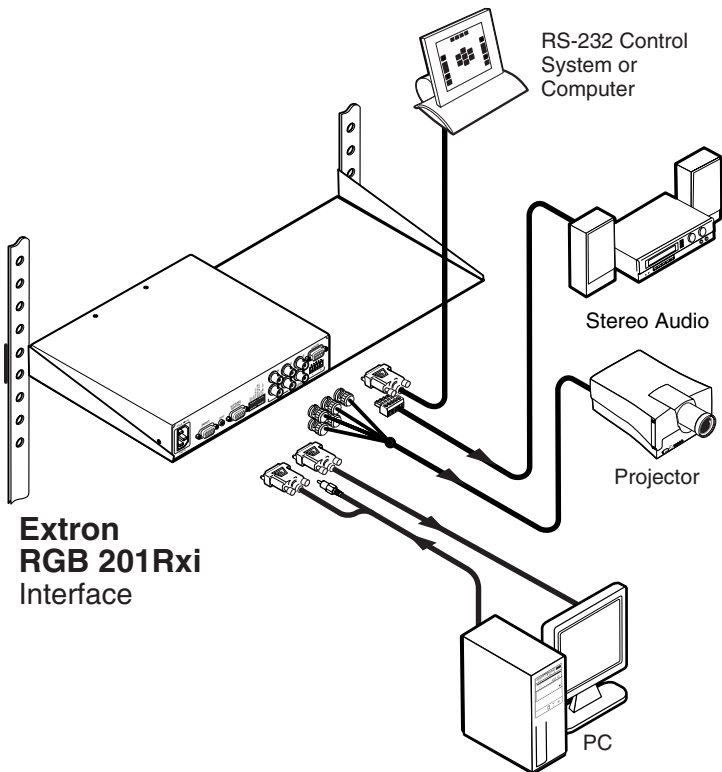
# Introduction

## About this Manual

This manual contains information about the Extron RGB 201 R<sub>xi</sub> universal interface and on how to operate and configure it.

## About the RGB 201 R<sub>xi</sub>

The RGB 201 R<sub>xi</sub> (figure 1-1) is an analog computer-video interface with 300 MHz (-3dB) video bandwidth, Advanced Digital Sync Processing (ADSP™), and Digital Sync Validation Processing (DSVP™). It accepts a computer-video input and an unbalanced computer stereo audio input. It features a local monitor output, an RGBHV, RGBS, RGsB, or RsGsBs output and a balanced, line level stereo audio output. The interface features horizontal and vertical centering and level boost and peaking.



**Figure 1-1 — Typical RGB 201 R<sub>xi</sub> application**

Front panel controls, an RS-232 remote control system, or a PC computer can be used to shift the output image horizontally and vertically.

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The interface is rack and furniture mountable and has an internal switching power supply for worldwide power compatibility.

## Features

**Flexible mounting options** — The RGB 201 R<sub>xi</sub> can be rack mounted, mounted under a desk or podium, or mounted through a desk or other furniture with optional mounting kits.

**Audio** — The interface outputs unbalanced PC stereo audio inputs as line level, balanced stereo or mono audio.

**Level (boost) and peaking controls** — Separate front panel controls compensate for signal losses from long cable runs.

**Horizontal and vertical centering controls** — Separate front panel controls allow horizontal and vertical centering adjustments.

**Sync processing** — Using regular sync processing to allow centering control (H-shift or V-shift) can create problems with some digital display devices as a result of the sync delay. Extron's ADSP option maintains a stable sync signal while allowing centering control. This interface also provides another option, Digital Display Sync Processing (DDSP™), to ensure proper displays without altering sync pulse timing or width. The sync processing type is selected via a rear panel DIP switch.

**Digital Sync Validation Processing** — In critical environments or unmanned, remote locations, it is vital to know which sources are active. Extron's exclusive DSVP confirms that input sources are active by scanning all sync inputs for active signals. DSVP provides instantaneous frequency feedback for composite sync or separate horizontal and vertical sync signals via the interface's Remote port.

**Thirty memory presets** — Thirty spaces are reserved in the interface's memory for storing user-defined combinations of horizontal and vertical position settings based upon input signal scan rates. The interface automatically recalls the position settings when it detects an input signal with a matching scan rate.

**LCD scan rate indicator** — This backlit liquid crystal display (LCD) indicates the horizontal and vertical sync rates, and the minimum and maximum centering limits. A DIP switch is provided for turning off the backlight.

## Introduction, cont'd

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**RGBHV, RGBS, RGSB, or RsGsBs outputs** — Select the output format via cabling setup, rear panel DIP switch, and/or internal DIP switch configuration.

- **Sync on green** — Sync can be added to the green video signal, for an RGSB video output, by turning on a rear panel DIP switch.
- **Sync on red, green, and blue** — Sync can be added to the red and blue video signals, for an RsGsBs video output, by turning on internal DIP switches and a rear panel DIP switch.

**Serration pulse switch** — This DIP switch-selectable feature adds or strips the serration pulses from the output signal to make it compatible with digital display devices. Use the serration pulse switch if flagging or bending occurs at the top of the video display.

**Sync polarity adjustment** — Horizontal and vertical sync output can either follow input sync polarity, or outgoing sync can be forced to negative via an internal jumper.

**Vertical sync pulse width adjustment** — Vertical sync pulse width can be adjusted via a rear panel DIP switch.

**Vented metal enclosure** — Vents in the enclosure keep the interface cool and ready for use 24 hours a day, 7 days per week.

**Automatic sync stripping** — Sync signals are automatically stripped from the red, green and blue video input signals. The interface normally outputs sync simultaneously as separate horizontal and vertical sync and as composite sync, but sync on green (SOG) and sync on red, green, and blue can be selected on rear panel and/or internal DIP switch(es).



## RGB 201 R<sub>xi</sub> Universal Interface

# Chapter Two

## **Installation and Operation**

Installation Overview

Internal Configuration

Mounting the Interface

Rear Panel Connections and Switches

Operation

Troubleshooting

# Installation and Operation

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## Installation Overview

This is an overview of the installation process. You will find detailed installation and operation instructions in this chapter.

To install and set up the RGB 201 R<sub>xj</sub> interface, follow these basic steps:

**NOTE** *Sync polarity, sync-on-red and sync-on-blue, and video clamp configuration require opening the interface's case and should be done before the interface is mounted.*

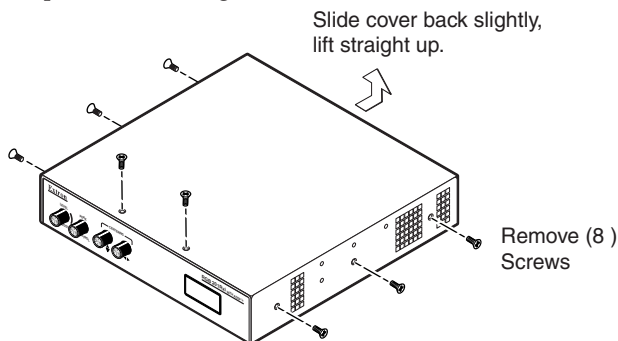
- 1** Turn all of the equipment (computers, remote controls, interface, projector/monitor, local monitor, and speakers or other audio device) off. Disconnect the power cords from the power source.
- 2** If you want the interface to always output positive sync or negative sync, rather than following the input sync polarity, open the interface and shift the internal jumpers as necessary. See *Internal Configuration* and its subsection, *Sync polarity jumpers*, in this chapter.
- 3** If you want the interface to output RsGsBs video, open the interface and shift the internal DIP switches as necessary. See *Internal Configuration* and its subsection, *Internal sync DIP switches (RsGsBs)*, in this chapter.
- 4** If you want the clamp the sync timing of the video output to the sync tip rather than the back porch, open the interface and shift the internal jumper as necessary. See *Internal Configuration* and its subsection, *Video clamping jumper*, in this chapter.
- 5** Install the rubber feet for tabletop use, or install the appropriate brackets and furniture or rack mount the interface. See *Mounting the Interface* in this chapter.
- 6** Connect the inputs (computers), output (display, local monitor, and audio), and remote control. See *Rear Panel Connections and Switches* in this chapter.
- 7** Set the rear panel DIP switches. See *Rear Panel Connections and Switches* in this chapter as a guide.
- 8** Connect power cords and turn on the devices: output devices (projector, monitors, speakers), remote control device, interface, and source computers.
- 9** Adjust horizontal and vertical centering, and also level and peaking to obtain the best picture.

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## Internal Configuration

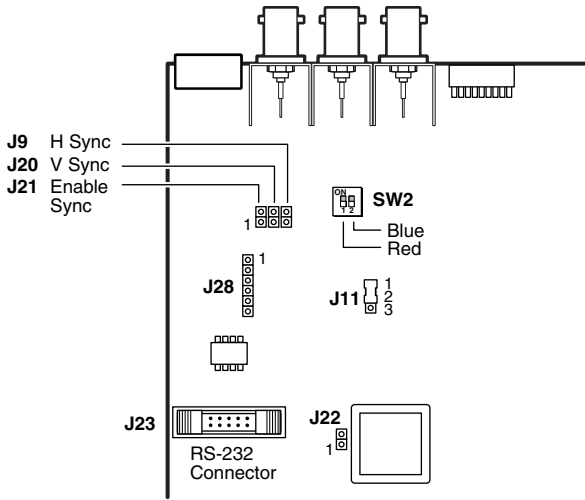
The interface is factory configured to output RGBHV or RGBS video whose sync follows the input and that is clamped to the back porch. The interface can be configured to output positive or negative sync, output RsGsBs video, or to clamp on the sync tip. All of these reconfigurations require opening the interface's case.

1. Remove the three screws on each side and the two screws on top of the cover (figure 2-1).



**Figure 2-1 — Opening the interface**

2. Move the cover back slightly to clear the BNC connectors and then lift it away carefully to avoid straining any cables.
3. Configure the interface as desired. See *Sync polarity jumpers*, *Internal sync DIP switches (RsGsBs)*, and *Video clamping jumper* in this chapter. Figure 2-2 shows the location of all of the user-serviceable components.
4. Replace the cover and reinstall the screws.



**Figure 2-2 — Location of jumpers and DIP switches**

## Sync polarity jumpers

The interface is factory configured for the output sync to follow the input sync. To force positive or negative sync, reconfigure the jumper as follows:

1. Locate J9, J20, and J21 on the printed circuit board.
2. **For sync follow (output sync polarity identical to the input sync)**, ensure that the jumper is removed from jumper block J21.
3. **For positive or negative sync**, ensure that a jumper is installed in jumper block J21 and configure J9 and J20 as follows:
  - a. **Horizontal sync —**  
**For positive sync**, install a jumper in block J9.  
**For negative sync**, remove the jumper from block J9.
  - b. **Vertical sync —**  
**For positive sync**, install a jumper in block J20.  
**For negative sync**, remove the jumper from block J20.



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## Internal sync DIP switches (RsGsBs)

The interface is factory configured to strip all sync signals from the red, green, and blue video input signals and to output horizontal and vertical sync separately (RGBHV) or as composite sync (RGSB). Sync on green (SOG or RGSB) can be selected on a rear panel DIP switch. Sync on red, green and blue (RsGsBs) can be selected on internal DIP switches.

1. Locate DIP switch SW2 on the printed circuit board.

**NOTE** Use a Tweezer or other small screwdriver to toggle the DIP switches between the on/closed or off/open positions.

2. **For RGBHV, RGSB, or RGSB video**, ensure that both switches on the DIP switch block are off.
3. **For RsGsBs video** —
  - a. Ensure that both DIP switches are on.
  - b. Turn the rear panel SOG DIP switch on (up).

**NOTE** When both switches on the internal DIP switch SW2 are on, the rear panel SOG switch controls the output format. When the SOG switch is on, the interface outputs RsGsBs video; when the SOG switch is off, the interface outputs RGBHV and RGSB video.

- c. **Horizontal sync** —

**For positive sync**, ensure that a jumper is installed in jumper block J9.

**For negative sync**, ensure that the jumper is removed from jumper block J9.

- d. **Vertical sync** —

**For positive sync**, ensure that a jumper is installed in jumper block J20.

**For negative sync**, ensure that the jumper is removed from jumper block J20.

## Video clamping jumper

The interface is factory configured to clamp the sync timing to the back porch. To clamp the sync timing to the tip of the sync pulse, reconfigure the jumper as follows:

1. Locate J11 on the printed circuit board.
2. **For sync timing clamped to the back porch**, ensure that a jumper is in place from pin 1 to pin 2.
3. **For sync timing clamped to the sync tip**, ensure that a jumper is in place from pin 2 to pin 3.

## Mounting the Interface

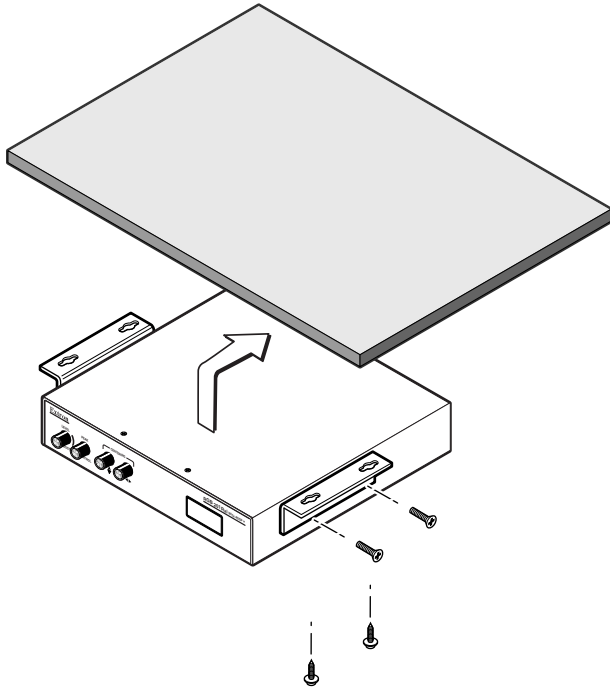
The interface can be mounted on tabletops, under desks, through desks, or on racks, as described in this section.

### Tabletop placement

For tabletop or desktop placement only, install the self-adhesive rubber feet/pads (provided) onto the four corners of the bottom of the interface enclosure.

### Under-desk mounting

1. Secure the optional under-desk mounting brackets (part #70-077-01) to the interface with the six machine screws provided in the mounting kit (figure 2-3).



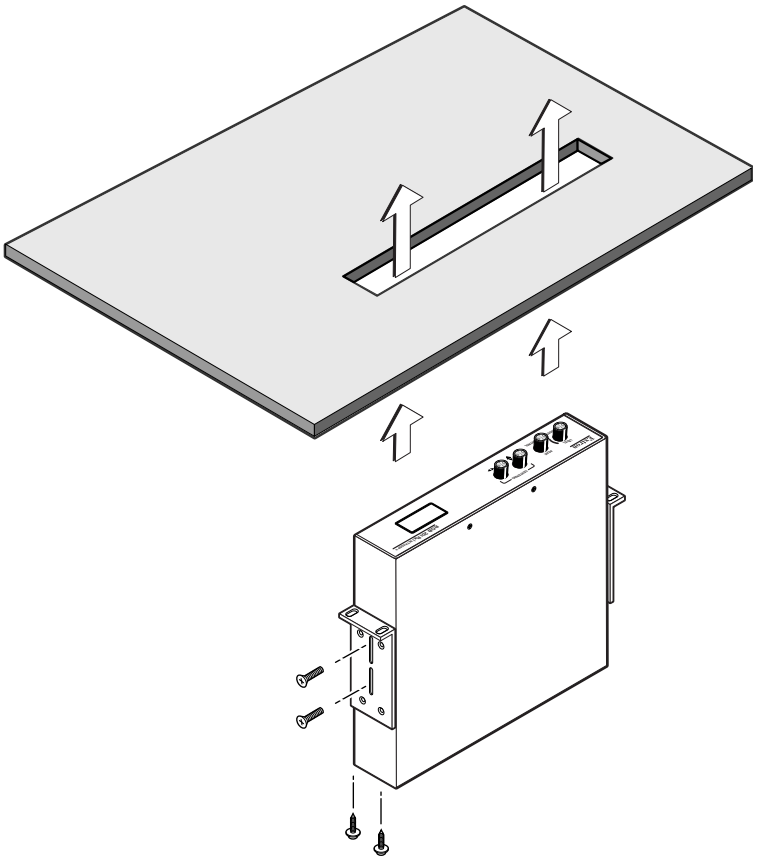
**Figure 2-3 — Under-desk mounting**

2. Hold the interface with attached brackets against the underside of the desk or other furniture. Mark the location of holes for screws on the desk.
3. Drill 1/4" (6.4 mm) deep, 3/32" (2 mm) diameter pilot holes in the table or desk at the marked screw locations from the underside/inside (concealed side) of the furniture, where the interface will be located.

- 
4. Insert the four wood screws into the pilot holes. Fasten each screw into the installation surface until just less than 1/4" of the screw protrudes.
  5. Align the installed screws with the slots in the mounting brackets, and place the interface against the surface, with the screws through the bracket slots.
  6. Slide the interface slightly forward or back, then tighten all four screws to fasten it in place.

### Through-desk mounting

1. If rubber feet were installed on the interface, remove them.



**Figure 2-4 — Through-desk mounting**

## Installation and Operation, cont'd

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2. Insert the machine screws provided in the optional mounting kit (part #70-077-02) through the slots in the through-desk mounting brackets, and loosely secure the brackets to the interface (figure 2-4).
3. Hold the interface with attached brackets against the underside of the desk/table. With a soft pencil mark the location of holes for screws on the desk. Mark the opening, approximately 1.8" x 8.9" ( 4.6 cm x 22.6 cm).
4. Cut out the material from the installation area with a jigsaw. Check the opening size by inserting the interface part way through the hole. If needed, use a saw, file or sandpaper to enlarge the hole. Smooth the edges of the hole with sandpaper.
5. Drill 1/4" (6.4 mm) deep, 3/32" (2 mm) diameter pilot holes in the desk or table at the marked screw locations. The holes should be drilled from the underside or inside (concealed side) of the furniture, where the interface will be located.
6. Secure the interface to the desk with the provided wood screws.
7. To adjust the height of the interface within the desk, slide the interface up or down to the desired position, then tighten the screws that attach the brackets to the interface.

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## Rack mounting

### UL guidelines for rack mounting

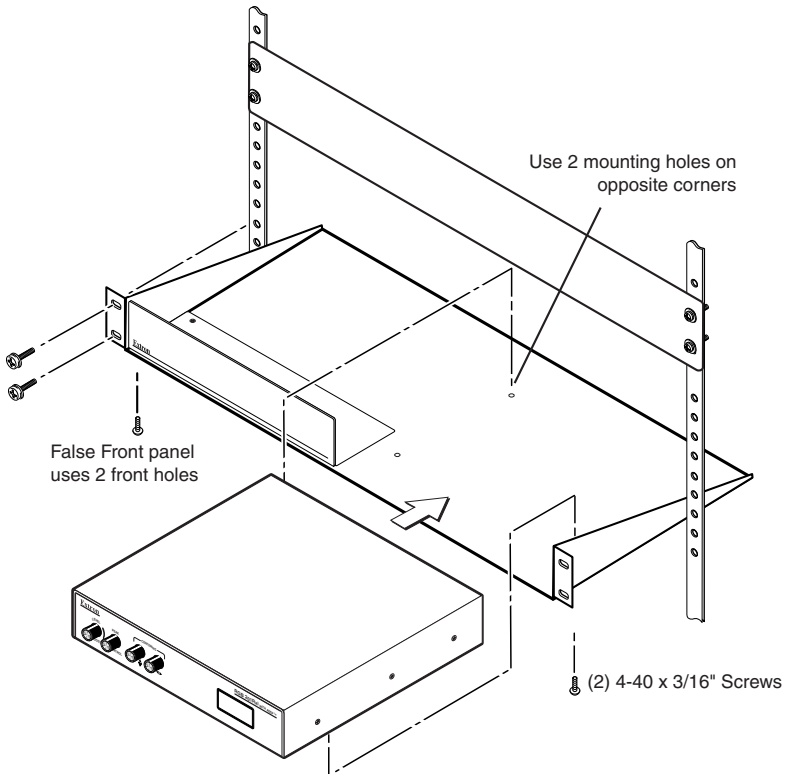
The following Underwriters Laboratories (UL) guidelines are relevant to the safe installation of these products in a rack:

1. **Elevated operating ambient temperature** — If the unit is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>: +122 °F, +50 °C) specified by Extron.
2. **Reduced air flow** — Install the equipment in the rack so that the equipment gets adequate air flow for safe operation.
3. **Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
4. **Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Give appropriate consideration to the equipment nameplate ratings when addressing this concern.
5. **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

### Rack mounting procedure

1. If feet were installed on the bottom of the interface, remove them.
2. Place the interface on one half of the 1U (one unit high, 19" wide) optional rack shelf (part #60-190-01). Align the front of the interface with the front of the shelf, and align the threaded holes on the bottom of the interface with the holes in the rack shelf (figure 2-5).

## Installation and Operation, cont'd

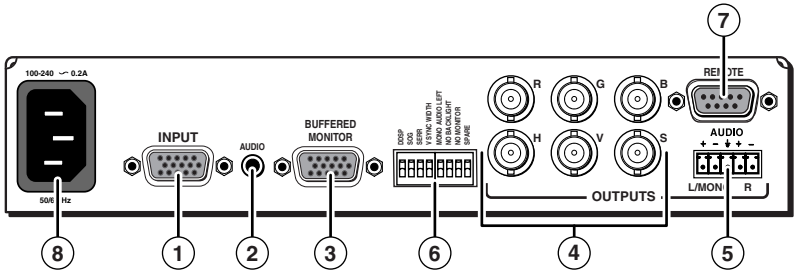


**Figure 2-5 — Rack mounting**

3. Secure the interface to the rack shelf with the two provided 4-40 x 1/8" machine screws. Insert the screws from the underside of the shelf, and securely fasten them through diagonally opposite corners as shown in the illustration above.
4. Fasten the false front panel (provided with the rack shelf) to the unoccupied side of the rack (as shown above), or install a second half-rack-width device in that side by repeating steps 1 through 3.
5. Secure the rack shelf to the rack using four 10-32 x 3/4" bolts. Insert the bolts through #10 beveled washers, then through the holes in the rack ears.

## Rear Panel Connections and Switches

Figure 2-6 shows the rear panel of the RGB 201 R<sub>xi</sub>.



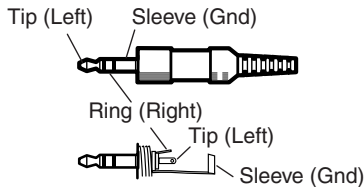
**Figure 2-6 — RGB 201 R<sub>xi</sub> rear panel features**

- 1** **Input** — Connect an analog computer-video source to this 15-pin HD female connector.

**NOTE**

*Most laptop or notebook computers have an external video port, but they require special commands to output the video to that connector. Also, laptops' screens shut off once that port is activated. See the computer's user's guide for details, or contact Extron for a list of laptop keyboard commands.*

- 2** **Audio input** — Connect an unbalanced stereo audio source (such as a computer or a CD player) to this 3.5 mm mini stereo jack for unbalanced audio input. Figure 2-7 shows how to wire the audio plug.



**Figure 2-7 — Audio input connector wiring**

- 3** **Buffered Monitor connector** — If desired, connect a local monitor or other device to this 15-pin HD female connector.

# Installation and Operation, cont'd

- ④ **BNC output connectors** — Connect a coaxial cable between the display (projector or monitor) and these rear panel BNC connectors.

For RGBHV (**separate H and V sync**) output, connect the cables to five BNCs.



For RGBS (**composite sync**), connect the cables to four BNCs.



For RGsB (**sync on green, SOG**) and RsGsBs (**sync on all**), connect the cables to three BNCs. Also select the SOG option on the rear panel DIP switch (see item ⑥, *Dip switches* in this chapter).

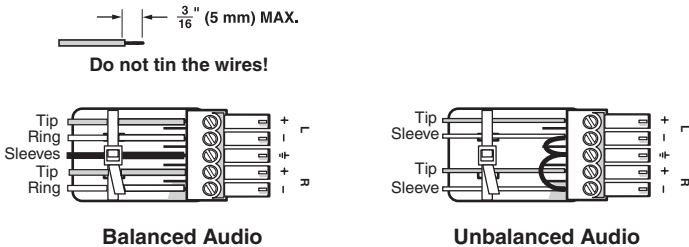


- ⑤ **Audio output connector** — Connect an audio device, such as powered speakers, to this 3.5 mm, 5-pole captive screw connector for balanced or unbalanced audio output.

Figure 2-8 shows how to wire the captive screw audio connector. The connector is included with the interface, but you must obtain the cable. Insert the wires into the appropriate openings in the captive screw connector. Tighten the screws on top to fasten the wires.

**CAUTION** *Wiring the audio incorrectly can damage the audio output circuits.*

*Connect the sleeve(s) to ground (⊕). Connecting the sleeve(s) to a negative (-) terminal will damage audio output circuits.*



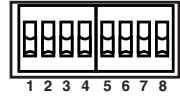
**Figure 2-8 — Wiring the audio output connector**



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⑥ **DIP switches** — This bank of DIP switches is used to configure the interface. The switches control:

- DDSP or ADSP
- SOG (sync on green)
- Serration pulses
- Vertical sync pulse width
- Mono or stereo audio
- Backlight illumination.
- Monitor ID bit termination



**NOTE** *To set the sliding-type DIP switches, use a Tweezer or small screwdriver to slide the switch to the on/up/closed or off/down/open position.*

*The default for all DIP switches is Off (down).*

#### 1 — DDSP

DDSP disables all sync processing. This feature may be necessary for digital display devices such as LCD, DLP (digital light processor), and plasma displays. Use this option if the image is not displayed properly after other options, such as serration pulse and video termination changes, have been tried.

**Up** — The interface uses DDSP instead of ADSP. DDSP does not process the sync signal.

**NOTE** *DDSP disables the horizontal and vertical centering controls.*

**Down** — The interface performs sync processing operations, such as centering, with ADSP.

#### 2 — Sync on green

**Up** — The interface outputs a composite sync signal on top of the green video signal (SOG) via the G output connector (RGsB).

**Down** — The interface outputs separate horizontal and vertical sync (on the H and V connectors) and composite sync (on the S connector) for RGBHV or RGBS.

3 — **Serration pulses** — Many LCD and DLP projectors and plasma displays will not display properly if serration pulses are present in the sync signal. Flagging or bending at the top of the video image is a sign that the serration pulses should be removed.

## Installation and Operation, cont'd

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**Up** — The interface outputs serration pulses in the vertical sync interval.

**Down** — The interface does not output serration pulses.

**4 — Vertical sync pulse width** — For some digital displays, if:

- no picture appears,
- the picture cuts in and out,
- the picture is scrambled,

try adjusting the output vertical sync pulse width or switching from ADSP to DDSP.

**Up** — The vertical sync pulse is narrow.

**Down** — The vertical sync pulse is wide.

**5 — Monaural audio left**

**Up** — Mono audio is output on the left channel only.

**Down** — Normal stereo output.

**6 — No LCD backlight** — This switch controls illumination of the LCD backlight.

**Up** — The LCD backlight is off, except for three seconds at power-up.

**Down** — The LCD backlight is on while a signal is present at the selected input.

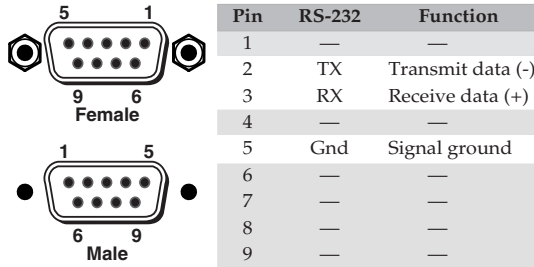
**7 — Local monitor and ID bit termination** — This switch controls input ID bit termination when no local monitor is used.

**Up** — ID bits 4 and 11 are tied to ground.

**Down** — ID bits 4 and 11 are unterminated.

**8 — Spare**

- ⑦ **Remote connector** — Connect an RS-232 device to this DB 9 female connector (figure 2-9) for remote centering control. Software for RS-232 control is included with the interface. See chapter 3, *Remote Control* for details.



**Figure 2-9 — Remote connector pinout**

- ⑧ **AC power connector** — Connect a standard IEC AC power cord here for power input (100VAC to 240VAC, 50/60 Hz) to the internal, autoswitching power supply.

# Installation and Operation, cont'd

## Operation

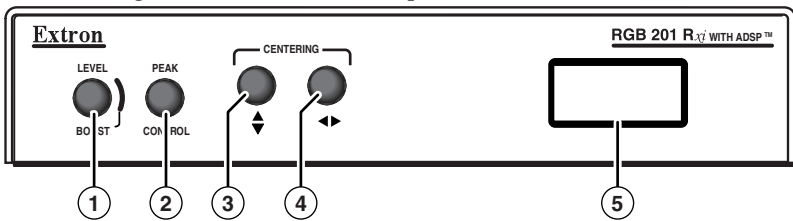
Connect power cords and turn on the display and audio output devices (projectors, monitors, speakers), the interface, and the input device (computer). The system is ready for operation.

The image should now appear on screen, and sound should be audible. If not, ensure that all devices are plugged in and receiving power. Check the cabling and switch settings, and make adjustments as needed.

If problems persist, see *Troubleshooting* in this chapter. If the troubleshooting tips do not help, call the Extron S<sup>3</sup> Sales & Technical Support Hotline.

## Front panel controls and indicators

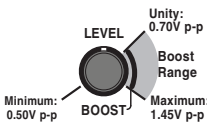
Figure 2-10 shows the front panel of the RGB 201 R<sub>XI</sub>.



**Figure 2-10 — RGB 201 R<sub>XI</sub> front panel**

### Level and peaking controls

- ① **Level/boost control** — The Level/boost control alters the video output voltage to affect the brightness of the displayed image. Adjust the knob while viewing the displayed image to set the level/boost that provides the best picture quality.



If the interface receives a typical (0.7 volts p-p) analog computer video input, the output is as follows:

- At the minimum level setting (the counterclockwise limit of this control), the interface outputs video at 0.5 volts p-p.
- Unity level is 0.7 volts p-p, the same as the input signal. Set the control to just before the boost range (indicated by the red line on the interface, the shaded area on the illustration on the previous page) to output unity level video.

- 
- At the maximum level setting (the clockwise limit of this control), the interface outputs video at 1.45 volts p-p.

Select a setting in the boost range (0.7 volts and above), to compensate for the decrease in signal level that occurs when the signal passes through long cables.

Set the boost at 100% (the maximum level) for cable lengths over 500 feet for all computer signals of 15 kHz to 150 kHz.

- ② **Peaking (Peak) control** — Peaking affects the sharpness of a picture. Increased peaking can compensate for detail (mid- and high-frequency) loss from low bandwidth system components or capacitance in long cables. The minimum setting (at the counterclockwise limit) provides no peaking. The maximum setting (at the clockwise limit) provides 100% peaking. Adjust this control while viewing the displayed image to obtain the optimum picture sharpness.

### Centering controls

Many projectors store centering information in their own memories based on signal frequency. When a projector displays video from different input sources that have the same frequency, one source's images may not be centered. Using the interface's centering controls eliminates that problem.

- ③ **Vertical centering** (↕) — While viewing the displayed image, rotate this control to move the image up or down on the screen. During centering adjustment, the LCD displays V-SHIFT, and it indicates the vertical shift minimum or maximum limit when the centering limit has been reached. See the notes below item ④.

- ④ **Horizontal centering** (↔) — While viewing the displayed image, rotate this control to move the image to the right or left on the screen. During centering adjustment, the LCD displays H-SHIFT, and it indicates the horizontal shift minimum or maximum limit when the centering limit has been reached.

#### **NOTE**

*DDSP disables the interface's vertical and horizontal centering controls. If DIP switch 1 (DDSP) is set to On and either centering control is rotated, the LCD displays N/A DDSP ON.*

*To use the display's centering controls rather than the interface's controls, set the DDSP DIP switch to On.*

## Installation and Operation, cont'd

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### **NOTE**

*The centering controls have no mechanical limits to rotation. When the minimum or maximum limit of the control is reached, LCD indicates the horizontal or vertical shift limit has been reached and the picture stops moving on the screen.*

### **Centering memory**

Turning the centering knobs not only moves the images, but it also stores the horizontal and vertical centering setting in the interface's memory. The interface recalls the centering settings each time it detects a change in the input frequency. Centering adjustments only need to be set once for an application because the settings are saved even when the power is off.

### **LCD display**

- ⑤ **LCD display** — The LCD displays the horizontal and vertical scanning rates of the input signal and indicates the horizontal and vertical centering status and limits.

### **LCD screen backlight**

The LCD backlights for 15 seconds at power-up, and it remains backlit as long as an input signal is present. To force the backlight to remain off at all times except at power-up, set DIP switch 6 (No Backlight) on the rear panel to On (up).

### **Scan rate indication**

When the interface is powered on, the LCD lights for 15 seconds while it determines whether an input sync signal is present. If DIP switch 6 is set to On (up), the LCD lights for three seconds only.

- If the interface does not detect an input sync signal, the LCD goes dark and displays NO SIGNAL until the interface receives an active sync signal.
- If the interface detects an input sync signal, the LCD displays the horizontal and vertical scan rates (sync frequencies) in the following format:

Hxxx.xxk  
Vxxx.xHz

The first line shows the horizontal rate in kilohertz, and the second line shows the vertical rate in Hertz.

### **Centering indications**

While the vertical (◄) or horizontal (◄►) centering (shift) controls are being adjusted, the LCD displays H-SHIFT or V-SHIFT. That message remains on the LCD (in place of the scan rates) until the centering control has been inactive for 3 seconds.

---

When a centering control reaches its minimum or maximum limit, the LCD displays MIN or MAX on the line below H-SHIFT or V-SHIFT.

Once the centering controls are no longer active, the centering settings are saved, and the LCD displays the current scan rates.

If DIP switch 1 (DDSP) on the rear panel is set to On (right) and a centering control is rotated, the LCD displays N/A DDSP ON, and the image does not shift on screen.

## Troubleshooting

Turn on the input device (computer, audio device) and output device(s) (projector, monitors, speakers) and plug in the interface's AC power cord. The image should now appear on the screen, and sound should be audible.

### **If the image does not appear or there is no sound**

1. Ensure that all devices are plugged in.
2. Make sure that each device is receiving power. The interface's front panel LED lights if the interface is receiving power and an active sync signal.
3. Check the cabling and the audio connector wiring and grounding, and make adjustments as needed.
4. For digital display devices (including LCD, DLP and plasma devices), try turning DIP switch 1 (DDSP) On (up) or Off (down) on the rear panel.
5. To test the system setup and output, substitute a stand-alone video test generator (VTG) for the computer input. Unplug the power cords to the input and output devices and the interface, replace the video source with a VTG, then reconnect power cords to restore AC power.
6. Call the Extron S<sup>3</sup> Sales & Technical Support Hotline if needed.

### **If the image is not displayed correctly**

1. If the output image looks too green, the sync on green (SOG) DIP switch (switch 2) may be set to On (up), and the display device may not be configured to handle SOG signals. Set the switch to Off (down).
2. If the picture bends or flags at the top of the screen, set the serration pulse DIP switch (switch 3) to Off (down).
3. For a display device that experiences intermittent glitches, try turning DDSP On (up) or Off (down) using DIP switch 1 on the rear panel.

## Installation and Operation, cont'd

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4. If the picture "hangs off" the edges of the screen, adjust the centering controls (◀▶, ▲▼).
5. If the edges of the image seem to exceed their boundaries or if thin lines and sharp edges look thick and fuzzy, try changing the Level/Boost or Peak Control settings. If the image is too bright, decrease the boost or peaking level.
6. If the image still does not display correctly, call the Extron S<sup>3</sup> Sales & Technical Support Hotline.

### If the interface does not respond to controls

If the picture does not move on screen when the horizontal and vertical centering controls are rotated, DDSP is in use. Set DIP switch 1 (DDSP) on the rear panel to Off (down).

### If the image is not correctly centered

If the picture from a new source computer does not seem correctly centered, the input position memory presets might require resetting. Reset the input position memories as follows:

1. Unplug the interface's AC power cord.
2. Open the interface. See *Internal Configuration* in this chapter.
3. Install a jumper in jumper block J22 (figure 2-2).
4. Plug in the interface's AC power cord, wait approximately 5 seconds, and then unplug the AC power cord.
5. Remove the jumper installed in step 3.
6. Replace the interface's cover and reinstall the screws.
7. Plug in the interface's AC power cord.
8. Select the appropriate input, and adjust the horizontal and vertical centering.





# 3

## **Chapter Three**

### **Remote Control**

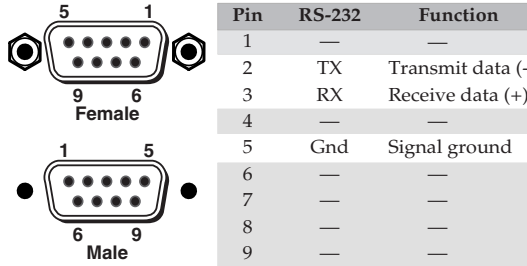
Simple Instruction Set Control

Command/Response Tables for SIS Commands

Control Software for Windows

# Remote Control

The interface's rear panel Remote connector (Figure 3-1) can be connected to the serial port output of a host device, such as a computer or control system. Remote communications with the switcher are via Extron's Simple Instruction Set or Extron's Windows-based control program.



**Figure 3-1 — Remote connector pinout**

The RS-232 protocol of the rear panel Remote connector is 9600 baud, 1 stop bit, no parity, and no flow control.

## Simple Instruction Set Control

### Host-to-interface communications

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

### Interface-initiated messages

When a local event such as a front panel or contact closure selection or adjustment takes place, the interface sends a message to the host. No response is required from the host. The interface-initiated messages are listed here (underlined).

(C) Copyright 2002, Extron Electronics, RGB 201 Rxi, Vx.xx  $\leftarrow$

The interface displays the copyright message when it first powers on. Vx.xx is the firmware version number.

RECONFIG  $\leftarrow$

When a change is made via a front panel control or another operation occurs that must be written to a new memory block, the interface sends the reconfiguration message. No response is required from the RS-232 host, but the host may request a new status listing via the request information command (I/i). See the command/response table in this chapter for details.

## Error responses

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

The error response codes and their descriptions are as follows:

E10 – Invalid command

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

## Timeout

Pauses of 10 seconds or longer between command ASCII characters result in a timeout. The command operation is aborted with no other indication.

## Using the command/response table

The command/response table is on the next page. Lower case letters are allowed in the command field only as indicated. Symbols are used throughout the table to represent variables in the command/response fields. Command and response examples are shown throughout the table. The ASCII to HEX conversion table below is for use with the command/response table.

### Symbol definitions

← = CR/LF (carriage return/line feed) (0x0D 0A)

• = space

**X2** = Shift control range -127 to +127

**X3** = Controller firmware version (listed to two decimal places, “x.xx”)

**X4** = xxx.xx Frequency in Hz or kHz

**X6** = Part number

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
` 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

## Command/response table for SIS commands

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional description
<b>Horizontal shift</b>			
Set horizontal shift	<u>X2</u> H	Hph <u>X2</u> ←	Set horizontal shift value to <u>X2</u> (range -127 to +127).
<i>Example:</i>	28H	Hph+028 ←	Set horizontal shift value to +28.
Increment horizontal shift value	+H	Hph <u>X2</u> ←	Previous horizontal shift value +1 (shift right).
Decrement horizontal shift value	-H	Hph <u>X2</u> ←	Previous horizontal shift value -1 (shift left).
View horizontal shift value	H	<u>X2</u> ←	
<b>Vertical shift</b>			
Set vertical shift	<u>X2</u> /	Vph <u>X2</u>	Set vertical shift value to <u>X2</u> (range -127 to +127).
<i>Example:</i>	-5/	Vph-005 ←	Set horizontal shift value to -5.
Increment vertical shift value	+/	Vph <u>X2</u> ←	Previous vertical shift value +1 (shift up).
Decrement vertical shift value	-/	Vph <u>X2</u> ←	Previous vertical shift value -1 (shift down).
View vertical shift value	/	<u>X2</u> ←	
<b>View, information, part number, and firmware requests</b>			
Information request	I/i	Hph <u>X2</u> •Vph <u>X2</u> •Hrt <u>X4</u> •Vr <u>X4</u> ←	
<i>Example</i>		Hph+028•Vph-005•Hrt48.400•Vrt60.000 ←	Horizontal shift value +28; vertical shift value -5; horizontal rate 48.4 kHz; vertical rate 60 Hz.
Request for part number	N/n	<u>X6</u> ←	
<i>Example:</i>	n	60-507-01 ←	60-507-01 = RGB 201 R <sub>xi</sub> .
Query software version	Q/q	<u>X3</u> ←	
<i>Example:</i>	q	1.23 ←	Software version 1.23 (example only).

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## Control Software for Windows

The included RGB 201 control program, graphical control software for Windows, offers another way to control the interface. The control software is compatible with Windows 3.1, 3.11, 95/98, and above.

### Installing the software

The control program is contained on a set of 3.5-inch diskettes, and, if you choose to use it, must be installed on and run from the hard drive.

To install the software onto the hard drive, run SETUP.EXE from the installation disk #1, and follow the instructions that appear on the screen. The program requires approximately 1.5 MB (megabyte) of hard disk space.

By default the installation creates a C:\RGB201 directory, and it places two icons (RGB 201 Control Pgm and RGB 201 Help) into a group or folder named "Extron Electronics".

### Using the software

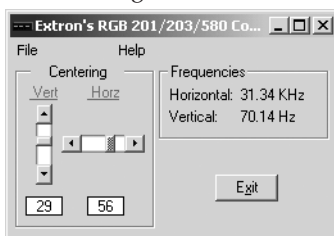
To run the control program, follow these steps:

1. Double-click on the RGB 201 Control Pgm icon in the Extron Electronics group or folder, or on the Rgb201.exe icon in the C:\RGB201 directory. The Comm menu appears on the screen.
2. Click on the comm port that is connected to the interface's RS-232 port. The control software checks for the interface at that port and reads its configuration.



Rgb201.exe

The control program window (Figure 3-2) appears and displays current settings.



**Figure 3-2 — RGB 201 Control program window**

# Remote Control, cont'd

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## Using the help system

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

- From the Extron Electronics program group, double-click on the RGB 201 Help icon.
- From within the Windows-based RGB 201 control program, click on the Help entry on the task bar.
- From within the Windows-based RGB 201 control program, press the F1 key.



Rgb201.hlp



## RGB 201 R<sub>xi</sub> Universal Interface

# A **Appendix**

## **Reference Information**

Specifications

Included Parts

Optional Accessories

Cables

# Reference Information

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## Specifications

### Video

Gain .....	0.5V to 1.45V p-p
Bandwidth .....	300 MHz (-3dB)
Rise time .....	1.5 ns

### Video input

Number/signal type.....	1 analog RGBHV, RGBS, RGsB, RsGsBs
Connectors .....	1 female 15-pin HD
Nominal level .....	0.7 Vp-p for RGB
Minimum/maximum levels.....	Analog: 0.3 V to 1.45 Vp-p with no offset at unity gain
Impedance .....	75 ohms
Horizontal frequency.....	15 kHz to 150 kHz
Vertical frequency .....	40 Hz to 140 Hz
Return loss .....	<-30dB @ 5 MHz
Maximum DC offset .....	4 V

### Video output

Number/signal type.....	1 analog RGBHV, RGBS, RGsB
Connectors .....	6 BNC female
Nominal level .....	0.7 Vp-p for RGB
Minimum/maximum levels .....	0.3 V to 1.30 Vp-p with 0.7 Vp-p nominal input level
Impedance .....	75 ohms
Return loss .....	-30 dB @ 5 MHz
DC offset .....	±5 mV with input at 0 offset

### Sync

Input type .....	RGBHV, RGBS, RGsB, RsGsBs
Output type.....	RGBHV, RGBS, RGsB
Input level .....	2 V to 5.5 Vp-p with ±0.2 VDC offset max.
Output level.....	TTL: 4V to 5 Vp-p, unterminated
Input impedance .....	510 ohms
Output impedance .....	75 ohms
Max. propagation delay .....	85 ns
Max. rise/fall time .....	2 ns
Polarity .....	RGBHV: tracks polarity (or force negative sync via internal jumper) RGBS, RGsB: negative



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## Audio

Gain.....	Unbalanced output: 0dB; Balanced output: +6dB
Frequency response .....	20 Hz to 20 kHz, $\pm 0.05$ dB
THD + Noise .....	0.03% @ 1 kHz, 0.3% @ 20 kHz at nominal level
S/N .....	>90 dB at rated maximum output (17dBu) (unweighted), balanced
Crosstalk .....	<-90dB @ 1 kHz
Stereo channel separation .....	>90dB @ 1 kHz

## Audio input

Number/signal type .....	1 PC level stereo, unbalanced
Connectors .....	(1) 3.5 mm mini audio jack (tip, ring, sleeve)
Impedance .....	>10 kohms, unbalanced, DC coupled
Nominal level .....	-10 dBV (316mV)
Maximum level .....	+8.5 dBu, (balanced or unbalanced) at 1% THD+N

**NOTE**     $0\text{dBu} = 0.775\text{ V}_{\text{rms}}$ ,  $0\text{dBV} = 1\text{ V}_{\text{rms}}$ ,  $0\text{dBV} \approx 2\text{dBu}$

## Audio output

Number/signal type .....	1 buffered stereo (2 channel) or mono, balanced/unbalanced
Connectors .....	(1) 3.5 mm captive screw connector, 5-pole
Impedance .....	50 ohms unbalanced, 100 ohms balanced
Gain error .....	$\pm 0.1$ dB channel to channel
Maximum level (Hi-Z) .....	>+14 dBu, balanced at 1% THD+N
Maximum level (600 ohm) .....	>+8.5 dBm, balanced at 1% THD+N

## Control/remote — interface

Serial control port .....	RS-232, 9-pin female D connector
Baud rate and protocol .....	9600, 8 data bits, 1 stop bit, no parity
Serial control pin configuration ....	2 = TX, 3 = RX, 5 = GND
Program control.....	Extron's control program for Windows® Extron's Simple Instruction Set – (SIS™)

## Reference Information, cont'd

### General

Input power .....	100VAC to 240VAC, 50/60 Hz, 18 watts, internal, autoswitchable
Temperature/humidity .....	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non-condensing Operating +32° to +113°F (0° to +45°C) / 10% to 90%, non-condensing
Rack mount .....	Yes, with an optional rack shelf (part #60-190-01)
Furniture mount .....	Yes, with an optional under-desk mounting kit (part #70-077-01) or through-desk mounting kit (part #70-077-02)
Enclosure type .....	Metal, vented
Enclosure dimensions .....	1.75" H x 8.75" W x 8.0" D (1U high, half rack width) 4.4 cm H x 22.2 cm W x 20.3 cm D with rear BNCs..... D = 8.4" (21.3 cm) (Depth excludes knobs.)
Product weight .....	2.2 lbs (1.0 kg)
Shipping weight .....	5 lbs (2.3 kg)
Vibration .....	ISTA/NSTA 1A in carton (International Safe Transit Association)
Regulatory	
Listings.....	CE, UL, CUL
Compliances.....	CE, C-tick, FCC Class A, VCCI, ICES
MTBF.....	30,000 hours
Warranty .....	3 years parts and labor

**NOTE**     *Specifications are subject to change without notice.*

### Included Parts

These items are included in each order for a RGB 201 R<sub>x</sub>i:

Included Parts	Part number
RGB 201 R <sub>x</sub> i	60-507-01
3.5 mm, 5-pole captive screw connector	10-319-10
<i>RGB 201 R<sub>x</sub>i User's Manual</i>	
Rubber feet	
IEC power cord	
Windows-based control software	
Tweaker	

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## Optional Accessories

Accessories	Part number
Under-desk mounting bracket kit	70-077-01
Through-desk mounting bracket kit	70-077-02
1U rack shelf	60-190-01
3.5 mm stereo plug	10-306-01
Installation cable (bulk 14-conductor, non-plenum)	22-120-02
Installation cable (bulk 17-conductor, plenum)	22-111-03

## Cables

Adapter cables with Audio	Part number
VGA M-M 3' MHRA (molded) (0.9 m)	26-490-01
VGA M-M 6' MHRA (molded) (1.8 m)	26-490-02
VGA M-M 12' MHRA (molded) (4.6 m)	26-490-03
VGA M-M 25' MHRA (molded) (7.6 m)	26-490-04
VGA M-M 35' MHRA (molded) (10.7 m)	26-490-06
VGA M-M 50' MHRA (molded) (15.25 m)	26-490-05
VGA M-M 3' 90 HRA (0.9 m)	26-510-01
VGA M-M 6' 90 HRA (1.8 m)	26-510-02
VGA M-M 12' 90 HRA (4.6 m)	26-510-03
VGA M-M 3' 90 UHRA (0.9 m)	26-510-21
VGA M-M 6' 90 UHRA (1.8 m)	26-510-22
VGA M-M 12' 90 UHRA (4.6 m)	26-510-23
VGA M-F 3' micro HRA (0.9 m)	26-565-01
VGA M-F 6' micro HRA (1.8 m)	26-565-02
VGA M-F 12' micro HRA (4.6 m)	26-565-03
VGA M-F 25' micro HRA (7.6 m)	26-565-04
VGA M-M 3' micro HRA (0.9 m)	26-566-01
VGA M-M 6' micro HRA (1.8 m)	26-566-02
VGA M-M 12' micro HRA (4.6 m)	26-566-03
VGA M-M 25' micro HRA (7.6 m)	26-566-04

## Reference Information, cont'd

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<b>BNC cables</b>	<b>Part number</b>
BNC-5 3' HR	26-260-15
BNC-5 6' HR	26-260-01
BNC-5 12' HR	26-260-02
BNC-5 25' HR	26-260-03
BNC-5 50' HR	26-260-04
BNC-5 75' HR	26-260-16
BNC-5 100' HR	26-260-05
BNC-5 3' HRP	26-378-01
BNC-5 6' HRP	26-378-02
BNC-5 12' HRP	26-378-03
BNC-5 25' HRP	26-378-04
BNC-5 50' HRP	26-378-05
BNC-5 75' HRP	26-378-06
BNC-5 100' HRP	26-378-07

## 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 USA  
1001 East Ball Road  
Anaheim, CA 92805  
U.S.A.

**Europe, Africa, and the Middle East:**

Extron Europe  
Hanzeboulevard 10  
3825 PH Amersfoort  
The Netherlands

**Asia:**

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

**Japan:**

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

**China:**

Extron China  
686 Ronghua Road  
Songjiang District  
Shanghai 201611  
China

**Middle East:**

Extron Middle East  
Dubai Airport Free Zone  
F12, PO Box 293666  
United Arab Emirates, Dubai

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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