Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

User's Manual

SW VGA / Ars Series

SW2 VGArs, SW2 VGA Ars
SW4 VGArs, SW4 VGA Ars
SW6 VGArs, SW6 VGA Ars

68-646-01 **Rev. F**
08 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 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 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 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'il 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 den 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. Desechar las baterías usadas siguiendo las instrucciones del fabricante.

Extron Warranty

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

USA, Canada, South America,
and Central America:
Extron 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.

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。

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

SW VGArs / Ars Series Switchers

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Chapter One

Introduction

About this Manual

SW VGArs and SW VGA Ars Series Switchers

Introduction

About this Manual

This manual contains information about the Extron SW VGArs /Ars Series switchers and how to operate and configure them.

SW VGArs and SW VGA Ars Series Switchers

The SW VGArs / Ars Series switchers are two, four, or six input VGA switchers, each with a buffered output and 350 MHz (-3 dB) bandwidth (figure 1-1). They accept VGA, SVGA, XGA, SXGA, and UXGA computer video input (the VGA Ars models also include audio input and output). The SW VGArs and SW VGA Ars Series switchers can also switch Macintosh signals when used with an optional Mac/VGA adapter (part #**36-340-02**).
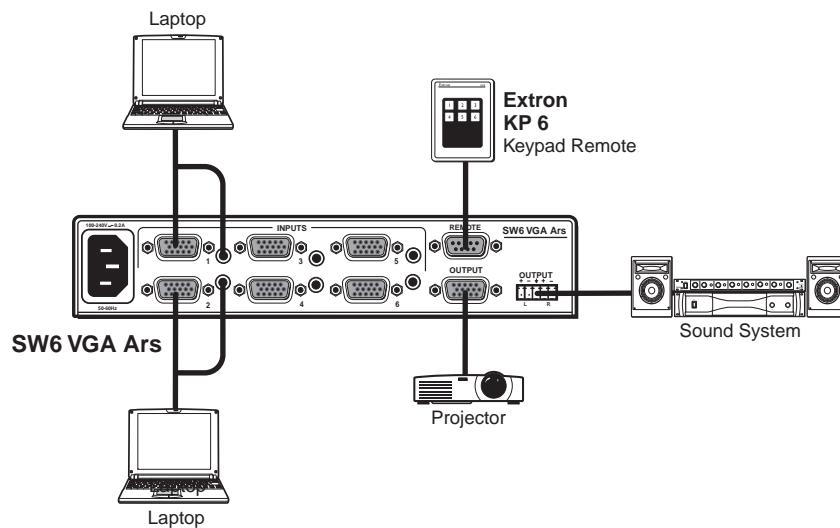
Figure 1-1 — Typical SW VGArs switcher application

The switchers are in rack-mountable, 1U high, half rack-width metal enclosures with internal, universal 100 - 240 VAC 50/60 Hz power supplies. All models have contact closure and RS-232 remote control capability through the 9-pin Remote connector (see "Remote connector" on page 2-9). The KP 6 wired remote control and the IR 102 Kit infrared remote control are optional remote controls. The KP 6 has a 25-foot cable. The IR 102 Kit has an operating range of approximately 30 feet.

Front panel buttons, a contact closure or RS-232 controller, or the autoswitching option can be used for input selection.

Features

- Up to two, four, or six inputs, depending on the model
- Input sensing (present or not present) and reporting on the RS-232 port
- 350 MHz (-3 dB) bandwidth
- Auto switch mode (button or remote selectable)
- 9-pin contact closure/RS-232 remote control connector
- Compatible with Extron VSW I AAP (VGA/Audio input module with the Show Me control button) (figure 1-2)
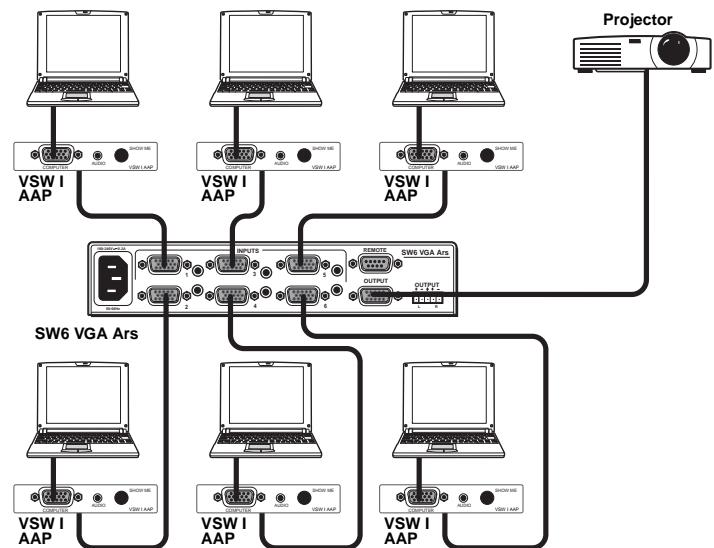
Figure 1-2 — Typical application with VSW I AAP

- Rack- and under-desk mountable
- 1U, half rack width enclosure
- Internal universal power supply
- Input/output connectors – VGA, female 15-pin HD
- Compatible with VGA, SVGA, XGA, SXGA, and UXGA computers
- Compatible with Mac and Quadra computers with optional Extron Mac/VGA Adapter (#**26-340-01**)

2

Chapter Two

Installation

Installation Overview

Mounting the Switcher

Rear Panel Features and Connections

Installation

Installation Overview

To install and set up the SW VGArs / Ars Series switchers, follow these steps:

1 Turn all of the equipment off. Ensure that the video and audio sources (computers, stereos, tape decks or other devices), the SW VGArs / Ars switcher, the output devices (projectors, speakers), and contact closure control device are all turned off and disconnected from the power source.

2 If you are going to connect VSW I AAP remote controls to one or more inputs, identify the version of the SW VGArs / Ars circuit board (to ensure that the VSW I AAPs will work with this version) and configure the switcher's jumpers. See "Identifying the Board Version and Setting the SW VGA/Ars Jumpers" on page 2-10.

3 Mount the switcher. See "Mounting the Switcher" on the next page.

4 Attach the cables. See "Rear Panel Features and Connections" later in this chapter.

5 Connect power cords and turn on the devices in the following order:
- Output devices (projectors, monitors, speakers)
- SW VGArs / Ars Series switcher
- Contact closure/RS-232 controller
- Input devices (computers, audio sources)

6 Select an input using the front panel buttons, or the contact closure or RS-232 controller.

7 The picture should now appear and sound should be audible (SW VGA Ars models). If not:
- Ensure that all devices are plugged in and receiving power.
- Check the cabling and make adjustments as needed.
- Select a different input that is known to work to check for a display and sound.

Mounting the Switcher

NOTE *If you are going to connect VSW I AAP remote controls to one or more inputs, identify the version of the SW VGArs / Ars circuit board (to ensure that the VSW I AAPs will work with this version) and configure the switchers' jumpers* **before mounting the switcher***. See "Identifying the Board Version and Setting the SW VGA/Ars Jumpers" on page 2-10.*

Rack mounting

UL guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the installation of the switcher into a rack (figure 2-1).

1. **Elevated operating ambient** — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consider installing the equipment in an environment compatible with the maximum 122 °F (50 °C) ambient temperature (Tma) specified by Extron.

2. **Reduced air flow** — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

3. **Mechanical loading** — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

4. **Circuit overloading** — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

5. **Reliable earthing (grounding)** — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Installation, cont'd

Installation instructions

For optional rack mounting, mount the SW VGArs / Ars Series on an optional RSU 129 1U Universal Rack Shelf (part #**60-190-01**) or RSB 129 1U Basic Rack Shelf (part #**60-604-01**) (figure 2-1). The switcher mounts either to the right or to the left at the front of the rack.

RSU 129 1U Universal Rack Shelf

1/2 Rack Width Front False Faceplate

Front false faceplate uses 2 screws.

(2) 4-40 x 3/16" Screws

NOTE: Using screws longer than 3/16" will damage the unit and void the warranty.

Use 2 mounting holes on opposite corners.
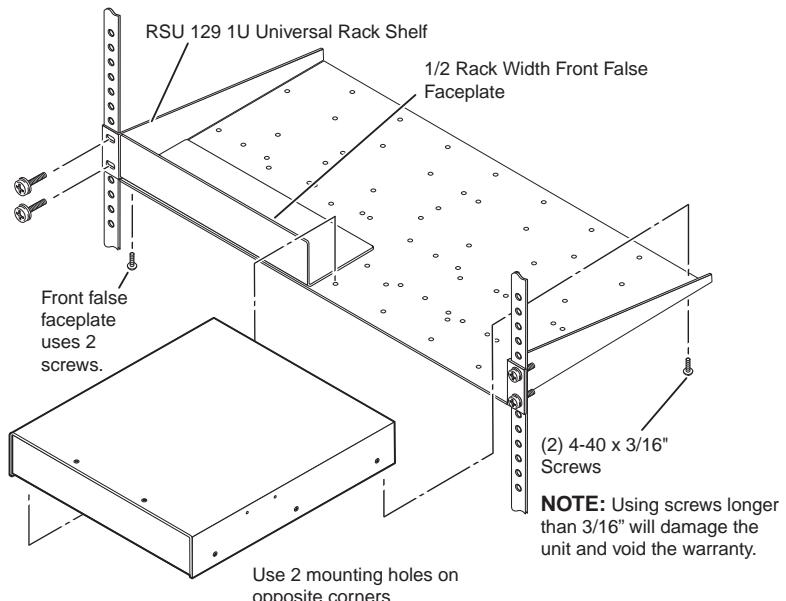
Figure 2-1 — Rack-mounting the switcher

1. If rubber feet were previously installed on the bottom of the switcher, remove them.

2. Mount the SW VGArs / Ars Switcher on the rack shelf, using two 4-40 x 3/16-inch screws in opposite (diagonal) corners to secure the switcher to the shelf (figure 2-1).

3. Attach a blank panel or other unit(s) to the rack shelf.

4. Insert the shelf into the rack, aligning the holes in the shelf with those of the rack.

5. Secure the shelf to the rack using the supplied machine screws.

Furniture mounting

All of the switcher models can be mounted under furniture, such as a table or podium surface, using optional MBU 125 under-desk mounting brackets (#**70-077-01**). All models can also be mounted through a table or podium, using optional MBD 129 through-desk mounting brackets (#**70-077-02**). Furniture mount the switcher as follows:

1. Attach the mounting brackets to the switcher with the provided machine screws (figure 2-2).

Through Desk Kit   **Under Desk Kit**
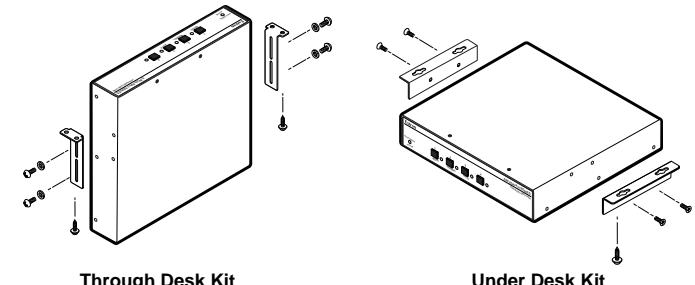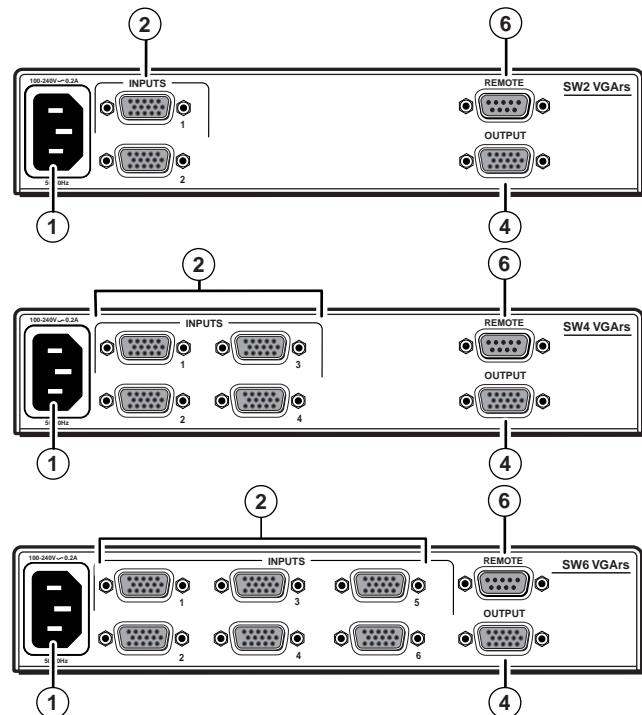
Figure 2-2 — Under surface or through surface mounting

2. **For through-surface mounting**, cut the proper sized hole in the mounting surface.

3. **For through-surface mounting,** hold the switcher with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.

4. **For through-surface mounting,** drill four 3/32-inch (2 mm) diameter pilot holes, 1/4 inch (6.3 mm) deep in the mounting surface at the marked screw locations.

5. **For through-surface mounting,** insert four #8 wood screws through the bracket and into the four pilot holes. Tighten all four screws to secure the switcher in place.

6. **For under-surface mounting**, insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4 inch of the screw head protrudes.

7. **For under-surface mounting**, align the mounting screws with the slots in the brackets and place the switcher against the surface, with the screws through the bracket slots.

8. **For under-surface mounting**, slide the switcher slightly forward or back, then tighten all four screws to secure the switcher in place.

Rear Panel Features and Connections
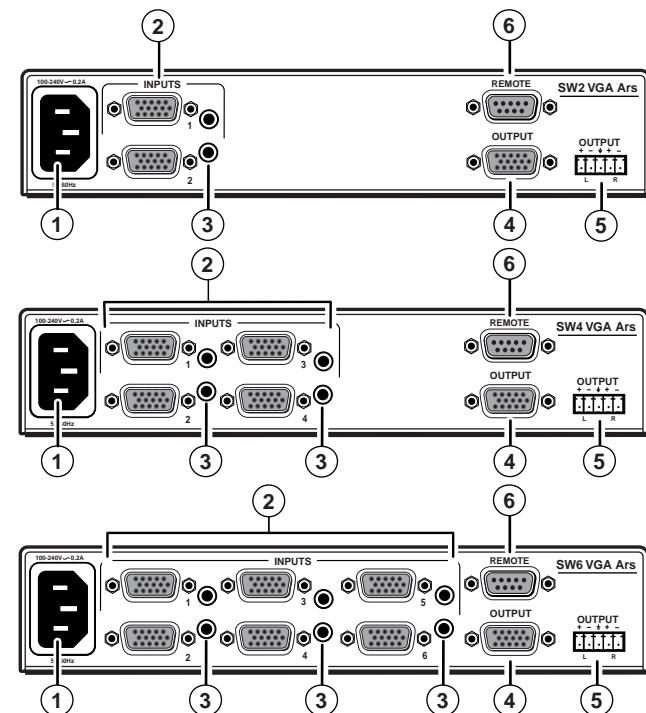
All connectors are on the rear panel. Depending on the model of the switcher, the number of connectors on the rear panel varies. Figure 2-3 shows the rear panels of the SW VGArs switchers. Figure 2-4 shows the rear panels of the SW VGA Ars switchers.

Figure 2-3 — Rear panel - SW VGArs switchers (no audio input or output connectors)

Power connection

1 **AC power connector** — Plug a standard IEC power cord into this connector to connect the switcher to a 100 to 240 VAC, 50 Hz or 60 Hz power source.

Figure 2-4 — Rear panel - SW VGA Ars switchers (with audio input and output connectors)

Signal input connections

All models

2 **Computer input connectors** — Connect the computer inputs (VGA, SVGA, XGA, SXGA, or UXGA) to these female, 15-pin HD connectors. The number of available inputs varies with the switcher model.

NOTE *These input connectors are also compatible with Extron VSW I AAP VGA video and audio input modules with the Show Me control button. Refer to the* VSW I AAP *user's manual for details.*

NOTE *The switcher routes the ID bits, pins 4, 11, 12, and 15, from input 1 **only** to the output.*

Installation, cont'd

Audio (SW VGA Ars) models only

3 **Audio input connector** — Plug a 3.5 mm stereo plug into this jack for unbalanced audio input. Wire the plug as shown in figure 2-5. The number of inputs available varies with the switcher model.

NOTE *When making connections to the switcher using existing audio cables, see figure 2-5. A stereo audio connector consists of a tip, ring and sleeve. The ring, tip, and sleeve wires are also shown on the audio output captive screw audio connector diagram, figure 2-6.*

Tip (L) Sleeve (GND)

Ring (R)

Tip (L)

Sleeve (GND)
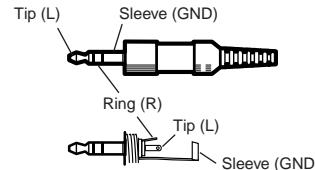
Figure 2-5 — 3.5 mm stereo audio plug

Signal output connection

All models

4 **Output connector** — Connect the monitor to this female, 15-pin HD connector.

Audio (SW VGA Ars) models only

5 **Audio output connector** — Insert a 3.5 mm, 5-pole, one-piece captive screw audio connector into this connector. Wire the connector as shown in figure 2-6. Use the supplied tie-wrap to strap the audio cable to the extended tail of the connector.

CAUTION *For unbalanced audio output, connect the sleeve(s) to the ground contact. **DO NOT** connect the sleeve(s) to the negative (-) contacts).*

Tip
Ring
Sleeve (s)
Tip
Ring
Balanced Stereo Output

Tip
NO GROUND.
Sleeve (s)
Tip
NO GROUND.
Unbalanced Stereo Output
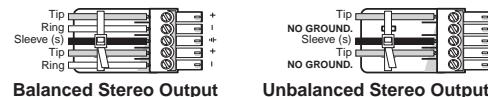
Figure 2-6 — Captive screw connector for wiring audio output

NOTE *The length of exposed wires is critical. The ideal length is 3/16" (5 mm).*

- *If the stripped section of wire is longer than 3/16", the exposed wires may touch each other, causing a short circuit between them.*

- *If the stripped section of wire is shorter than 3/16", wires can be easily pulled out even if tightly fastened by the captive screws.*

Remote connection

6 **Remote RS-232/contact closure connector** — Connect a computer or RS-232 control module to this 9-pin D connector to allow remote control using the Simple Instruction Set (SIS™) or the Extron graphical control program for Windows (see chapter 4, "Remote Control", for details). You may also connect a KP 6 remote control keypad (part #**60**-**111**-**20**) or an IR 102 Kit infrared remote control (part #**70**-**224**-**01**) system to this connector (see figure 2-7).

NOTE *The switcher can be controlled only by an RS-232 device **OR** a contact closure device, not both.*

The cable used to connect the Remote port to a computer, control system, contact closure device, or IR control kit may need to be modified by removing pins or cutting wires. If unneeded pins are connected, the switcher may hang up. See chapter 4, "Remote Control", for additional information.

REMOTE

PIN	RS-232	Contact Closure	Function
1	—	In #1	Input #1
2	TX	—	Transmit data
3	RX	—	Receive data
4	—	In #2	Input #2
5	Gnd	Gnd	Ground
6	—	In #3	Input #3
7	—	In #4	Input #4
8	—	In #5	Input #5
9	—	In #6	Input #6

Figure 2-7 — Remote connector pinout

Identifying the Board Version and Setting the SW VGA/Ars Jumpers

> **NOTE** *If you plan to use the switcher with VSW I AAP remote controls, you must configure the switcher. It is more convenient to do this before installing it in a rack or furniture and making connections.*

Using the SW VGA/Ars switcher with VSW I AAP control panels requires you to set internal jumpers in the switcher. When you open the switcher, you can also check the circuit board installed in the switcher to ensure that it is compatible with the VSW I AAP control panels.

> **NOTE** ***On the VSW I AAP remote control**, ensure that jumper J6 is installed. Refer to the VSW I AAP manual for details.*

1. If applicable, disconnect all power to the switcher and any attached devices.

2. Remove the eight screws from the switcher (three on each side of the switcher and two on top) (figure 2-8). Remove the two connector nuts from the Remote connector (⑥ on figure 2-3 and figure 2-4) and each VGA connector (② and ④ on figure 2-3 and figure 2-4) on the rear panel of the switcher. Lift the top cover off of the switcher.

Remove (2) nuts each side of each 9-pin and 15-pin connector.

Lift Cover Straight Up
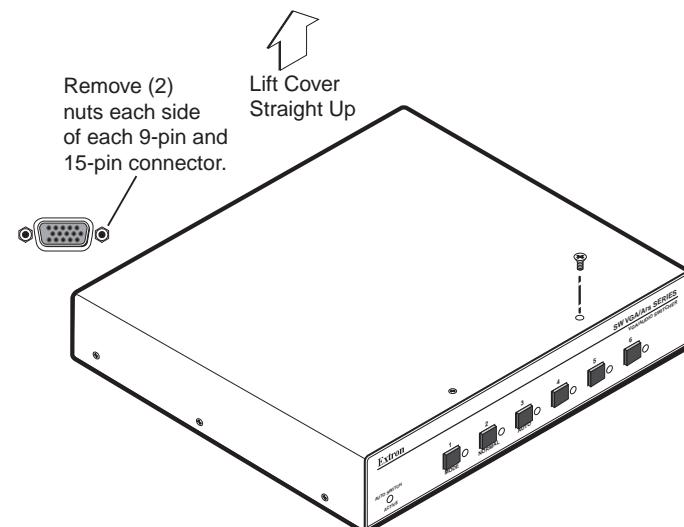
Figure 2-8 — Removing the cover

3. See the revision label on the board (figure 2-9), which list the board's part number. Use this information to check compatibility with the VSW I AAP(s).

> **NOTE** *If the board's part number is **not** 20-1118-0n, this SW VGA/Ars is **not** compatible with the VSW I AAP.*

REAR PANEL

JMP13 JMP15 JMP9 JMP11 JMP5 JMP7

Revision label
Board:
Version:

EXTRON 20-1118-02 A
ER:- *nnnnnnnn nnnn*

NOTE *ER number and final digit of part number may change.*
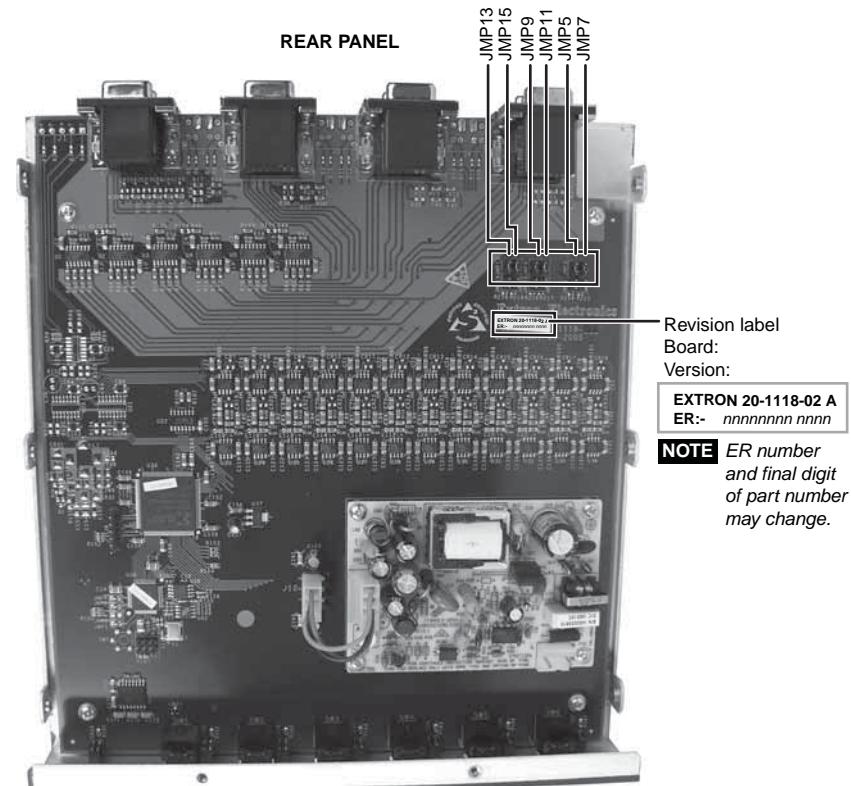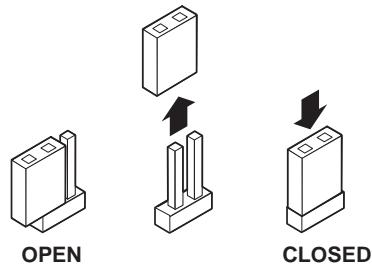
Figure 2-9 — Board version and location of jumpers

4. Set the jumpers for the switcher. See "Configuring the switcher", on the next page.

5. Set the cover in place and resinstall the screws and connector nuts removed in step **2**.

Installation, cont'd

Configuring the switcher

There are six jumpers on the circuit board, numbered JMP5, JMP7, JMP9, JMP11, JMP 13, and JMP15, that control connection with one or more VSW I AAP control panels (figure 2-9 and figure 2-10).

OPEN   **CLOSED**

All jumpers are set open (removed) by default. The jumpers in the table below must be set closed (installed) when a VSW I AAP is connected to the associated input.

Close the indicated jumpers in the table below to adjust the appropriate settings.

VSW I AAP connected to:	Jumper	VSW I AAP connected to:	Jumper
Input 1	JMP5	Input 4	JMP11
Input 2	JMP7	Input 5	JMP13
Input 3	JMP9	Input 6	JMP15

Figure 2-10 — Jumper positions vs. VSW I AAP input connections

These jumpers enable/disable VGA connector pin 5 (control) for each input. Close (install) the jumper for a specific VGA input to allow the VSW I AAP's "show me" signal to select that input.

NOTE *When an input is not connected via a VSW I AAP, that input's jumper should be in the default (open) position.*

Each jumper, when closed (installed) allows the switcher to receive the "show me" signal from the VSW I AAP on that input's VGA connector. When a jumper is open (removed) that input cannot receive the signal.

NOTE *Auto switch mode must be disabled when using the switcher with one or more VSW I AAP remote controls. If the auto switch mode is enabled, the input cannot be selected using the "show me" function.*

3

Chapter Three

Operation

Front Panel Controls and Indicators

Front Panel Operations

Operation

Front Panel Controls and Indicators

NOTE *The front panels are identical for the non-audio (SW VGArs) and audio (SW VGA Ars) models.*

Figure 3-1 shows the controls and indicators on the front panel of the SW6 VGArs / Ars Series switchers.

Front panel buttons and LEDs

① **Auto Switch Active LED** — When this LED is on, it indicates that the auto switch mode is active.
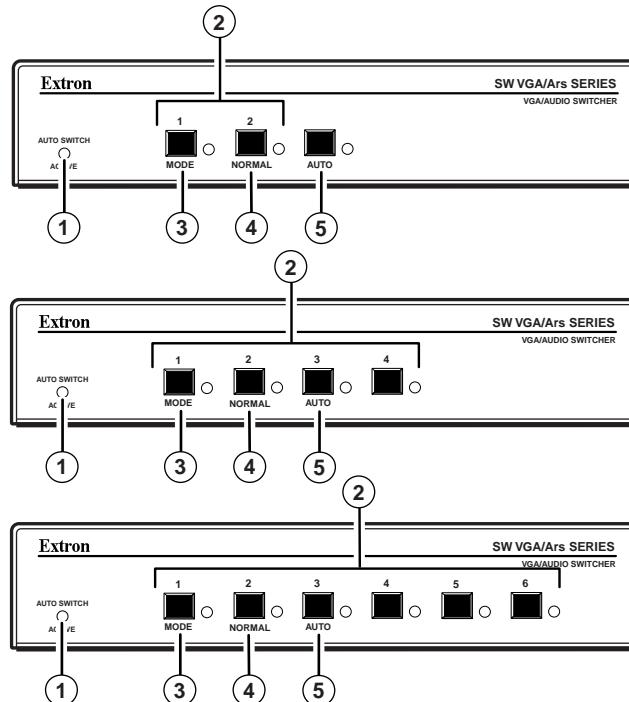
Figure 3-1 — Front panel (SW VGArs and SW VGA Ars front panels are identical).

② **Input selection buttons and LEDs** — When the auto switch mode is off, use these buttons to select the input. The LED for the selected input lights.

The LEDs continue to indicate the selected input when auto switch mode is on. If no input LED is lit, no input has active sync pulses and no input is selected.

③ **Mode button** — Use this button, with either the Auto or the Normal button, to manually turn auto switch mode on or off.

Mode is a secondary function of the Input 1 button.

④ **Normal button** — Use this button, with the Mode button, to manually turn auto switch mode off.

Normal is a secondary function of the Input 2 button.

⑤ **Auto button** — Use this button, with the Mode button, to manually turn auto switch mode on.

On 4-input and 6-input switchers, Auto is a secondary function of the Input 3 button.

Front Panel Operations

Plug in all system components and turn on the input devices (such as desktop computers and laptops) and the output monitor. Select an input. The image should appear on the monitor.

Normal and auto switch modes

All SW VGArs / Ars Series switchers can operate in either normal (manual switch) mode or auto switch mode. In auto switch mode, the highest numbered input with a sync signal present is automatically selected for output. If no sync signal is present, no input is selected. Input selection by the front panel buttons is blocked while the switcher is in auto switch mode. However, the front panel LEDs remain functional and the buttons can be used to view or change the mode.

Viewing the current switch mode

You can determine the current switch mode at any time by noting the state of the Auto Switch Active LED. This LED is lit if the switcher is in auto switch mode.

Selecting normal switch mode

Press and **hold** the Input 1/Mode button while you press and release the Input 2/Norm button. The Auto Switch Active LED turns off, indicating normal switch mode. Release the Input 1/Mode button.

Operation, cont'd

Selecting auto switch mode

Press and **hold** the Input 1/Mode button while you press and
release the Input 3/Auto button. The Auto Switch Active LED
turns on, indicating auto switch mode. Release the
Input 1/Mode button.

NOTE *Auto switch mode must be disabled when using the
switcher with one or more VSW I AAP remote controls.
If the auto switch mode is enabled, the input cannot be
selected using the "show me" function.*

Locking the front panel (Executive mode)

To toggle the front panel lock on and off, press and **hold** the
Input 2/Normal button and the Input 3/Auto button for
approximately 3 seconds. All front panel LEDs flash three times
to indicate the mode change.

NOTE *All input LEDs blink once if you attempt a front panel
operation while the panel is locked.*

Selecting an input in normal switch mode

To select an input using the front panel buttons, press and
release the button for the desired input (must be in normal
switch mode). The LED for the selected input lights.

An input can also be selected by an RS-232 device or a remote
control device (see chapter 4, "Remote Control").

Chapter Four

Remote Control

Simple Instruction Set Control

Windows-Based Program Control

VSW I AAP Remote Control

Contact Closure Remote Control

IR 102 Infrared Remote Control

Remote Control

The SW VGArs / Ars Series switcher's rear panel Remote connector (figure 4-1) can be connected to the serial port output of a host device, such as a computer or control system, to an Extron IR 102 Kit Universal Remote Control, **OR** to a remote contact closure device. Other than the IR 102 Kit, remote communications with the switcher are via the Extron Simple Instruction Set (SIS™) or under Windows®-based control program; or they can be pin-programmed for use with a contact closure device.

REMOTE

PIN	RS-232	Contact Closure	Function
1	—	In #1	Input #1
2	TX	—	Transmit data
3	RX	—	Receive data
4	—	In #2	Input #2
5	Gnd	Gnd	Ground
6	—	In #3	Input #3
7	—	In #4	Input #4
8	—	In #5	Input #5
9	—	In #6	Input #6
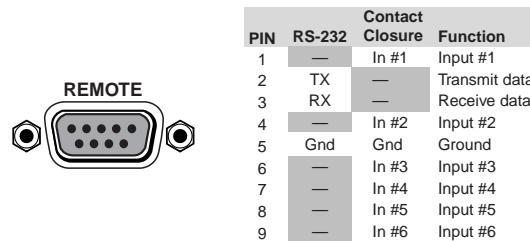
Figure 4-1 — Remote connector pinout

The RS-232 protocol of the rear panel Remote connector is 9600 baud, 1 stop bit, no parity, and no flow control. The connector has the pin assignments shown in figure 4-1.

For RS-232 and IR control, use a control cable with only pins 2, 3, and 5 connected. To accomplish this, either cut the wires to the other pins in hard-shelled connectors, or remove the unneeded pins from molded plugs.

For contact closure, use a control cable with pins 2 and 3 NOT connected. To accomplish this, either cut the wires to these pins in hard-shelled connectors or remove these pins from molded plugs.

Simple Instruction Set Control

Host-to-switcher communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command character sequence. When a command is valid, the switcher executes the command and sends a response to the host device. All responses from the switcher 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.

Switcher-initiated (unsolicited) messages

When a local event, such as a front panel operation or error condition, occurs, the switcher responds by sending a message to the host. The switcher-initiated messages are listed below:

<u>(C) Copyright 2002, Extron Electronics SW*y* VGArs, V*x.xx*</u> ↵
The switcher issues the copyright message when it first powers on. V*x.xx* is the firmware version number.

<u>In*n*•All</u> ↵

The switcher issues the In*n* message when a front panel input selection operation occurs. *n* is the input number.

<u>Reconfig</u> ↵
The switcher initiates this message when there is a change in an audio model's audio gain setting.

<u>Sig•*n*•*n*•*n*•*n*•*n*•*n*</u> ↵
The switcher initiates this message when there is a change in the status of an input. *n* = 1 indicates the video signal is present, *n* = 0 indicates the video signal is not present. There are as many *n*s in the switcher-initiated message as the maximum number of inputs for the models (2, 4, or 6). For example, the response Sig•1•1•1•0•1•0↵ shows that the input signal is present on inputs 1, 2, 3, and 5, and that no signal is present on inputs 4 and 6.

Error responses

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

E01 — Invalid input channel number (out of range)

E06 — Invalid input channel change (auto-switch mode active)

E09 — Invalid function (mode) parameter

E10 — Invalid command

E13 — Invalid value (out of range)

E14 — Illegal command for this configuration

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. Lowercase 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

X1 = Input number   0 through 6 (0 = output mute)

X2 = Input signal status   0 = no signal detected
                              1 = signal detected

X3 = On/off status   0 = off
                        1 = on

X4 = Software version   *x.xx*

X5 = Switch mode   1 = normal switch mode
                      2 = auto switch mode

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

Command/response table for SIS commands

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional description
Input selection			
Select video and audio input	[X1]!	In [X1] All ↵	Select input [X1] video and audio.
Select video input only	[X1]&	In[X1]Vid ↵	Select input [X1] video only (audio breakaway).
Select audio input only	[X1]$	In[X1]Aud ↵	Select input [X1] audio only (audio breakaway).
Input video sensing			
Request all inputs' status	0S	Sig•[X2]^1•[X2]^2•...•[X2]^n ↵	Each [X2] response is the signal status of an input, starting from input 1; n is the maximum number of inputs for this model.
Example (SW6 VGArs):	0S	Sig•1•1•1•0•1•0 ↵	The input signal is present on inputs 1, 2, 3, and 5. No signal is present on inputs 4 and 6.
Request one input's status	[X1]S	[X2] ↵	[X1]'s signal status = [X2].
Video Mute			
Mute video	1 B/b	Vmt [X3] ↵	Video mute on
Unmute video	0 B/b	Vmt [X3] ↵	Video mute off
Read video mute	B/b	[X3] ↵	Video mute status
Audio Mute			
Mute audio	1 Z/z	Amt [X3] ↵	Audio mute on
Unmute audio	0 Z/z	Amt [X3] ↵	Audio mute off
Read audio mute	Z/z	[X3] ↵	Audio mute status

Command/response table for SIS commands (continued)

Command	ASCII Command (host to switcher)	Response (switcher to host)	Additional description
Front panel mode			
Set normal switch mode	1#	F1 ↵	Set switch mode to normal.
Set auto switch mode	2#	F2 ↵	Set switch mode to auto (auto-switch).
Front panel lock (Executive mode)			
Lock front panel	1X	Exe1 ↵	Lock front panel controls.
Unlock front panel	0X	Exe0 ↵	Unlock front panel controls.
Show front panel lock status	X	X3 ↵	Show front panel lock status, 0 = unlocked, 1 = locked).
View, information, part number, and firmware requests			
Information request	I/i	V X1 •A X1 •F• X5 •Vmt X3 •Amt X3 ↵	
Example		V2•A2•F•2•Vmt 0•Amt 1 ↵	
			Video input 2; audio input 2; front panel mode auto; video not muted, audio muted.
Request for **part number**	N/n	60-xxx-xx ↵	
Query **software version**	Q/q	X4 ↵	Software version x.xx.

Windows-Based Program Control

The Windows-based Extron Universal Switcher Control Program, which communicates with the switcher via the RS-232 port, provides an easy way to configure and operate the SW VGArs / Ars Series switchers. The program is compatible with Windows 2000 and Windows XP.

Installing the software

The program is contained on the Extron Software Products disk. Install the software as follows:

1. Insert the disk into the drive. The installation program should start automatically. If it does not self-start, run Launch.exe from the disk.

The Extron software disk window appears (figure 4-2).

Figure 4-2 — Software disk window

2. Click the Software tab (figure 4-2).

3. Scroll to the desired program and click Install (figure 4-3).

Figure 4-3 — Software installation

4. Follow the on-screen instructions. By default, the Windows installation of the Universal Switchers Control Program creates a C:\Program Files\Extron\UnivSW, and it places four icons into a group folder named "Extron Electronics\Universal Switcher." The four installed icons are:

   • Check for Universal Switcher Updates
   • Uninstall Universal Switcher
   • Universal Switcher Control Program
   • Universal Switcher Help

Using the software

Run the program as follows:

1. Click **Start** > **Programs** > **Extron Electronics** > **Universal Switcher Control Pgm**.

2. Click the comm port that is connected to the switcher's RS-232 port.

3. The Extron Universal Switcher Control Program window (figure 4-4) displays the input signal status for each input (signal present or not present) and the selected input.
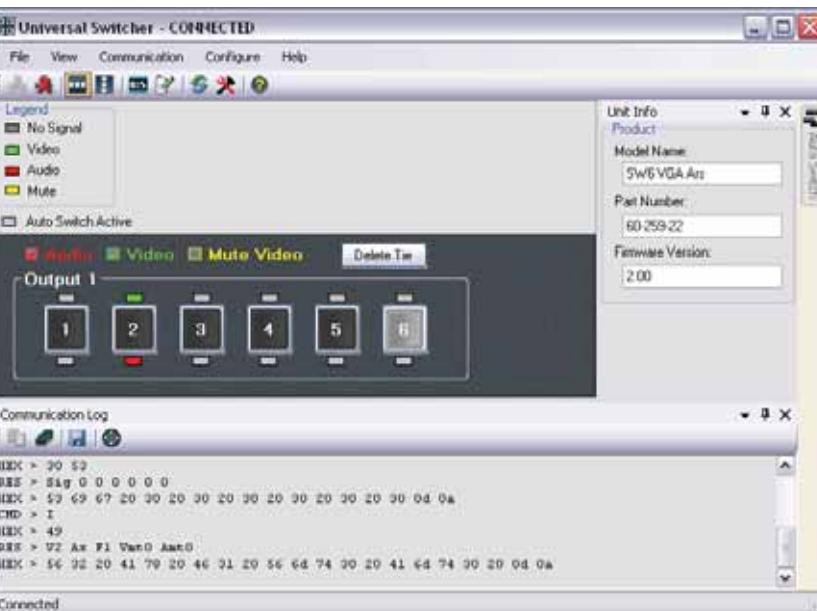
Figure 4-4 — Universal Switcher Control program window

In figure 4-4:

■ indicates that the video input is selected.

■ indicates that the audio input is selected.

■ indicates that the input is not selected.

5 indicates that the video input signal is present.

6 indicates that no video input signal is present.

Updating firmware

If firmware updates are implemented for the SW VGA Ars, they are made available on the Extron Web site, www.extron.com. The Firmware Loader software is also available from the Extron site.

Use the SIS "Q" command to determine the switcher's current firmware level.

Downloading the firmware from the Web site

To obtain the latest version of firmware for your SW VGA Ars switcher:

1. Visit the Extron Web site, www.extron.com, click the Download tab, then click the Firmware link on the left sidebar menu.

Figure 4-5 — Extron Web site Download Center
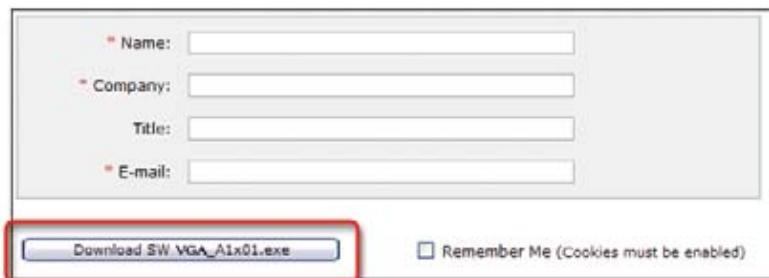
2. On the Download Center screen, click the SW VGA Series Download link.

Download Center

Firmware (56 files)

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | All | ▸Archives

Please consult Release Notes for important compatibility information and history.

Description	Part Number	Version	Date	Size	
• **SCP 104/226 Series** Firmware for the SCP 104 & 226 Series. 📄 Release Notes	19-1595-50	1.01	Oct 3, 2006	2.1 MB	▸Download
• **SW VGA Series** Firmware for the SW VGA Series. 📄 Release Notes	19-1951-50	1.01	Nov 27, 2007	1.9 MB	▸Download

Figure 4-6 — SW VGA Ars firmware

3. Complete the Personal Information form and click the Download button.

* Name:

* Company:

Title:

* E-mail:

Download SW VGA_A1x01.exe   ☐ Remember Me (Cookies must be enabled)

Figure 4-7 — Personal information form

4. Follow the instructions on the rest of the download screens to save the executable firmware file to your computer. Note the folder to which you save the file.

5. In the Windows Explorer or other file browser, locate the downloaded executable file, and double-click on it to open it.

6. Follow the instructions on the Installation Wizard screens to install the new firmware on your computer. A Release Notes file, giving information on what has changed in the new firmware version, and a set of instructions for updating the firmware are also loaded.

Loading the firmware to the switcher

To load a new version of firmware to your SW VGA Ars switcher, call the Firmware Loader software from within the Universal Switcher Control Program. Your computer's serial port must be connected to the switcher's serial port. See chapter 2, "Installation," for more information.

1. If necessary, download the Firmware Loader installer executable file to your computer, as follows:

   a. On the Extron Web page, click the **Download** tab.

   b. On the Download Center page, click **Software** on the left sidebar menu.

   c. Locate the "Firmware Loader" line and click the Download link at the far right.

   d. Follow the instructions on the download screens to save the installer file to your computer.

   e. In the Windows Explorer or other file browser, locate the Firmware Loader executable file in your computer's file system and double-click on it to open it.

   f. Follow the instructions on the Installation Wizard screens to install the Firmware Loader on your computer. Unless you specify otherwise, the installer program places the Firmware Loader file, "FWLoader.exe" in c:\Program Files\Extron\FWLoader.

NOTE *If the Extron and FWLoader folders do not yet exist in your Program Files folder, the installer creates them.*

2. In the Universal Switcher Control Program, click the Firmware Loader button.

NOTE *If the Firmware Loader button does not appear in the Universal Switcher Control Program window, the Firmware Loader software is not installed.*

3. If you have not updated firmware for the SW VGA switcher before, on the Add Device screen, select the RS-232 tab.

If you have updated firmware for this model, click **Cancel**. The Firmware Loader window appears. Proceed to step **6**.
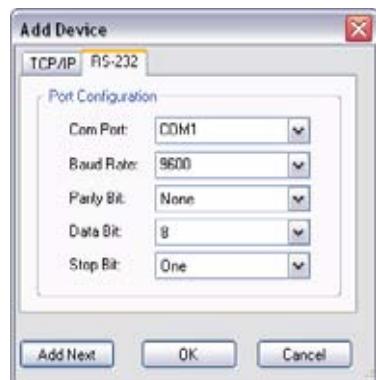
Figure 4-8 — Add Device screen

4. From the drop-down menus on the RS-232 screen, select the appropriate Com port number (obtained from your system administrator) and baud rate (the default is 9600).

5. Click **OK**. The Firmware Loader window appears.
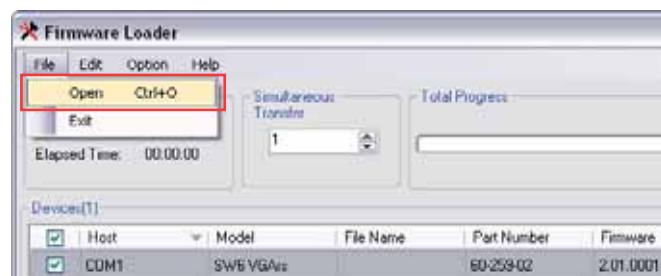
Figure 4-9 — Extron Firmware Loader window

6. Select the SW VGArs and click **File** > **Open**. The Choose Firmware File screen appears.

7. Navigate to and select the new firmware file. The Choose Firmware File window closes.

NOTE   *When downloaded from the Extron Web site, the firmware is placed at C: Program Files\Extron\Firmware\SW .*

CAUTION   *The firmware file must have a .s19 extension. Other file types can cause the switcher to stop functioning.*
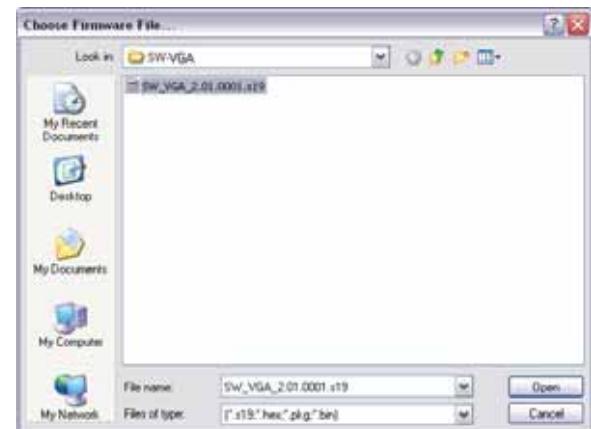
Figure 4-10 — Choose Firmware File window

8. In the Firmware Loader window, click **Begin**.

The Total Progress and Progress status bars show the progress of the upload. The firmware upload to the switcher may take several minutes. Once the status bars have progressed from 0% to 100%, and Status is listed as Complete, the firmware loader utility resets the switcher.
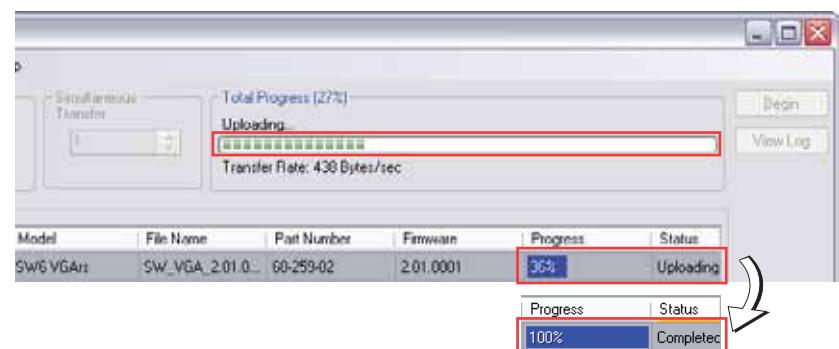
Figure 4-11 — Extron's Firmware Loader screen

9. Click **Exit** to close the Firmware Loader.

Using the help system

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

- Click **Start** > **Programs** > **Extron Electronics** > **Universal Switcher Control Help**.

- From within the Windows-based switcher control program, select **Help** > **Contents** on the task bar.

- From within the Windows-based switcher control program, press the F1 key.

VSW I AAP Remote Control

Each input of an SW VGArs / Ars Series switcher can be connected to a VSW I AAP passive interface. The VSW I AAP features a computer video input and pass-through, an unbalanced stereo input and pass-through, and an input select (Show Me) button. Pressing the VSW I AAP's Show Me button causes the switcher to select the input connected via that AAP.
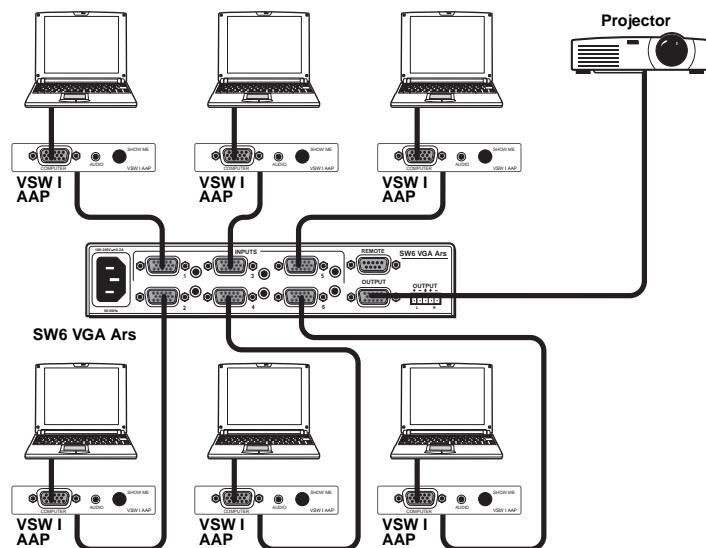
Figure 4-12 — VSW I AAP application

Contact Closure Remote Control

The Remote connector also provides a way to select an input to the switcher using a remote contact closure device. Contact closure control uses pins on the Remote connector that are not used by the RS-232 interface. The contact closure pin assignments are shown in figure 4-1 on page 4-2.

To select a different input number using a contact closure device, momentarily short the pin for the desired input number to logic ground (pin 5). To force one of the inputs to be always selected, leave the short to logic ground in place. The short overrides front panel input selections.

IR 102 Infrared Remote Control

The optional Extron IR 102 kit consists of the following components:

- IR 102 handheld remote control unit

- VersaTools IR 102 remote receiver with 3-foot cable and RS-232 connector

- IR detector with 6-foot cable and captive screw connector

- External 12 VDC power supply

Install and operate the remote control in accordance with the IR 102 User's Guide included with the remote.
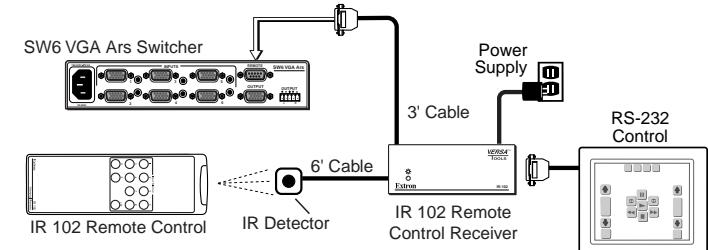
Figure 4-13 — IR 102 Remote application

Appendix A

Reference Information

Specifications

Part Numbers

Reference Information

Specifications

Video

Gain	Unity
Bandwidth	350 MHz (-3 dB)
Crosstalk	-68 dB @ 10 MHz

### Video input

Number/signal type	2, 4, or 6 (depending on the model) VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs computer video, and HDTV component video
Connectors	2, 4, or 6 (depending on the model) 15-pin HD female

> **NOTE** *ID bits (on pins 4, 11, 12, 15) are routed from input 1 to the output.*

Nominal level	0.7 Vp-p for RGB and for R-Y and B-Y of component video 1.0 Vp-p for Y of component video
Minimum/maximum levels	Analog: 0.3 V to 1.5 Vp-p with no offset
Impedance	75 ohms
Horizontal frequency	15 kHz to 145 kHz
Vertical frequency	30 Hz to 170 Hz
Return loss	-40 dB @ 5 MHz
Input coupling	DC

Video output

Number/signal type	1 VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs computer video, and HDTV component video
Connectors	1 female 15-pin HD
Nominal level	0.7 Vp-p for RGB and for R-Y and B-Y of component video 1.0 Vp-p for Y of component video
Minimum/maximum levels	0.3 V to 1.5 Vp-p (follows input)
Impedance	75 ohms
Return loss	-43 dB @ 5 MHz
DC offset	±5 mV maximum with input at 0 offset

Sync

Input type	RGBHV, RGBS, RGsB, RsGsBs, bi-level and tri-level sync
Output type	RGBHV, RGBS, RGsB, RsGsBs, bi-level and tri-level sync (follows input)
Input level	1.0 V to 5.0 Vp-p
Output level	TTL: 5.0 Vp-p, unterminated
Input impedance	510 ohms
Output impedance	75 ohms
Max. propagation delay	47 ns
Max. rise/fall time	4.2 ns
Polarity	Positive or negative (follows input)

Audio — SW 2/4/6 VGA Ars models only

Gain	Unbalanced output: +6 dB; balanced output: +12 dB
Frequency response	20 Hz to 20 kHz, ±0.05 dB
THD + Noise	0.01% @ 1 kHz at nominal level
S/N	>90 dB at maximum output (unweighted)
Crosstalk	-45 dB @ 20 kHz, -72 dB @ 1 kHz or below 60 Hz
Stereo channel separation	>80 dB @ 20 Hz to 20 kHz

Audio input — SW 2/4/6 VGA Ars models only

Number/signal type	2, 4, or 6 (depending on the model) stereo, unbalanced
Connectors	2, 4, or 6 (depending on the model) 3.5 mm female stereo mini jacks; tip (L), ring (R), sleeve (Gnd)
Impedance	>10k ohms unbalanced, DC coupled
Nominal level	-10 dBV (316 mV)
Maximum level	+16 dBu, (unbalanced) at 1% THD+N

> **NOTE** *0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu*

Audio output — SW 2/4/6 VGA Ars models only

Number/signal type	1 stereo, balanced/unbalanced
Connectors	(1) 3.5 mm captive screw connector, 5 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Nominal level	+4 dBu (1.23 V), balanced -4 dBV (0.63 V), unbalanced
Maximum level (Hi-Z)	+28 dBu, balanced; +20 dBV, unbalanced at 1%THD+N
Maximum level (600 ohm)	+21 dBm, balanced; +18 dBm, unbalanced at 1%THD+N

Reference Information, cont'd

Control/remote — switcher

Serial control port .... RS-232 9-pin female D connector (shared with contact closure)

Baud rate and protocol .... 9600 baud, 8 data bits, 1 stop bit, no parity

Serial control pin configurations 2 = TX, 3 = RX, 5 = GND

Contact closure .... RS-232 9-pin female D connector (shared with RS-232)

Contact closure pin configurations
1 = input 1, 4 = input 2, 6 = input 3, 7 = input 4, 8 = input 5, 9 = input 6; active when a pin momentarily shorts to ground

"Show Me" contact closure .... Pin 5 of each VGA input connector. The input is active (selected) when pin 5 momentarily goes to gound.

Program control .... Extron's control/configuration program for Windows®
Extron's Simple Instruction Set (SIS™)

General

Power .... 100 VAC to 240 VAC, 50-60 Hz, 10 watts, internal

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

Cooling .... Convection, no vents

Mounting
Rack mount .... Yes, with optional 1U rack shelf
Furniture mount .... Yes, with optional under-desk or through-desk mounting kit

Enclosure type .... Metal

Enclosure dimensions .... 1.75" H x 8.75" W x 9.5" D
(1U high, half rack wide)
4.4 cm H x 22.2 cm W x 24.1 cm D
(Depth excludes connectors.)

Cooling .... Convection, unvented

Product weight .... 2.5 lbs (1.1 kg)

Shipping weight .... 5 lbs (3 kg)

Vibration .... ISTA 1A in carton
(International Safe Transit Association)

Listings .... UL, CUL

Regulatory compliance
Safety .... CE, c-UL, UL
Compliances .... CE, C-tick, FCC Class A, ICES, VCCI

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.*

Part Numbers

Switchers

Switcher Models	Part number
SW2 VGArs	60-257-02
SW2 VGA Ars	60-257-22
SW4 VGArs	60-258-02
SW4 VGA Ars	60-258-22
SW6 VGArs	60-259-02
SW6 VGA Ars	60-259-22

Included parts

Included Parts
AC power cord
Tweeker (VGA Ars models only)
Universal Switcher Control Program Disk
SW VGA /Ars Series Switcher Setup guide

Cables

Male-to-male VGA audio cables	Part number
VGA-A M-M MD/3, 3' (0.9 m)	26-490-01
VGA-A M-M MD/6, 6' (1.8m)	26-490-02
VGA-A M-M MD/12, 12' (3.6m)	26-490-03
VGA-A M-M MD/25, 25' (7.6 m)	26-490-04
VGA-A M-M MD/50, 50' (15.2m)	26-490-08

Reference Information, cont'd

Accessories

Accessory	Part number
RSU 129 1U Universal rack shelf	60-190-01
RSB 129 1U Basic rack shelf	60-604-01
MBU 125 Under-desk mounting kit	70-077-01
MBD 129 Through-desk mounting kit	70-077-02
KP 6 remote control	60-111-20
IR 102 remote control kit	70-224-01

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