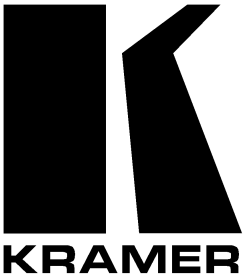
Kramer Electronics, Ltd.



USER MANUAL

Model:

WP-230

Wall Plate

Contents

Figures

Tables

This addendum clarifies the correct color of the V sync and H sync coax cables.

The color of the coax cables with all Kramer Wall Plates, including the **WP-210**, **WP-210E**, **WP-210A**, **WP-210AE**, **WP-210AL**, **WP-220**, **WP-220E**, **WP-230** will be as follows:

- For V sync (vertical sync) – black[1]
- For H sync (horizontal sync) – yellow[2]

1 No longer yellow

2 No longer white

1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your **WP-230** active wall plate, which is ideal for graphics and audio installations in board, conference and training rooms, as well as long distance signal distribution.

The package includes the following items:

- **WP-230**
- Power supply
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

3 Overview

This section summarizes:

- The **WP-230**, see section 3.1
- Using shielded twisted pair (STP) / unshielded twisted pair (UTP), see section 3.2
- Recommendations for achieving the best performance, see section 3.3

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3.1 About the WP-230

The Kramer **WP-230** XGA/Video/Audio Line Driver wall plate includes:

- A computer graphics XGA INPUT on a standard HD-15 connector
- An amplified and equalized RGBHV output on 5 BNC connectors
- A composite video input on an RCA connector with a corresponding composite video output on a 2-pole terminal block
- An s-Video input on a 4p connector with a corresponding s-Video output on a 4-pole terminal block
- An unbalanced stereo PC AUDIO INPUT on a 3.5mm mini jack with a corresponding balanced stereo PC AUDIO OUT on a 5-pole terminal block
- An unbalanced stereo LINE AUDIO INPUT on two RCA connectors with a corresponding balanced stereo LINE AUDIO OUT on a 5-pole terminal block

In particular, the **WP-230** has:

- Trimmer controls for XGA EQ.[1], and CV Level / EQ.[1]
- Separate trimmer controls for right and left line audio level, and C and Y levels
- Resolution exceeding UXGA, that ensures transparent operation
- A standard 12 Volt DC feed

3.2 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

The decision whether to use shielded twisted pair (STP) cable or unshielded twisted pair (UTP) cable depends on the nature of the application. It is recommended that in applications with high interference, shielded twisted pair (STP) cable is used. However, the shield itself does create a capacitance that degrades the frequency response of the machines. For shorter distances, of 50m or so, shielded twisted pair (STP) cable is preferred because it provides protection from interference (degradation is non apparent). For a long range application, unshielded twisted pair (UTP) cable is preferred. However, the unshielded twisted pair (UTP) cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference.

Some Kramer twisted pair products include the Power Connect feature[2]. The **WP-230** does not have this feature.

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1 Cable equalization

2 The Power Connect feature lets you power a transmitter / receiver system by connecting just one power adapter to either the transmitter or the receiver. The other unit is fed over the same cable. The Power Connect feature applies as long as the cable is heavy gauge cable (that is, it can carry power). The distance does not exceed 50 meters on standard CAT5 cable. For a distance of 100 meters, separate power supplies must be connected to the transmitter and to the receiver simultaneously, unless using heavy gauge cable

3.3 Recommendations for Achieving the Best Performance

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances
- Positioning your **WP-230** away from moisture, excessive sunlight and dust

4 Your WP-230

This section defines the **WP-230**:

- Front panel (see section 4.1)
- Left panel (see section 4.2)
- Right panel (see section 4.3)

4.1 Your WP-230 Front Panel

Figure 1 and Table 1 define the front panel of the **WP-230**:

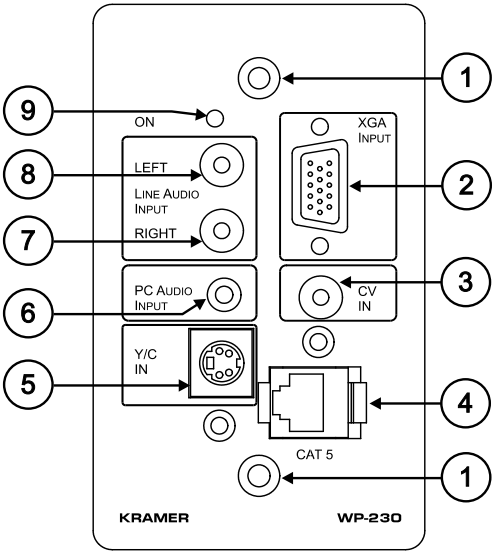

Figure 1: WP-230 Front Panel

Table 1: WP-230 Front Panel Features

#	Feature		Function
1	Holes (2)		For fastening the wall plate in place
2	*XGA*[1] *INPUT* HD15F Connector		Connect to the computer graphics source
3	CV IN RCA Connector		Connects to the composite video source
4	RJ-45 Connector		Connect to[2] the RJ-45 connector on a Kramer CAT5 transmitter / receiver
5	Y/C IN 4p Connector		Connects to the s-Video source
6	PC AUDIO INPUT 3.5mm Mini Jack		Connects to the unbalanced stereo audio PC source
7	*LINE AUDIO INPUT*	*RIGHT* RCA Connector	Connects to the unbalanced right stereo audio source
8		*LEFT* RCA Connector	Connects to the unbalanced left stereo audio source
9	*ON* LED		Illuminates when receiving power

4.2 Your WP-230 Left Panel

Figure 2 and Table 2 define the left panel of the **WP-230**:

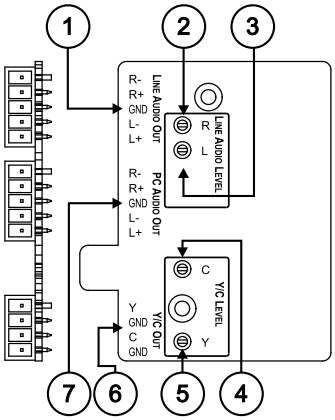

Figure 2: WP-230 Left Panel

Table 2: WP-230 Left Panel

#	Feature		Function
1	LINE AUDIO OUT Terminal Block		Connects to the balanced stereo audio acceptor[3]
2	*LINE AUDIO LEVEL*	*R* Trimmer	Adjusts[4] the right audio output signal level
3		*L* Trimmer	Adjusts[4] the left audio output signal level
4	*Y/C LEVEL*	*C* Trimmer	Adjusts[4] the C level
5		*Y* Trimmer	Adjusts[4] the Y level
6	Y/C OUT Terminal Block		Connects to the s-Video acceptor
7	PC AUDIO OUT Terminal Block Connector		Connects to the balanced stereo audio from the PC[3]

1 Can be used for any RGBHV resolution (for example, VGA, XGA, UXGA and so on)

2 Using a UTP cable with an RJ-45 connector (the PINOUT is defined in section 5.2)

3 Can be used for unbalanced audio. To do this, connect using the "+" and "G" terminal only (leave the "–" terminal unconnected – see Figure 6)

4 Insert a screwdriver into the small hole and carefully rotate it, trimming the appropriate level

4.3 Your WP-230 Right Panel

Figure 3 and Table 3 define the right panel of the **WP-230**:

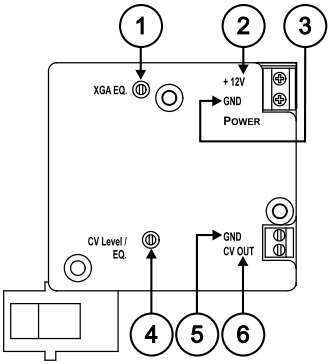

Figure 3: WP-230 Right Panel

Table 3: WP-230 Right Panel

#	Feature		Function
1	*XGA EQ.*[1] Trimmer		Adjusts[2] the cable compensation equalization level
2	POWER	+12V PIN	Connect (+) to the connector for powering the unit
3	POWER	GND PIN	Connect (-) to the Ground
4	*CV LEVEL / EQ.* Trimmer		Adjusts[2] the composite video level / cable compensation equalization level
5	GND PIN		Connect to the Ground of the composite video aceptor
6	CV OUT PIN		Connect to the composite video acceptor

1 Degradation and VGA/XGA signal loss can result from using long cables (due to stray capacitance), sometimes leading to a total loss of sharpness in high-resolution signals

2 Insert a screwdriver into the small hole and carefully rotate it, trimming the appropriate level

5 Using the WP-230

You can use your **WP-230**, for example, in a conference room, as the example in Figure 4 illustrates:

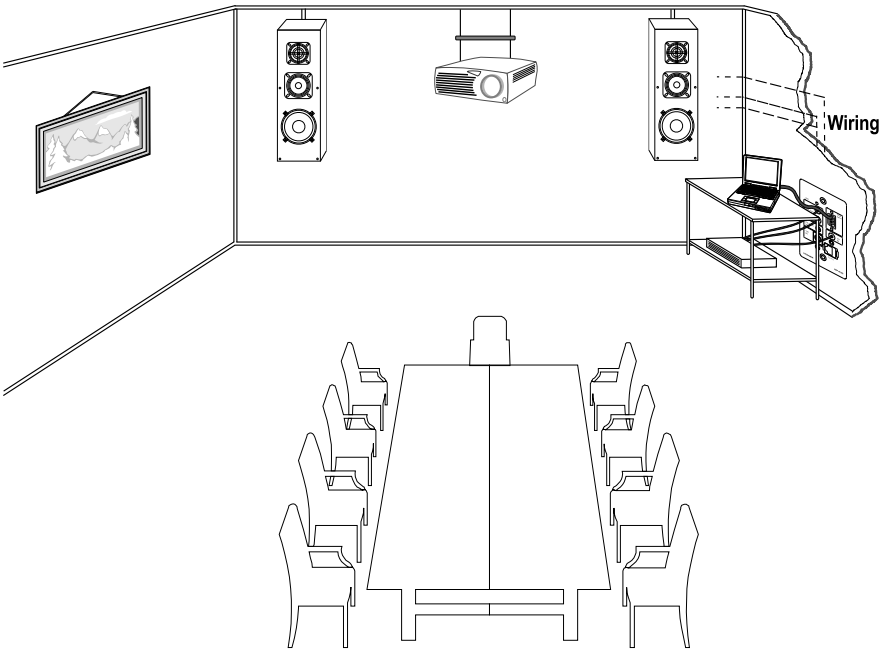

Figure 4: Example of Conference Room WP-230 Installation

For details of how to:

- Install your **WP-230**, see section 5.1
- Wire the CAT5 RJ-45 connector, see section 5.2
- Operate your **WP-230**, see section 5.3

5.1 Installing the WP-230

To install your **WP-230**:

1. Connect the 5 RGBHV BNC output connectors[1] to the pre-installed wiring in the wall box opening that connects to the XGA acceptor (for example, a projector), as Figure 5 defines.

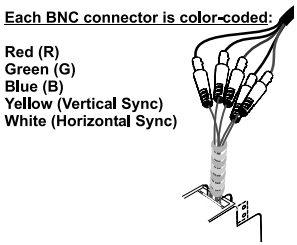

Figure 5: WP-230 RGBHV Outputs

2. Connect the LINE AUDIO OUT and / or the PC AUDIO OUT terminal blocks, as one of the following:

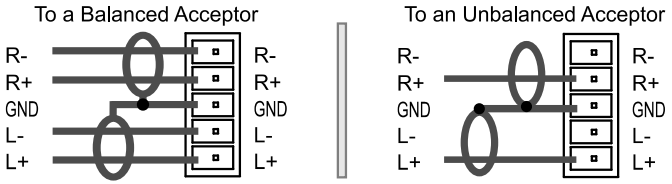

Figure 6: Connecting the LINE AUDIO OUT / PC AUDIO OUT

3. Connect the wires of the coax cable to the CV OUT pins[2], taking care that **polarity is correct**.
4. Connect the wires of the coax cable to the Y/C OUT pins[3], taking care that **polarity is correct**.
5. Connect your 12V DC power supply to the *POWER* pins[4], taking care that **polarity is correct**.
6. Insert the **WP-230** directly into the wall box opening, and then mount the front panel securely using the screws.

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1 The WP-230 could be used for component HDTV by connecting YPbPr in place of GBR, and not connecting H and V

2 Connect the composite video wire to the CV OUT pin and the Ground wire to the GND pin (see Figure 8)

3 Connect the luminance signal "Y" wire to the Y pin and the Ground wire to its corresponding GND pin, and connect the chrominance signal "C" wire to the C pin and the Ground wire to its corresponding GND pin (see Figure 8)

4 Connect the wire labeled "+" to the +12V pin, and the wire labeled "–" to the GND pin

5.2 Wiring the CAT5 RJ-45 Connector

Table 4 and Figure 7 define the UTP CAT5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Table 4: CAT5 PINOUT

EIA /TIA 568A	
PIN	**Wire Color**
1	Green / White
2	Green
3	Orange / White
4	Blue
5	Blue / White
6	Orange
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	3 and 6
Pair 3	1 and 2
Pair 4	7 and 8

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

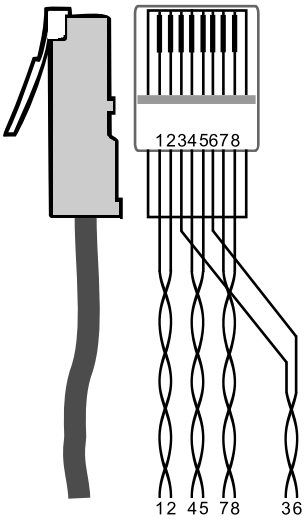

Figure 7: CAT5 PINOUT

5.3 Operating the WP-230

To operate your **WP-230**:

1. Connect your computer graphic's source (for example, a laptop's digital graphics card) to the XGA INPUT HD15F connector and to the PC AUDIO INPUT 3.5mm mini jack, for example, using a Kramer C-GMA/GMA cable (VGA HD15M +Audio jack to VGA HD15M +Audio jack)[1].
   (Alternatively, you can connect *separate* audio source to the PC AUDIO INPUT.)
2. Connect the composite video source (for example, a composite video player) to the CV IN RCA connector and to the LEFT and RIGHT LINE AUDIO INPUT RCA connectors.
3. Connect the s-Video source (for example, an s-Video player) to the s-Video IN 4p connector. Instead of connecting the audio from the composite video player, you can as an alternative connect the audio from the s-Video player to the LEFT and RIGHT LINE AUDIO INPUT RCA connectors.
4. Connect[2] the CAT5 RJ-45 connector (see section 5.2).
5. If required, adjust[3] the left and/or right LINE AUDIO levels, and/or the Y and/or C levels, and/or the XGA EQ.[4] level, and/or the CV level / EQ. level.

1 Not supplied. The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

2 Using a UTP cable with an RJ-45 connector (the PINOUT is defined in section 5.2)

3 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

4 Degradation and VGA/XGA signal loss can result from using long cables (due to stray capacitance), sometimes leading to a total loss of sharpness in high-resolution signals

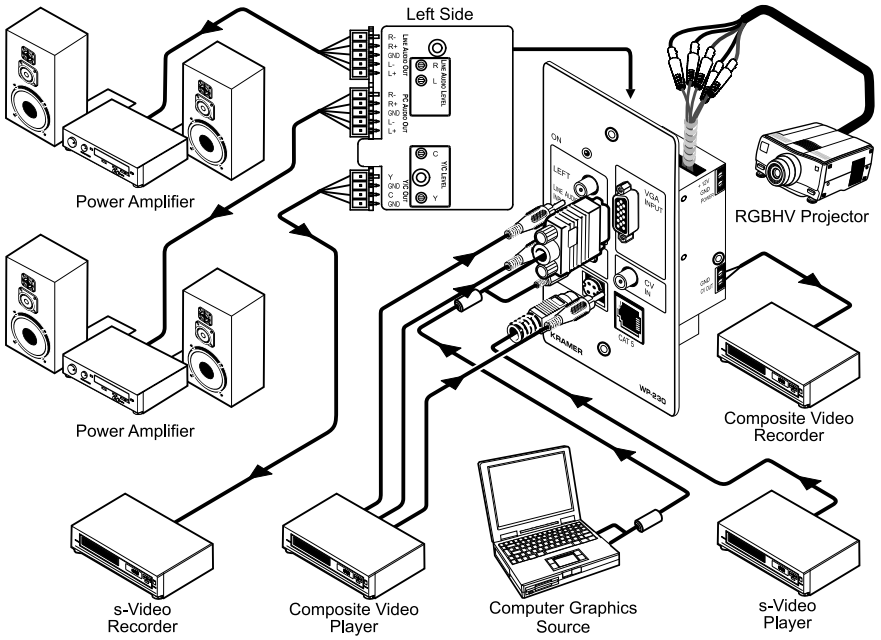

Figure 8: Connecting the WP-230

6 Technical Specifications

Table 5 includes the technical specifications:

Table 5: Technical Specifications[1] of the WP-230

INPUTS:	1 XGA INPUT on an HD-15 connector 1 composite video input on an RCA connector 1 s-Video input on a 4p connector 1 unbalanced stereo PC AUDIO INPUT on a 3.5mm mini jack 1 unbalanced stereo LINE AUDIO INPUT on 2 RCA connectors	
OUTPUTS:	1 RGBHV output on 5 BNC connectors 1 composite video output on a 2-pole terminal block 1 s-Video output on a 4-pole terminal block 1 balanced stereo PC AUDIO OUT on a 5-pole terminal block 1 balanced stereo LINE AUDIO OUT on a 5-pole terminal block	
MAX. OUTPUT LEVEL:	XGA: 1.8Vpp CV: 2.8Vpp Y/C: 2.1Vpp	AUDIO: 6.6Vpp
BANDWIDTH (-3dB):	XGA: 520MHz CV: 438MHz Y/C: 155MHz	AUDIO: >100kHz
DIFF. GAIN:	0.03%	
DIFF. PHASE:	0.03 Deg.	
K-FACTOR:	<0.05%	
S/N RATIO:	VIDEO: 76dB	AUDIO: 71dB
CROSSTALK (all hostile):	VIDEO: –55dB	AUDIO: <–90dB
CONTROLS:	CV level: –1.3dB to +6dB, EQ level: 0dB to +1.6dB @ 4.43MHz XGA level: 0dB to +7.2dB, EQ @ 50MHz YC level: –2.1dB to +4.9dB (Y); –1.5dB to +4.9dB (C) Right and left LINE AUDIO level controls	
COUPLING:	VIDEO: DC	AUDIO: AC
AUDIO THD + NOISE:	0.02%	
AUDIO 2nd HARMONIC:	0.003%	
POWER SOURCE:	12 VDC, 175mA	
DIMENSIONS:	6.9cm x 7.1cm x 11.4cm (2.7" x 2.8" x 4.5", W, D, H)	
WEIGHT:	0.3 kg (0.67 lbs.) approx	
ACCESSORIES:	Power supply	

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- ⌦ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- ⌦ Use the supplied DC power supply to feed power to the machine.
- ⌦ Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Kramer Electronics, Ltd.
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P/N: 2900-000170 REV 1