

User's Manual



MLA-VC10 MediaLink Accessory

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Precautions

Safety Instructions • English



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



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

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

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

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

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

Consignes de Sécurité • Français



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



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

Attention

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

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

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

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

Sicherheitsanleitungen • Deutsch



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



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

Achtung

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

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

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

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

Instrucciones de seguridad • Español



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



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

Precaución

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

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

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

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

Warning

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

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

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

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

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

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

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de 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 des opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

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

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

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen 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 Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

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

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 puede ser eliminada.

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 abrirlo o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

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

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

FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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

Extron's Warranty

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

USA, Canada, South America, and Central America:

Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805, USA

Asia:

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

Europe, Africa, and the Middle East:

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

Japan:

Extron Electronics, Japan
Daisan DMJ Bldg. 6F,
3-9-1 Kudan Minami
Chiyoda-ku, Tokyo 102-0074
Japan

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

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

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

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

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

Quick Start Guide — MLA-VC10

Setting Up the MLA-VC10

To install and set up the MLA-VC10, follow these steps and see the appropriate section of this manual for details:

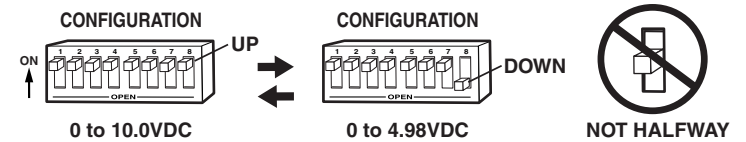
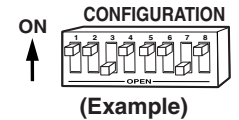
Step 1

Determine the control voltage required by the amplifier or mixer. See "Determining the Control Voltage" on pages 2-3 to 2-6 of this manual.



Step 2

Set the MLA-VC10's DIP switches to match the voltage determined in 1. See "Setting the Configuration DIP Switches" on page 2-7, and the reference tables on pages 2-8 and 2-9.

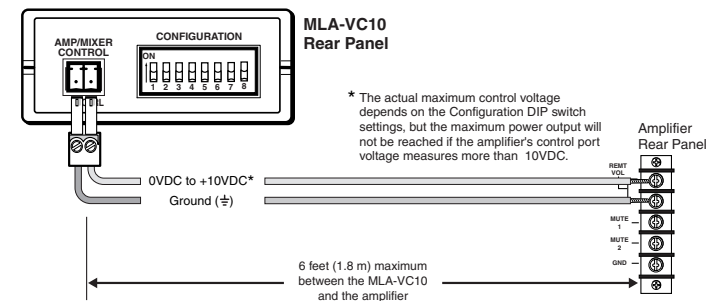


Step 3

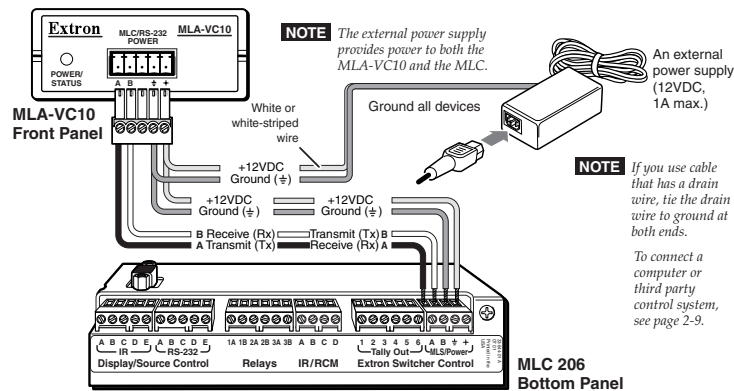
Turn all of the equipment off. Make sure that the MediaLink Controller (MLC) (if used), the MLA-VC10, the audio amplifier or mixer, and RS-232 host device are turned off and disconnected from the power source.

Step 4

Terminate cables and use them to connect the MLA-VC10 to the MLC and/or a power supply and to an amplifier or mixer. See "Cabling" on pages 2-9 to 2-11. Tie all grounds together.



Quick Start Guide — MLA-VC10, cont'd



Step 5

Connect the power cables to a power source and power on the equipment (MLC/power supply, RS-232 host device, and amplifier or mixer).

Step 6

If you are using an MLC with the MLA-VC10, use the *Controller (MLC) Config* portion of the MediaLink control software (included with the MLC) to set the MLC's volume control to "Switcher" instead of "Projector". Refer to the *MediaLink Controllers User's Manual* for details.



Step 7

Test the system by turning the volume knob on the MLC or by sending a volume-related RS-232 command while listening for a change in the volume level and observing the MLA-VC10's LED (which should blink).

Step 8

If wiring changes are needed, turn off the power and unplug the equipment, make any necessary wiring changes, then restore power to the system.

NOTE In some applications the amplifier's front panel volume control knob may be disabled when the MLA is attached to the amplifier's control port.

Table of Contents

Chapter 1 • Introduction	1-1
About the MLA-VC10	1-2
Chapter 2 • Installation and Setup	2-1
Front and Rear Panel Features	2-2
Determining the Control Voltage	2-3
Measuring voltage for a TOA A-903MK2 amplifier	2-4
Measuring voltage for a Peavey UMA™ 35T II amplifier	2-5
Measuring voltage for a Biamp Precedence CMA 60 amplifier	2-6
Setting the Configuration DIP Switches	2-7
Cabling	2-9
Wiring the MLC/Power connector	2-10
Wiring the Amp/Mixer Control connector	2-11
Operation	2-12
RS-232 control	2-12
Command/response table for SIS commands	2-14
Troubleshooting	2-15
Appendix A • Specifications, Part Numbers, and Accessories	A-1
Specifications	A-2
Included Parts	A-2
Cables	A-2
MLA-VC10 Functional Block Diagram	A-3

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1 Chapter One

Introduction

About the MLA-VC10

Introduction

About the MLA-VC10 (part #60-502-01)

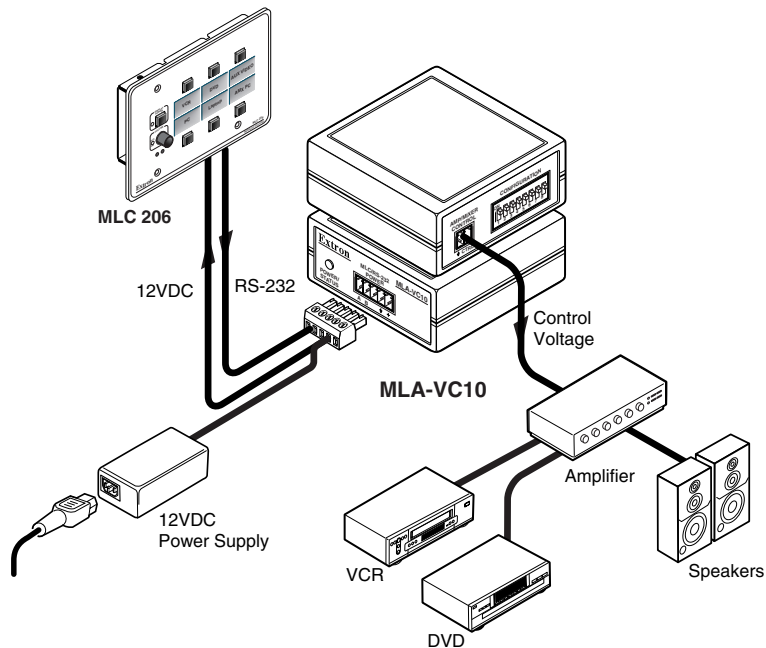
Along with an RS-232 host device, the Extron MediaLink™ Accessory Volume Control 10 (MLA-VC10) can be used to remotely control the volume output of an audio mixer or amplifier that has a 0VDC to 10VDC variable voltage remote control port for volume control.

The MLA-VC10 can be installed with an Extron MediaLink Controller (MLC) and the MLC's 12VDC power supply, or the MLA-VC10 can be installed with an external 12VDC power supply and a third party RS-232 control device.

Refer to the appropriate controller's, amplifier's, or mixer's user's manual for information on how to wire control connections.

NOTE *The MLA-VC10 provides a control voltage (supply voltage) of between 0VDC and 10VDC. The MLA-VC10 can control amplifiers that use a higher control voltage. However, if the MLA-VC10 is used with devices that use a control port voltage above 10VDC, the maximum volume will not be reached.*

The illustration below shows a typical application.



MLA-VC10

Chapter Two

Installation and Setup

Front and Rear Panel Features

Determining the Control Voltage

Setting the Configuration DIP Switches

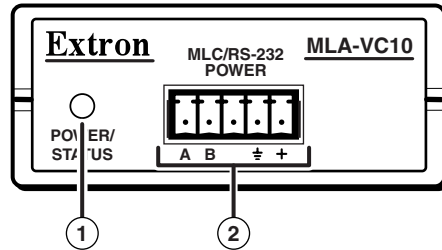
Cabling

Operation

Troubleshooting

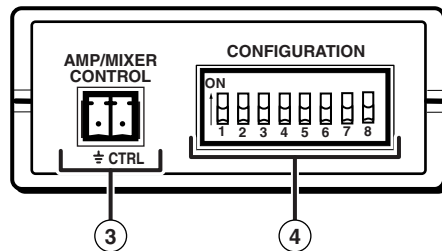
Front and Rear Panel Features

Front



- ① **Power/Status indicator LED** — This LED lights steadily while the MLA-VC10 receives power, and it blinks three times when the MLA-VC10 receives valid RS-232 volume setting commands.
- ② **MLC/RS-232 Power connector** — This 5-pole, 3.5 mm captive screw port is for RS-232 transmit and receive signal connections and for power and ground connections. Connect cables to this port for
 - a MediaLink Controller (MLC) and the MLC's 12VDC power supply, *or*
 - an external 12VDC power supply and a third party RS-232 control device.

Rear



- ③ **Amp/Mixer Control connector** — Connect a cable between the amplifier's or mixer's remote control port and this 3.5 mm, 2-pole captive screw connector, which provides a ground and control voltage for controlling the audio volume.
- ④ **Configuration DIP switches** — Set these eight switches to configure the MLA-VC10 for the control voltage required by the amplifier or mixer. See "Setting the Configuration DIP Switches" on page 2-7.

Determining the Control Voltage

The MLA-VC10 drives the amplifier's or mixer's remote control port. Each model or line of amplifier or mixer may require a different voltage for controlling the audio volume. You need to know the specific voltage your equipment requires before you can set up the MLA-VC10 to control it.

Sometimes the equipment's manual lists the required voltage, but usually you will have to use a voltmeter to test the voltage yourself. This section shows examples of how to measure the control voltage for three widely used amplifiers.

Many models of amplifiers have one of two basic configurations:

- two-terminal (signal and ground)
- three-terminal (signal, ground, and control)

NOTE *The MLA-VC10 will work with a wide range of amplifiers. Those models shown in this section are included as examples only. The MLA-VC10 is not limited to being used with just the amplifier-mixers shown in this manual.*

Measuring voltage for a TOA A-903MK2 amplifier

Control terminals for several TOA amplifiers are two screw terminals labeled "REMT VOL". They do not indicate which terminal is for control voltage and which is for the ground. Use a voltmeter (set to VDC) to measure the voltage as shown here.

In the picture below the measured voltage is positive, so the upper terminal is the signal voltage terminal, and the lower terminal is for the ground connection.



Measuring control voltage for a TOA A-903MK2 amp

NOTE When measuring voltage, if the reading is positive, the positive probe indicates the signal voltage terminal, and the ground probe indicates the ground connection. If the voltage is negative, reverse the probes.

Write down the measured voltage for your reference when you set the DIP switches, and note which terminal is for the ground.

Measuring voltage for a Peavey UMA™ 35T II amplifier

Control terminals for Peavey amps also usually consist of two screw terminals, in this example labeled "Remote Vol". Use a voltmeter (set to VDC) to measure the voltage as shown below.



If you get a negative voltage reading on the meter, the meter's leads are touching the wrong terminals.

Measuring control voltage for a Peavey UMA™ 35T II: meter leads are oriented incorrectly relative to the amp's terminals

In the picture below the measured voltage is positive, so the right (#1) terminal is the signal terminal, and the left (#2) terminal is for the ground connection.

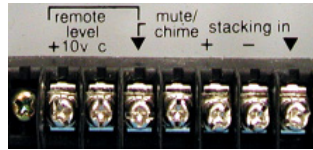


Measuring control voltage for a Peavey UMA™ 35T II: meter leads are oriented correctly

Write down the measured voltage for your reference when you set the DIP switches, and note which terminal is for the ground.

Measuring voltage for a Biamp Precedence CMA 60 amplifier

Several Biamp amplifiers have three screw terminals labeled "remote level". The control voltage may be indicated (by a "C" in the following picture) on the panel over the corresponding screw terminal, and the ground terminal is indicated with a ∇ .



Even if the voltage is indicated, use a voltmeter (set to VDC) to measure the voltage as shown in the picture below. Write down the measured voltage for your reference when you set the DIP switches.



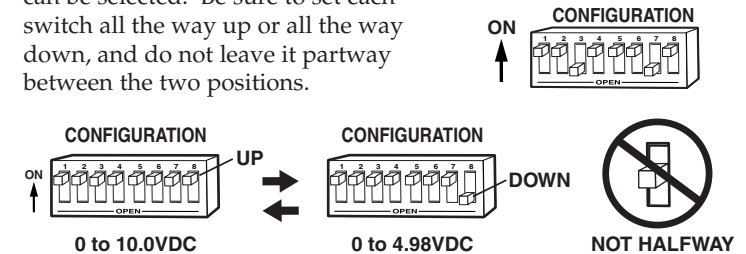
Measuring voltage for a Biamp Precedence CMA 60

NOTE For three-terminal amps, always connect the MLA-VC10 to the control voltage terminal and ground terminal of the amp's control port. Leave the other terminal (+10V in this example) open (not connected).

NOTE The MLA-VC10 provides a control voltage (supply voltage) of between 0VDC and 10VDC. The MLA-VC10 can control amplifiers that use a higher control voltage. However, if the MLA-VC10 is used with devices that use a control port voltage above 10VDC, the maximum volume will not be reached.

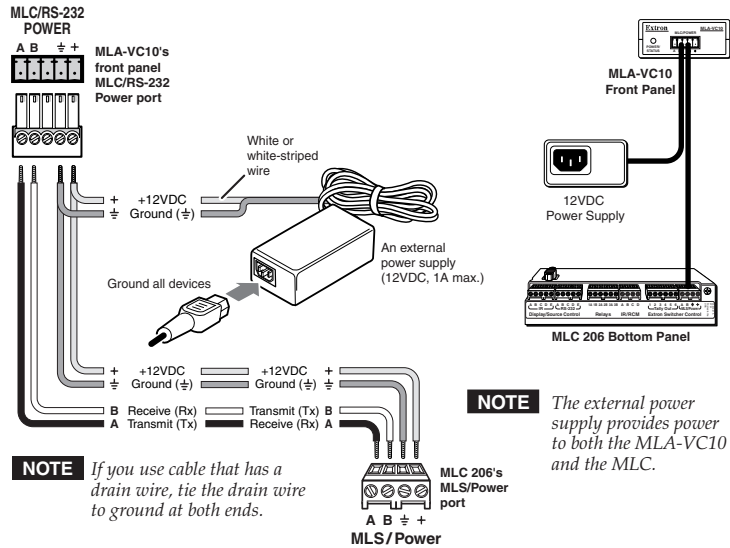
Setting the Configuration DIP Switches

Set the Configuration DIP switches to the setting corresponding to the control voltage required by the amplifier or mixer. See "Determining the Control Voltage" in this chapter. The table on the following two pages lists all the voltage levels that can be selected. Be sure to set each switch all the way up or all the way down, and do not leave it partway between the two positions.



Wiring the MLC/Power connector

NOTE The 12VDC, 1 amp power supply kit (part #70-055-01) is not included with the MLA-VC10.

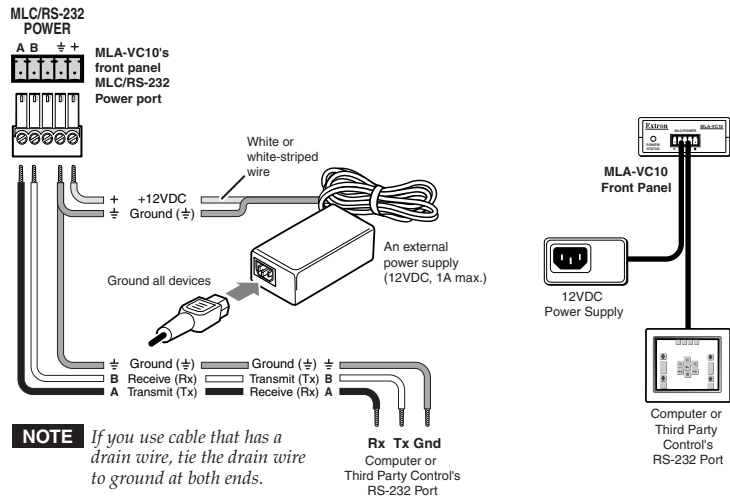


NOTE If you use cable that has a drain wire, tie the drain wire to ground at both ends.

NOTE Use the MediaLink control software to set the MLC's volume control to "Switcher" instead of "Projector". Refer to the MediaLink Controllers User's Manual.

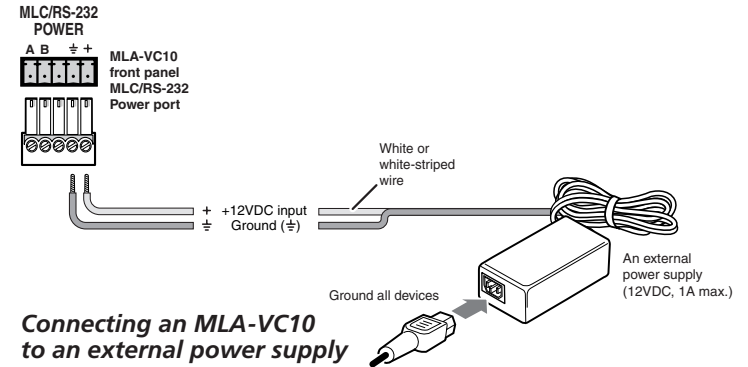
NOTE The external power supply provides power to both the MLA-VC10 and the MLC.

Connecting an MLA-VC10 to an MLC 206



NOTE If you use cable that has a drain wire, tie the drain wire to ground at both ends.

Connecting an MLA-VC10 to a Computer or Third Party Control's RS-232 Port



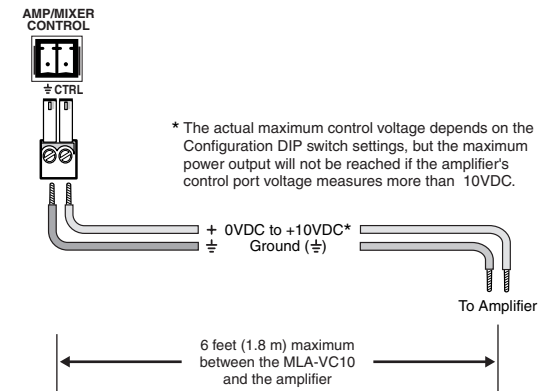
Connecting an MLA-VC10 to an external power supply

NOTE To avoid introducing noise and static into the audio channels, the MediaLink Controller (if used), the power supply, the MLA-VC10, and the amplifier or mixer should all share the same grounding source.

NOTE The 12VDC, 1 amp power supply kit (part #70-055-01) is not included with the MLA-VC10.

Wiring the Amp/Mixer Control connector

The illustration below shows how to wire the 3.5 mm, 2-pole captive screw connector for controlling the amplifier or mixer.



Wiring the MLA's Amp/Mixer Control connector

NOTE In some applications the amplifier's front panel volume control knob may be disabled when the MLA is attached to the amplifier's control port.

See the illustration on page 2-9 for power wiring instructions. The Configuration DIP switches must also be set to select the outgoing voltage. See pages 2-7 to 2-9.

Operation

To control audio volume when using an MLA-VC10, turn a connected MediaLink Controller's Volume knob, or send commands via an RS-232 remote control device such as a computer or third party control system.

NOTE *If you are using an MLC with the MLA-VC10, use the Controller (MLC) Config portion of the MediaLink control software (included with the MLC) to set the MLC's volume control to "Switcher" instead of "Projector". Refer to the MediaLink Controllers User's Manual for details.*



RS-232 control

The RS-232 protocol for the MLA-VC10 is 9600 baud, 1 stop bit, no parity, and no flow control.

The control device (host) can use Extron's Simple Instruction Set (SIS) commands.

The MLA's MLC/Power 5-pole captive screw connector has the following pin assignments:

A = transmit, B = receive, C = not used,
 ⚡ = ground, + = +12VDC input

Host-to-MLA 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 = ↵), which signals the end of the response character string. A string is one or more characters.

MLA-initiated messages

When the MLA is powered up, it sends the following message (underlined here) to the host:

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No response is required from the host. The MLA may also send a message of Volxxx where xxx represents the setting for the percentage of maximum volume.

Error response

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

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

Using the command/response table

The command/response table lists valid command ASCII codes, the MLA's responses to the host, and a description of the command's function or the results of executing the command. Lower case characters are acceptable in the command field unless otherwise indicated. The following ASCII to HEX conversion table is for use with the command/response table.

ASCII to HEX Conversion Table										Esc	1B	CR	0D	LF	0A
20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27	
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL	7F

Symbol definitions

- ↵ = CR/LF (carriage return/line feed) (hex 0D 0A)
- = Space
- X1 = Volume adjustment range (0 through 100%)
- X2 = On/off status
 0 = off/disable
 1 = on/enable
- X3 = Controller firmware version (listed to two decimal places e.g.: x.xx)

Command/response table for SIS commands

Command	ASCII Command (host to MLC)	Response (MLC to host)	Additional description
Volume adjustment			
Set the output volume	[X1] V	Vol [X1] ↓	Specify the % of maximum audio volume output. <i>Example:</i> set volume to 82% of maximum.
<i>Example:</i>	82V	Vol082 ↓	
Increment (increase audio output)	+V	Vol [X1] ↓	Increment audio volume.
Decrement	-V	Vol [X1] ↓	Decrement audio volume.
View the volume level	V	Vol [X1] ↓	Show the % of maximum audio level.
Audio mute (overall)			
Mute on	1Z	Amt1 ↓	Mute all audio outputs.
Mute off	0Z	Amt0 ↓	Unmute all audio outputs.
View the audio mute status.	Z	Amt [X2] ↓	Show the status of audio mute.
Firmware version, part number & information requests			
Query firmware version number	Q	Ver [X3] ↓	Show the firmware version.
Request part number	N	N60-502-01 ↓	Show the MLA's part #.

Troubleshooting

If the MLA-VC10's LED doesn't light:

- The MLA-VC10 is not receiving power. Check the wiring at the MLA-VC10's MLC/Power port for correct polarity. Verify that the power supply has been connected to a functional power outlet.

If the MLA-VC10's LED doesn't blink when volume commands are sent:

- The volume command is out of the acceptable range (0 to 100 steps).
- The MLA-VC10 is not receiving RS-232 commands correctly.

If there is no audio output

- Check the wiring at the amplifier/mixer to make sure the MLA-VC10 is connected to the correct terminals. Verify that the amplifier/mixer and speakers have been powered on.

If the output is noisy or has lots of static:

- The amplifier/mixer and MLA-VC10 are **installed near electromagnetic interference sources** such as appliances and large motors. Move the amp/mixer and the MLA-VC10 away from the interference source.
- The **voltage control cable is too long**, allowing noise to be picked up from many sources. Use a shorter cable (6 feet, max.) between the MLA-VC10 and the amplifier or mixer.
- The **ground line may be noisy**. Use a different, "clean" grounding source.

If the volume doesn't change when you change the volume setting via the MLC or via RS-232 commands:

- The **wiring at the amplifier/mixer terminals is reversed**. Switch the leads for the ground and the control volume.
- The **DIP switches are set for too high of an output voltage**. If this is the case, the amplifier/mixer will output the maximum audio level all the time and will not change. Retest the amplifier/mixer's control voltage and reset the DIP switches to match the required voltage.

Installation and Setup, cont'd

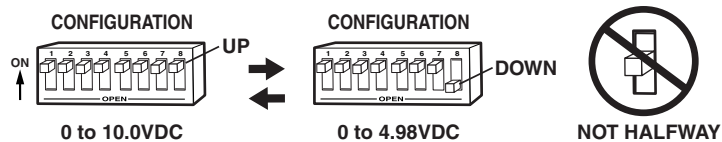
- The amplifier accepts a higher control voltage than the MLA-VC10 provides, so the amplifier will not reach its highest volume level. Try another amplifier with a lower control voltage requirement.

If audio output does not reach the amplifier's maximum volume

- If you use an MLA-VC10 with an amplifier/mixer that has a control voltage requirement above 10VDC, the maximum volume may not be reached.

If volume changes lead to erratic variation in output volumes

- Verify that each DIP switch is set either all the way up or all the way down, not partway between up and down positions.



Leaving a DIP switch in the middle can cause unpredictable changes in volume: the switch intermittently varies between on and off settings, yielding control voltages from two different ranges: one range that's appropriate for your equipment, and one that isn't.

If the audio output can still be heard when the MLA-VC10 has a volume setting of 0VDC

- Check the gain and level settings on the amplifier or mixer. Adjust the gain so that you don't hear any audio output when the MLA-VC10 is set for 0VDC output (minimum volume).



MLA-VC10

Appendix A

Specifications, Part Numbers, and Accessories

Specifications

Included Parts

Cables

MLA-VC10 Functional Block Diagram

Specifications, Part Numbers, and Accessories

Specifications

Control — amplifier

Maximum voltage output 10VDC \pm 5%

General

Power 12VDC from a 1 A external power supply
 Temperature/humidity Storage -40° to +158°F (-40° to +70°C) /
 10% to 90%, non-condensing
 Operating +32° to +122°F (0° to +50°C) /
 10% to 90%, non-condensing
 Rack mount No
 Enclosure type Plastic
 Enclosure dimensions 1.0" H x 2.4" W x 2.3" D
 2.5 cm H x 6.1 cm W x 5.8 cm D
 Product weight 0.2 lbs (0.1 kg)
 Shipping weight 1 lb (0.5 kg)
 Vibration ISTA/NSTA 1A in carton
 (International Safe Transit Association)
 Listings UL, CUL
 Compliances CE, FCC Class A, VCCI, AS/NZS, ICES
 MTBF 30,000 hours
 Warranty 3 years parts and labor

NOTE Specifications are subject to change without notice.

Included Parts

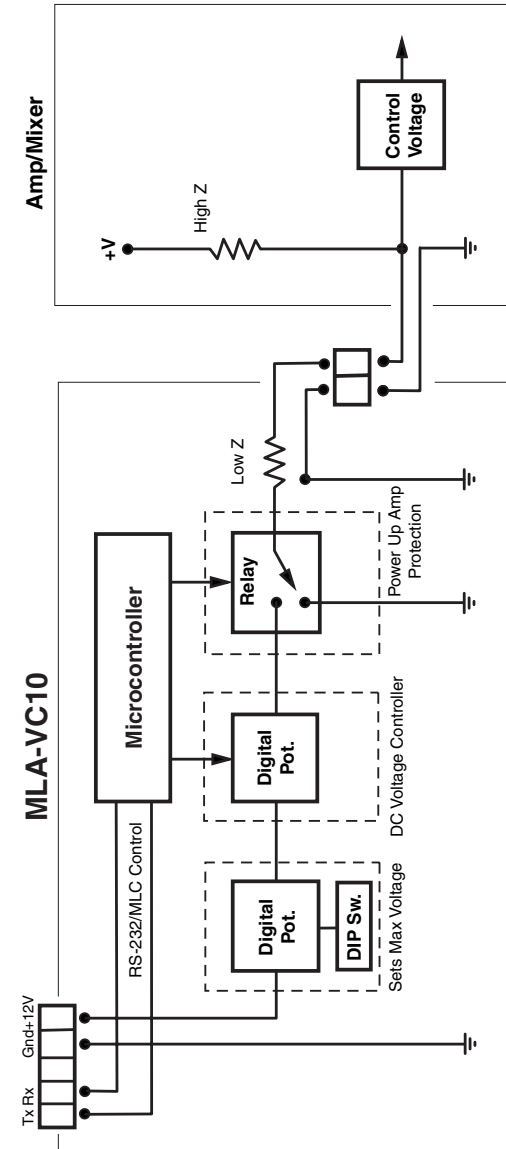
These items are included in each order for an MLA-VC10:

Included parts	Part number
MLA-VC10	60-502-01
3.8 mm, 2-pole captive screw connector	10-319-15
3.5 mm, 5-pole captive screw connector	10-319-10
MLA-VC10 user's manual	68-690-01

Cables

Plenum Comm-link cable	Part number
50 feet, 100 feet, 200 feet	26-461-01, -02, -03
300 feet, 400 feet	26-461-05, -04

MLA-VC10 Functional Block Diagram



- Amp/Mixer must support remote volume capabilities.
- Output impedance of MLA-VC10 is lower than the input impedance of the Amp/Mixer.
- DIP switches set maximum control voltage (10VDC max.).
- Relay shorts to ground when power is removed and for 5 seconds after power up.

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Specifications, Part Numbers, Accessories, cont'd

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