



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODEL:

**VA-4**  
Dual Channel Balanced Stereo  
Audio Amplifier

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P/N: 2900-000004 Rev 2A

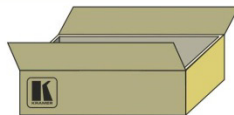


## VA-4 Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to [http://www.kramerelectronics.com/support/product\\_downloads.asp](http://www.kramerelectronics.com/support/product_downloads.asp) to download the latest manual or scan the QR code on the left.

### Step 1: Check what's in the box

- VA-4 Dual Channel Balanced Stereo Audio Amplifier
- 1 Power cord
- 4 Rubber feet
- 1 Quick Start sheet



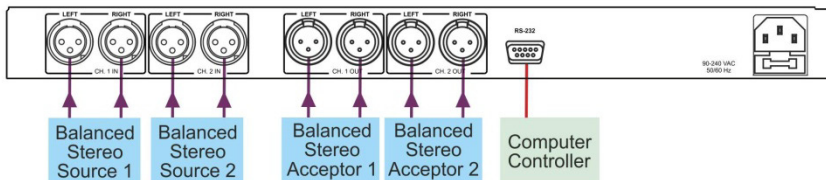
Save the original box and packaging materials in case you need to return your VA-4 for service.

### Step 2: Install the VA-4

Mount the VA-4 in a rack or attach the rubber feet and place on a table.

### Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your VA-4.



Always use Kramer high-performance cables for connecting AV equipment to the VA-4.

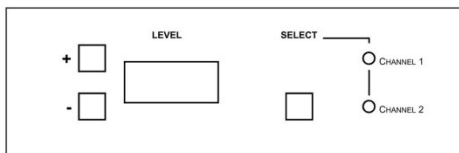
### Step 4: Connect the power

Connect the power cord to the VA-4 and plug it into the mains electricity.



### Step 5: Operate the VA-4

Select channel to control and set the volume level.



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# 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront video, audio, presentation, and broadcasting professionals on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VA-4** *Dual Channel Balanced Stereo Audio Amplifier*, which is ideal for the following typical applications:

- Presentation audio level control
- Recording studios and broadcast studios for on-line signal distribution

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## 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



Go to <http://www.kramerelectronics.com> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

### 2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Do not secure the cables in tight bundles or roll the slack into tight coils
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **VA-4** away from moisture, excessive sunlight and dust



This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

### 2.2 Safety Instructions



**Caution:** No operator serviceable parts inside the unit

**Warning:** You use only the power cord that is supplied with the unit. Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only.

**Warning:** Disconnect the power and unplug the unit from the wall before installing

## 2.3 Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at <http://www.kramerelectronics.com/support/recycling/>.

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## 3 Overview

The **VA-4** is a volume controller for two channels of balanced stereo audio signals on XLR connectors. The volume of each stereo channel can be adjusted independently of the other stereo channel.

The **VA-4**:

- Features a digitally controlled volume control function
- Uses high quality low distortion audio components, enabling transparent processing of the audio signals
- Lets you control the audio gain of each channel via the front panel or via RS-232
- Includes a bright 7-segment LED display on the front panel, showing the current gain or attenuation setting
- Stores settings in the non-volatile memory upon shut down

### 3.1 Defining the VA-4 Dual Channel Balanced Stereo Audio Amplifier

This section defines the **VA-4**.

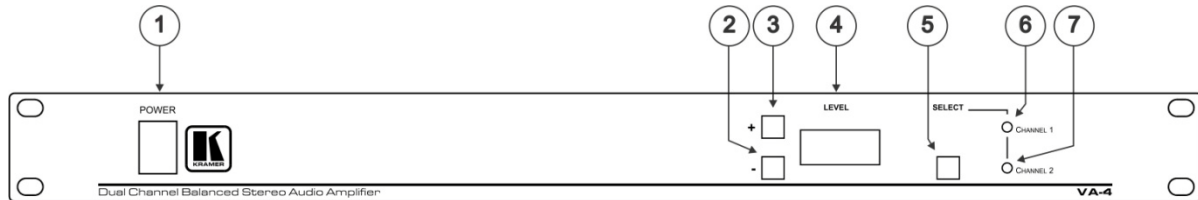


Figure 1: VA-4 Dual Channel Balanced Stereo Audio Amplifier Front Panel

#	Feature	Function
1	<i>POWER</i> Switch	Illuminated switch supplying power to the unit
2	- Button	Press to decrease the level
3	+ Button	Press to increase the level
4	<i>LEVEL</i> 7-segment LED Display	Shows the gain of the selected channel (in decibels)
5	<i>SELECT</i> Button	Selects the stereo channel (1 or 2) being controlled using the + button and the - button
6	<i>Channel 1</i> LED	Illuminates when channel 1 is chosen via the <i>SELECT</i> button
7	<i>Channel 2</i> LED	Illuminates when channel 2 is chosen via the <i>SELECT</i> button



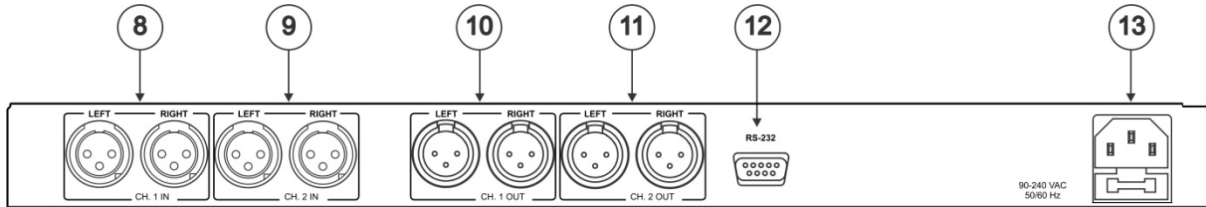


Figure 2: VA-4 Dual Channel Balanced Stereo Audio Amplifier Rear Panel

#	Feature	Function
8	CH. 1 IN LEFT and RIGHT XLR Female Connectors	Connects to the balanced stereo audio source 1
9	CH. 2 IN LEFT and RIGHT XLR Female Connectors	Connects to the balanced stereo audio source 2
10	CH. 1 OUT LEFT and RIGHT XLR Male Connectors	Connects to the balanced stereo audio acceptor 1
11	CH. 2 OUT LEFT and RIGHT XLR Male Connectors	Connects to the balanced stereo audio acceptor 2
12	RS-232 9-pin D-sub Port	Connects to the PC or the Remote Controller
13	Power Connector with FUSE	AC connector enabling power supply to the unit

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## 4 Connecting the VA-4



Always switch off the power to each device before connecting it to your **VA-4**. After connecting your **VA-4**, connect its power and then switch on the power to each device.

To connect the **VA-4** as illustrated in the example in [Figure 3](#):

1. Connect a balanced stereo audio source (for example, a set top box: source 1) to the left and right channel 1 IN XLR connectors.
2. Connect a balanced stereo audio source (Source 2) to the left and right channel 2 IN XLR connectors.
3. Connect the left and right channel 1 OUT XLR connectors to a balanced stereo audio acceptor (Acceptor 1).
4. Connect the left and right channel 2 OUT XLR connectors to a balanced stereo audio acceptor (Acceptor 2).
5. Connect a PC (or other control device) to the RS-232 9-pin D-sub port, if control via RS-232 is required (see [Section 4.1](#)).
6. Connect the power cord to the mains electricity (not shown in [Figure 3](#)).
7. Select the stereo channel (1 or 2) by pressing the SELECT button, and set the level using the + and – buttons (as required).

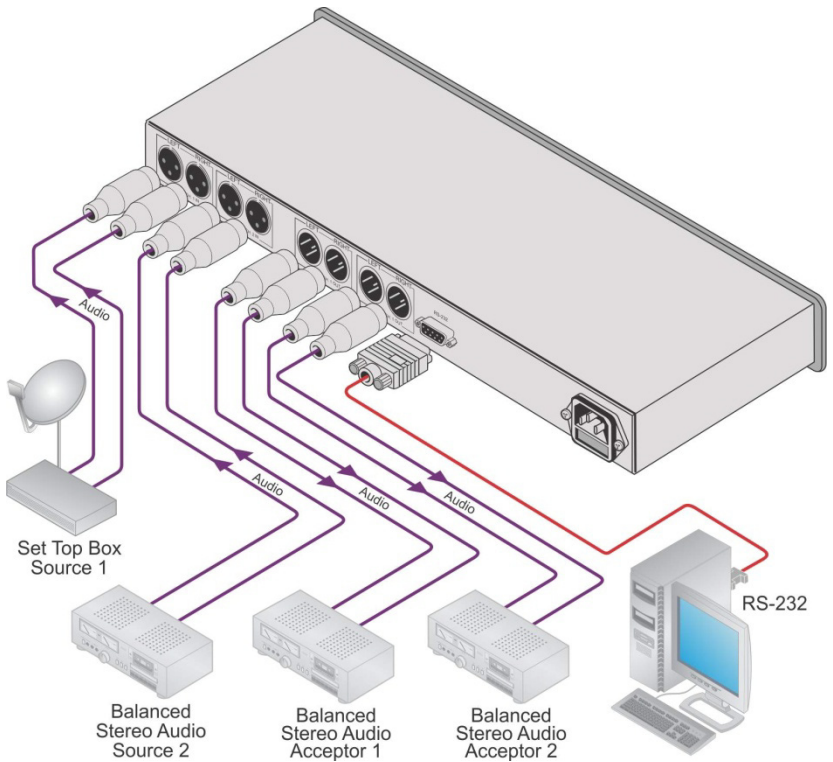


Figure 3: Connecting the VA-4 Dual Channel Balanced Stereo Audio Amplifier

## 4.1 Connecting to the VA-4 via RS-232

You can connect to the unit via a crossed RS-232 connection, using for example, a PC. A crossed cable or null-modem is required as shown in method A and B respectively. If a shielded cable is used, connect the shield to pin 5.

**Method A** (Figure 4)—Connect the RS-232 9-pin D-sub port on the unit via a crossed cable (only pin 2 to pin 3, pin 3 to pin 2, and pin 5 to pin 5 need be connected) to the RS-232 9-pin D-sub port on the PC.

**Note:** There is no need to connect any other pins.

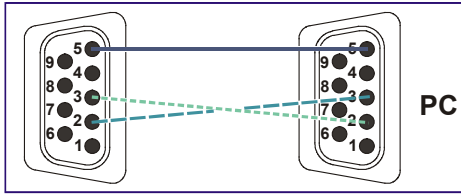


Figure 4: Crossed Cable RS-232 Connection

Hardware flow control is not required for this unit. In the rare case where a controller requires hardware flow control, short pin 1 to 7 and 8, and pin 4 to 6 on the controller side.

**Method B** (Figure 5)—Connect the RS-232 9-pin D-sub port on the unit via a straight (flat) cable to the null-modem adapter, and connect the null-modem adapter to the RS-232 9-pin D-sub port on the PC. The straight cable usually contains all nine wires for a full connection of the D-sub connector. Because the null-modem adapter (which already includes the flow control jumpering described in Method A above) only requires pins 2, 3 and 5 to be connected, you are free to decide whether to connect only these 3 pins or all 9 pins.

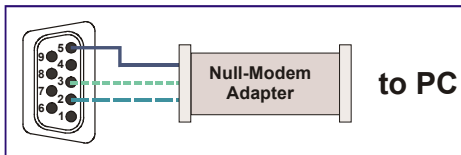


Figure 5: Straight Cable RS-232 Connection with a Null Modem Adapter

## 5 Technical Specifications

INPUTS:	2 balanced stereo, up to 16dBm/33kΩ on female XLR connectors
OUTPUTS:	2 balanced stereo, up to 21dBm/50Ω on male XLR connectors
BANDWIDTH (-3dB):	>100 kHz
S/N RATIO:	80dB@6dB Gain (unweighted)
CROSSTALK (all hostile):	74dB@1kHz; -68dB@20kHz
CONTROLS:	Level Control and Channel Selection, Impedance selection
COUPLING:	AC at output
AUDIO THD + NOISE:	0.02%@1kHz
AUDIO 2nd HARMONIC:	0.008%@1kHz
OPERATING TEMPERATURE:	0° to +40°C (32° to 104°F)
STORAGE TEMPERATURE:	-40° to +70°C (-40° to 158°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	19" x 7" x 1U (W, D, H)
WEIGHT:	2.5 kg. (5.5 lbs.) approx.
ACCESSORIES:	Power cord, Null modem adapter, Windows®-based control software
OPTIONS:	
Specifications are subject to change without notice at <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>	

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## 6 Protocol 2000

The **VA-4** is compatible with Kramer's Protocol 2000 (version 0.51). This RS-232 / RS-485 communication protocol uses four bytes of information as defined below.

For RS-232, a null-modem connection between the machine and controller is used. The default data rate is 9600 baud, with no parity, 8 data bits and 1 stop bit.

The first table below lists the **VA-4** Hex codes for gain control (attenuation), and the second table below lists the **VA-4** Hex codes for gain control (amplification). In addition, the following commands are also valid:

1. To increment the gain of channel 1 (in steps of 1), send hex bytes 18 81 80 81. To decrement the gain of channel 1 (in steps of 1), send hex bytes 18 81 81 81.
2. To increment the gain of channel 2 (in steps of 1), send hex bytes 18 82 80 81. To decrement the gain of channel 2 (in steps of 1), send hex bytes 18 82 81 81.
3. To request the gain of channel 1, send hex codes 19 81 80 81. The response is as per the following tables, except that 59 is sent instead of the constant byte 16; and 7f instead of the constant byte 3f.
4. To request the gain of channel 2, send hex codes 19 82 80 81.

In the tables below:

- The dB column shows the machine's gain value at the setting shown in the LED column. The VA-4 has a gain resolution of 0.245dB (each step is 0.245dB)
- Hex codes are shown for channel # 1. For channel # 2, for 4 byte strings change the 2nd byte from 81 to 82, and for 8 byte strings, change the 6th byte from 81 to 82.  
For example, for gain with the LED showing -166 for channel 2, send 16 82 80 81; for the LED showing 26, send 3f 80 81 81 16 82 c0 81

VA-4 Hex Codes for Gain Control (Attenuation)

Gain (dB)	LED	Hex Codes
-40.7	-166	16 81 80 81
-40.4	-165	16 81 81 81
-40.2	-164	16 81 82 81
-39.9	-163	16 81 83 81
-39.7	-162	16 81 84 81
-39.4	-161	16 81 85 81
-39.2	-160	16 81 86 81
-39.0	-159	16 81 87 81
-38.7	-158	16 81 88 81
-38.7	-157	16 81 89 81
-38.2	-156	16 81 8a 81
-38.0	-155	16 81 8b 81
-37.7	-154	16 81 8c 81
-37.5	-153	16 81 8d 81
-37.2	-152	16 81 8e 81
-37.0	-151	16 81 8f 81
-36.8	-150	16 81 90 81
-36.5	-149	16 81 91 81
-36.3	-148	16 81 92 81
-36.0	-147	16 81 93 81
-35.8	-146	16 81 94 81
-35.5	-145	16 81 95 81
-35.3	-144	16 81 96 81
-35.0	-143	16 81 97 81
-34.8	-142	16 81 98 81
-34.5	-141	16 81 99 81
-34.3	-140	16 81 9a 81
-34.1	-139	16 81 9b 81
-33.8	-138	16 81 9c 81
-33.6	-137	16 81 9d 81
-33.3	-136	16 81 9e 81
-33.1	-135	16 81 9f 81
-32.8	-134	16 81 a0 81
-32.6	-133	16 81 a1 81
-32.3	-132	16 81 a2 81
-32.1	-131	16 81 a3 81
-31.9	-130	16 81 a4 81
-31.6	-129	16 81 a5 81
-31.4	-128	16 81 a6 81
-31.1	-127	16 81 a7 81
-30.9	-126	16 81 a8 81
-30.6	-125	16 81 a9 81
-30.4	-124	16 81 aa 81
-30.1	-123	16 81 ab 81
-29.9	-122	16 81 ac 81
-29.6	-121	16 81 ad 81
-29.4	-120	16 81 ae 81
-29.2	-119	16 81 af 81
-28.9	-118	16 81 b0 81
-28.7	-117	16 81 b1 81
-28.4	-116	16 81 b2 81
-28.2	-115	16 81 b3 81
-27.9	-114	16 81 b4 81
-27.7	-113	16 81 b5 81
-27.4	-112	16 81 b6 81
-27.2	-111	16 81 b7 81

Gain (dB)	LED	Hex Codes
-27.0	-110	16 81 b8 81
-26.7	-109	16 81 b9 81
-26.5	-108	16 81 ba 81
-26.2	-107	16 81 bb 81
-26.0	-106	16 81 bc 81
-25.7	-105	16 81 bd 81
-25.5	-104	16 81 be 81
-25.2	-103	16 81 bf 81
-25.0	-102	16 81 c0 81
-24.7	-101	16 81 c1 81
-24.5	-100	16 81 c2 81
-24.3	-99	16 81 c3 81
-24.0	-98	16 81 c4 81
-23.8	-97	16 81 c5 81
-23.5	-96	16 81 c6 81
-23.3	-95	16 81 c7 81
-23.0	-94	16 81 c8 81
-22.8	-93	16 81 c9 81
-22.5	-92	16 81 ca 81
-22.3	-91	16 81 cb 81
-22.1	-90	16 81 cc 81
-21.8	-89	16 81 cd 81
-21.6	-88	16 81 ce 81
-21.3	-87	16 81 cf 81
-21.1	-86	16 81 d0 81
-20.8	-85	16 81 d1 81
-20.6	-84	16 81 d2 81
-20.3	-83	16 81 d3 81
-20.1	-82	16 81 d4 81
-19.8	-81	16 81 d5 81
-19.6	-80	16 81 d6 81
-19.4	-79	16 81 d7 81
-19.1	-78	16 81 d8 81
-18.9	-77	16 81 d9 81
-18.6	-76	16 81 da 81
-18.4	-75	16 81 db 81
-18.1	-74	16 81 dc 81
-17.9	-73	16 81 dd 81
-17.6	-72	16 81 de 81
-17.4	-71	16 81 df 81
-17.2	-70	16 81 e0 81
-16.9	-69	16 81 e1 81
-16.7	-68	16 81 e2 81
-16.4	-67	16 81 e3 81
-16.2	-66	16 81 e4 81
-15.9	-65	16 81 e5 81
-15.7	-64	16 81 e6 81
-15.4	-63	16 81 e7 81
-15.2	-62	16 81 e8 81
-14.9	-61	16 81 e9 81
-14.7	-60	16 81 ea 81
-14.5	-59	16 81 eb 81
-14.2	-58	16 81 ec 81
-14.0	-57	16 81 ed 81
-13.7	-56	16 81 ee 81
-13.5	-55	16 81 ef 81

Gain (dB)	LED	Hex Codes
-13.2	-54	16 81 f0 81
-13.0	-53	16 81 f1 81
-12.7	-52	16 81 f2 81
-12.5	-51	16 81 f3 81
-12.3	-50	16 81 f4 81
-12.0	-49	16 81 f5 81
-11.8	-48	16 81 f6 81
-11.5	-47	16 81 f7 81
-11.3	-46	16 81 f8 81
-11.0	-45	16 81 f9 81
-10.8	-44	16 81 fa 81
-10.5	-43	16 81 fb 81
-10.3	-42	16 81 fc 81
-10.0	-41	16 81 fd 81
-9.8	-40	16 81 fe 81
-9.6	-39	16 81 ff 81
-9.3	-38	3f 80 81 81 16 81 80 81
-9.1	-37	3f 80 81 81 16 81 81 81
-8.8	-36	3f 80 81 81 16 81 82 81
-8.6	-35	3f 80 81 81 16 81 83 81
-8.3	-34	3f 80 81 81 16 81 84 81
-8.1	-33	3f 80 81 81 16 81 85 81
-7.8	-32	3f 80 81 81 16 81 86 81
-7.6	-31	3f 80 81 81 16 81 87 81
-7.4	-30	3f 80 81 81 16 81 88 81
-7.1	-29	3f 80 81 81 16 81 89 81
-6.9	-28	3f 80 81 81 16 81 8a 81
-6.6	-27	3f 80 81 81 16 81 8b 81
-6.4	-26	3f 80 81 81 16 81 8c 81
-6.1	-25	3f 80 81 81 16 81 8d 81
-5.9	-24	3f 80 81 81 16 81 8e 81
-5.6	-23	3f 80 81 81 16 81 8f 81
-5.4	-22	3f 80 81 81 16 81 90 81
-5.1	-21	3f 80 81 81 16 81 91 81
-4.9	-20	3f 80 81 81 16 81 92 81
-4.7	-19	3f 80 81 81 16 81 93 81
-4.4	-18	3f 80 81 81 16 81 94 81
-4.2	-17	3f 80 81 81 16 81 95 81
-3.9	-16	3f 80 81 81 16 81 96 81
-3.7	-15	3f 80 81 81 16 81 97 81
-3.4	-14	3f 80 81 81 16 81 98 81
-3.2	-13	3f 80 81 81 16 81 99 81
-2.9	-12	3f 80 81 81 16 81 9a 81
-2.7	-11	3f 80 81 81 16 81 9b 81
-2.5	-10	3f 80 81 81 16 81 9c 81
-2.2	-9	3f 80 81 81 16 81 9d 81
-2.0	-8	3f 80 81 81 16 81 9e 81
-1.7	-7	3f 80 81 81 16 81 9f 81
-1.5	-6	3f 80 81 81 16 81 a0 81
-1.2	-5	3f 80 81 81 16 81 a1 81
-1.0	-4	3f 80 81 81 16 81 a2 81
-0.7	-3	3f 80 81 81 16 81 a3 81
-0.5	-2	3f 80 81 81 16 81 a4 81
-0.2	-1	3f 80 81 81 16 81 a5 81

VA-4 Hex Codes for Gain Control (Amplification)

Gain (dB)	LED	Hex Codes
0	0	3f 80 81 81 16 81 a6 81
+0.2	1	3f 80 81 81 16 81 a7 81
+0.5	2	3f 80 81 81 16 81 a8 81
+0.7	3	3f 80 81 81 16 81 a9 81
+1.0	4	3f 80 81 81 16 81 aa 81
+1.2	5	3f 80 81 81 16 81 ab 81
+1.5	6	3f 80 81 81 16 81 ac 81
+1.7	7	3f 80 81 81 16 81 ad 81
+2.0	8	3f 80 81 81 16 81 ae 81
+2.2	9	3f 80 81 81 16 81 af 81
+2.5	10	3f 80 81 81 16 81 b0 81
+2.7	11	3f 80 81 81 16 81 b1 81
+2.9	12	3f 80 81 81 16 81 b2 81
+3.2	13	3f 80 81 81 16 81 b3 81
+3.4	14	3f 80 81 81 16 81 b4 81
+3.7	15	3f 80 81 81 16 81 b5 81
+3.9	16	3f 80 81 81 16 81 b6 81
+4.2	17	3f 80 81 81 16 81 b7 81
+4.4	18	3f 80 81 81 16 81 b8 81
+4.7	19	3f 80 81 81 16 81 b9 81
+4.9	20	3f 80 81 81 16 81 ba 81
+5.1	21	3f 80 81 81 16 81 bb 81
+5.4	22	3f 80 81 81 16 81 bc 81
+5.6	23	3f 80 81 81 16 81 bd 81
+5.9	24	3f 80 81 81 16 81 be 81
+6.1	25	3f 80 81 81 16 81 bf 81
+6.4	26	3f 80 81 81 16 81 c0 81
+6.6	27	3f 80 81 81 16 81 c1 81
+6.9	28	3f 80 81 81 16 81 c2 81
+7.1	29	3f 80 81 81 16 81 c3 81
+7.4	30	3f 80 81 81 16 81 c4 81
+7.6	31	3f 80 81 81 16 81 c5 81
+7.8	32	3f 80 81 81 16 81 c6 81
+8.1	33	3f 80 81 81 16 81 c7 81
+8.3	34	3f 80 81 81 16 81 c8 81
+8.6	35	3f 80 81 81 16 81 c9 81
+8.8	36	3f 80 81 81 16 81 ca 81
+9.1	37	3f 80 81 81 16 81 cb 81
+9.3	38	3f 80 81 81 16 81 cc 81
+9.6	39	3f 80 81 81 16 81 cd 81
+9.8	40	3f 80 81 81 16 81 ce 81
+10.0	41	3f 80 81 81 16 81 cf 81
+10.3	42	3f 80 81 81 16 81 d0 81
+10.5	43	3f 80 81 81 16 81 d1 81
+10.8	44	3f 80 81 81 16 81 d2 81

Gain (dB)	LED	Hex Codes
+11.0	45	3f 80 81 81 16 81 d3 81
+11.3	46	3f 80 81 81 16 81 d4 81
+11.5	47	3f 80 81 81 16 81 d5 81
+11.8	48	3f 80 81 81 16 81 d6 81
+12.0	49	3f 80 81 81 16 81 d7 81
+12.3	50	3f 80 81 81 16 81 d8 81
+12.5	51	3f 80 81 81 16 81 d9 81
+12.7	52	3f 80 81 81 16 81 da 81
+13.0	53	3f 80 81 81 16 81 db 81
+13.2	54	3f 80 81 81 16 81 dc 81
+13.5	55	3f 80 81 81 16 81 dd 81
+13.7	56	3f 80 81 81 16 81 de 81
+14.0	57	3f 80 81 81 16 81 df 81
+14.2	58	3f 80 81 81 16 81 e0 81
+14.5	59	3f 80 81 81 16 81 e1 81
+14.7	60	3f 80 81 81 16 81 e2 81
+14.9	61	3f 80 81 81 16 81 e3 81
+15.2	62	3f 80 81 81 16 81 e4 81
+15.4	63	3f 80 81 81 16 81 e5 81
+15.7	64	3f 80 81 81 16 81 e6 81
+15.9	65	3f 80 81 81 16 81 e7 81
+16.2	66	3f 80 81 81 16 81 e8 81
+16.4	67	3f 80 81 81 16 81 e9 81
+16.7	68	3f 80 81 81 16 81 ea 81
+16.9	69	3f 80 81 81 16 81 eb 81
+17.2	70	3f 80 81 81 16 81 ec 81
+17.4	71	3f 80 81 81 16 81 ed 81
+17.6	72	3f 80 81 81 16 81 ee 81
+17.9	73	3f 80 81 81 16 81 ef 81
+18.1	74	3f 80 81 81 16 81 f0 81
+18.4	75	3f 80 81 81 16 81 f1 81
+18.6	76	3f 80 81 81 16 81 f2 81
+18.9	77	3f 80 81 81 16 81 f3 81
+19.1	78	3f 80 81 81 16 81 f4 81
+19.4	79	3f 80 81 81 16 81 f5 81
+19.6	80	3f 80 81 81 16 81 f6 81
+19.8	81	3f 80 81 81 16 81 f7 81
+20.1	82	3f 80 81 81 16 81 f8 81
+20.3	83	3f 80 81 81 16 81 f9 81
+20.6	84	3f 80 81 81 16 81 fa 81
+20.8	85	3f 80 81 81 16 81 fb 81
+21.1	86	3f 80 81 81 16 81 fc 81
+21.3	87	3f 80 81 81 16 81 fd 81
+21.6	88	3f 80 81 81 16 81 fe 81
+21.8	89	3f 80 81 81 16 81 ff 81



## LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

### What is Covered

This limited warranty covers defects in materials and workmanship in this product.

### What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

### How Long Does this Coverage Last

Three years as of this printing; please check our Web site for the most current and accurate warranty information.

### Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

### What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

### What Kramer Electronics will not do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

### How to Obtain a Remedy under this Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at [www.kramerelectronics.com](http://www.kramerelectronics.com) or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

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E-mail: [info@kramerel.com](mailto:info@kramerel.com)



**SAFETY WARNING**

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-000004



Rev: 2A

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