

# KRAMER



## USER MANUAL

**MODEL:**

**PSE-2**

10Gb POE Injector

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# PSE-2 10Gb POE Injector Quick Start Guide

This guide helps you install and use your **PSE-2** for the first time. For more detailed information, go to <http://www.kramerav.com/manual/PSE-2> to download the latest manual or scan the QR code on the left.

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

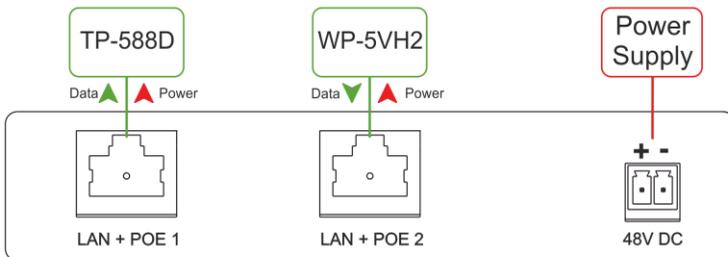
- ✓ PSE-2 10Gb POE Injector
- ✓ 1 48V DC Power supply
- ✓ 1 Quick Start Guide
- ✓ 4 Rubber feet

## Step 2: Install the PSE-2

To mount the **PSE-2** in a rack, use an **RK-4PT** rack adapter. Alternatively, attach the rubber feet to the bottom of the machine and place it on a table.

## Step 3: Connect the inputs and outputs

Always switch off the power to each device before connecting it to your **PSE-2**.  
For best results, always use Kramer high-performance cables to connect your AV equipment to the **PSE-2**.



For optimum performance we recommend the Kramer **BC-DGKat524** (CAT 5 24 AWG), **BC-HDKat6a** (CAT 6 23 AWG), and the **BC-DGKat7a23** (CAT 7a 23 AWG) cables. These specially built cables significantly outperform regular CAT 5/ CAT 6/CAT 7a cables.

## Step 4: Connect the power

Connect the 48V DC power adapter to the **PSE-2** and plug the adapter into the mains electricity.



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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 14 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; GROUP 11: Sierra Video Products; GROUP 12: Digital Signage; GROUP 13: Audio; and GROUP 14: Collaboration.

Congratulations on purchasing your Kramer **PSE-2 10Gb POE Injector**. This product, which incorporates HDMI™ technology, is ideal for:

- Home theater, presentation and multimedia applications
- Boardrooms and classrooms

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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



Go to [www.kramerav.com/downloads/PSE-2](http://www.kramerav.com/downloads/PSE-2) 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 (we recommend Kramer high-performance, high-resolution 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 neighbouring electrical appliances that may adversely influence signal quality
- Position your **PSE-2** 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:** There are no operator serviceable parts inside the unit

**Warning:** Use only the Kramer Electronics power supply that is provided with the unit

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

## 2.3 Shielded Twisted Pair/Unshielded Twisted Pair

Kramer engineers have developed special twisted pair cables to best match our digital twisted pair products; the Kramer **BC-HDKat6a** (CAT 6 23 AWG) HDBaseT certified, and the Kramer **BC-DGKat7a23** (CAT 7a 23 AWG) cables. These specially built cables significantly outperform regular CAT 6 and CAT 7a cables.

## 2.4 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 **PSE-2** is a PoE (Power-over-Ethernet) injector.

The **PSE-2** provides power remotely over Ethernet to any device capable of acting as a PoE acceptor, (for example, a wallplate where it may be difficult to connect an external power supply). This allows a single HDBT LAN cable to provide both data and electrical power to compatible devices.

In particular, the **PSE-2** features:

- A total range of up to 100m (328ft) @ 4K on shielded **BC-HDKat6a** cable (or equivalent)
- 4K support
- 48V DC power
- A Kramer MegaTOOLS® enclosure

### 3.1 About HDBaseT™ Technology

HDBaseT™ is an advanced, all-in-one connectivity technology (supported by the HDBaseT Alliance). It is particularly suitable in the ProAV – and also the home – environment as a digital networking alternative, where it enables you to replace numerous cables and connectors by a single LAN cable used to transmit, for example, uncompressed, full high-definition video, audio, IR, as well as various control signals.



The products described in this user manual are HDBaseT certified.

## 4 Defining the PSE-2 10Gb POE Injector

[Figure 1](#) defines the front panel of the **PSE-2**.



Figure 1: PSE-2 Front Panel

#	Feature	Function
1	<i>POE 1 STATUS</i> LED	Lights green when the device provides power over the first Ethernet connection to a remote device
2	<i>POE 2 STATUS</i> LED	Lights green when the device provides power over the second Ethernet connection to a remote device
3	<i>ON</i> LED	Lights green when the device is powered on

[Figure 2](#) defines the rear panel of the **PSE-2**.

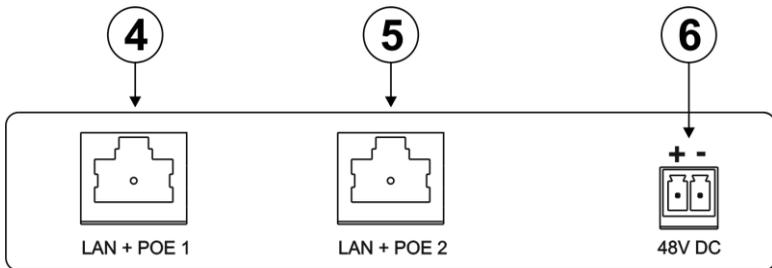


Figure 2: PSE-2 Rear Panel

#	Feature	Function
4	<i>LAN + POE 1</i> RJ-45 Connector	Connect to the first Ethernet/HDBT LAN which is to be powered by the PoE
5	<i>LAN + POE 2</i> RJ-45 Connector	Connect to the second Ethernet/HDBT LAN which is to be powered by the PoE
6	<i>48V DC</i>	2-pin terminal block for connecting the +48V DC power supply

## 5 Connecting the PSE-2



Always switch off the power to each device before connecting it to your **PSE-2**. After connecting your **PSE-2**, connect its power and then switch on the power to each device.

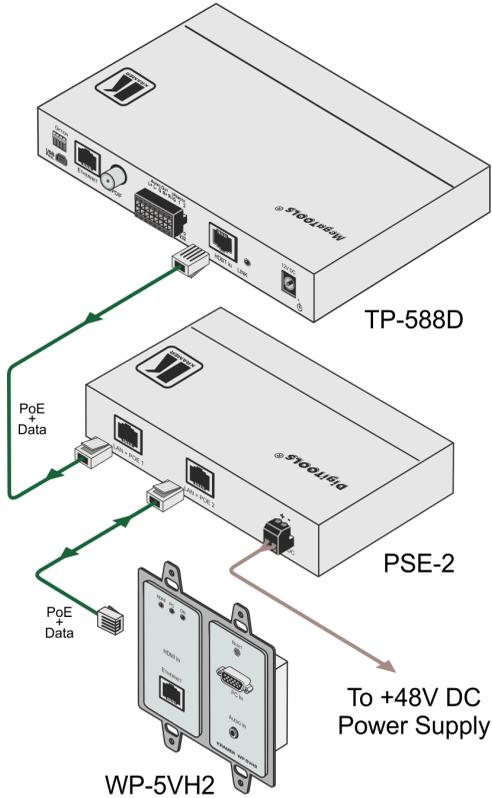


Figure 3: Connecting the PSE-2 10Gb POE Injector

To connect the PSE-2, as illustrated in the example in [Figure 3](#):

1. Connect the HDBT transmitter, (for example, the **WP-5VH2**) to the LAN + POE 2 RJ-45 connector on the rear panel of the **PSE-2**.

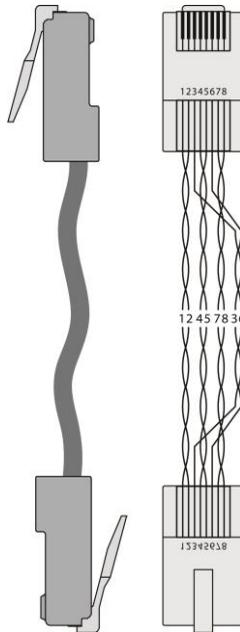
2. Connect the LAN + POE 1 RJ-45 connector on the rear panel of the **PSE-2** to the HDBT receiver, (for example, the **TP-588D**).
3. Connect the supplied power adapter to the **PSE-2** and plug the power adapter into the mains supply.  
The **PSE-2** provides power to both the HDBT transmitter and receiver.

## 5.1 Wiring the RJ-45 Connectors

This section defines the TP pinout, using a **straight** pin-to-pin cable with RJ-45 connectors.

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

Figure 4: TP PINOUT



## 6 Technical Specifications

INPUT/OUTPUT:	2 HDBaseT/LAN + POE on RJ-45 connectors
OPERATION BANDWIDTH:	Up to 10.2Gbps (3.4Gbps per data channel)
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI, HDCP
INDICATOR LEDS:	ON, POE 1 STATUS, POE 2 STATUS
POWER SOURCE:	48V DC
POWER PROVISION:	Up to 30W to both the transmitter and receiver (total 60W)
POWER CONSUMPTION:	1.3A
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
COOLING:	Convection
ENCLOSURE TYPE:	Aluminium
DIMENSIONS:	6.22cm x 5.18cm x 2.44cm (2.45" x 2.04" x 0.96") W, D, H
RACK MOUNT:	With optional adapter
FURNITURE MOUNT:	With included rubber feet
PRODUCT WEIGHT:	0.156 kg (0.34lbs) approx.
SHIPPING WEIGHT:	0.665 kg (1.47lbs) approx.
VIBRATION:	ISTA 1A in carton (International Safe Transit Association)
COMPLIANCE STANDARDS:	CE
ENVIRONMENTAL REGULATORY COMPLIANCE:	Complies with appropriate requirements of RoHs and WEEE
INCLUDED ACCESSORIES:	Power supply
OPTIONS:	RK-4PT 19' rack adapter
WARRANTY:	7 years parts and labor

Specifications are subject to change without notice at <http://www.kramerelectronics.com>

## 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 attended 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

Seven 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.

### Limitation on Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

### Exclusive Remedy

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IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

### Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, please visit our Web site at [www.kramerelectronics.com](http://www.kramerelectronics.com) or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.

# KRAMER



## SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our Web site to find updates to this user manual.

We welcome your questions, comments, and feedback.

[www.kramerAV.com](http://www.kramerAV.com)  
[info@kramerel.com](mailto:info@kramerel.com)