



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

FC-32
DVI to PC/Component
Converter

P/N: 2900-000487 Rev 5



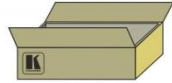
FC-32 Quick Start Guide

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 to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

- FC-32 DVI to PC/Component Converter
- 1 Power supply (5V DC)

- 4 Rubber feet
- 1 Quick Start sheet



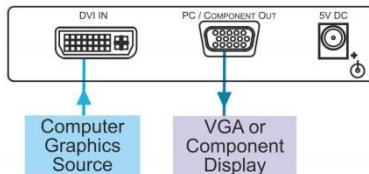
Save the original box and packaging materials in case you need to return your **FC-32** for service.

Step 2: Install the FC-32

Attach the rubber feet and place on a table or mount the **FC-32** in a rack (using an optional **RK-3T** rack adapter).

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **FC-32**.



Always use Kramer high-performance cables for connecting AV equipment to the **FC-32**.

Step 4: Connect the power

Connect the 5V DC power adapter to the **FC-32** and plug the adapter into the mains electricity.



Step 5: Operate the FC-32

Set the front panel switch to the left for a component acceptor or to the right for a computer graphics acceptor.



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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 **FC-32** *DVI to PC/Component Converter*, which is ideal for the following typical applications:

- Home theater, presentation and multimedia applications
- Rental and staging

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 http://www.kramerelectronics.com/support/product_downloads.asp 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 neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **FC-32** 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 input power wall adapter that is provided with the unit

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/>.

3 Overview

The **FC-32** is a high-performance format converter for digital DVI-D signals. It converts a DVI-D input to a computer graphics or component video output on a 15-pin HD connection.

The **FC-32** features:

- One DVI input on a 24-pin Molex connector
- One PC (RGBHV) /component (YPbPr with bi-level syncs) output on a 15-pin HD connector
- A Y/Pb/Pr–RGB selector switch (YPbPr signal is with a bi-level sync)
- 5V DC power

3.1 Defining the FC-32 DVI to PC/Component Converter

This section defines the **FC-32**.

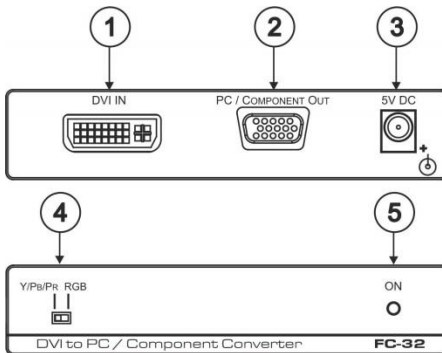


Figure 1: FC-32 DVI to PC/Component Converter

#	Feature	Function
1	DVI IN 24-pin Molex Connector	Connect to digital source
2	PC/COMPONENT OUT 15-pin HD Connector	Connect to PC or component acceptor
3	5V DC Connector	+5V DC for powering the unit
4	Y/Pb/Pr RGB Switch	Slide the switch to the left for a component acceptor (with bi-level sync); slide the switch to the right for a computer graphics acceptor
5	ON LED	Illuminates green when receiving power

4 Connecting the FC-32



Always switch off the power to each device before connecting it to your **FC-32**. After connecting your **FC-32**, connect its power and then switch on the power to each device.

To connect the **FC-32** as illustrated in the example in [Figure 2](#):

1. Connect the digital input source (such as, a computer graphics source) to the 24-pin Molex INPUT connector.
2. Connect an output acceptor (such as, a computer graphics VGA display or component display) to the PC/COMPONENT OUT 15-pin HD connector.
3. Set the front panel switch (see [Figure 1](#)) to Y/PB/PR for a component acceptor or to RGB for a computer graphics acceptor.
4. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity.

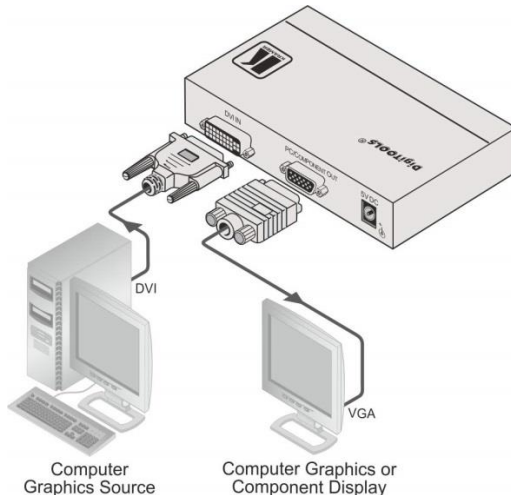


Figure 2: Connecting the FC-32 DVI to PC/Component Converter

Note: The **FC-32** is shipped with a fixed, factory default EDID (see [Section 6](#)).

5 Technical Specifications

INPUTS:	1 DVI-D, 1.2Vpp on a Molex 24-pin (F) connector; DDC signal 5Vpp (TTL)
OUTPUTS:	1 VGA or YPbPr on a 15-pin HD (F) connector; YPbPr is with bi-level sync
RESOLUTION:	Up to WUXGA, 1080p VESA standard timing is supported. When the input timing does not comply to this standard, the FC-32 may not display correctly (for example, the pixel clock from a GeForce 6600 graphics card operating at 1600x1200 resolution is at 140MHz instead of at 162MHz)
CONTROL:	Switch for RGB/YPbPr selection
POWER CONSUMPTION:	5V DC, 570mA
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:	12cm x 7.2cm x 2.4cm (4.7" x 2.8" x 1.0") W, D, H
WEIGHT:	0.3kg (0.7lbs)
SHIPPING DIMENSIONS:	23.2cm x 12cm x 8.9cm (9.1" x 4.7" x 3.5") W, D, H
SHIPPING WEIGHT:	0.7kg (1.5lbs)
OPTIONS:	RK-3T 19" rack mount
Specifications are subject to change without notice at http://www.kramerelectronics.com	

6 EDID Factory Default Data

Time: 8:56:25 AM

Date: 07 December, 2010
EDID Manager Version: 1.0.0.14

Block 0 (EDID Base Block), Bytes 0 - 127, 128 BYTES OF EDID CODE:

```
    0  1  2  3  4  5  6  7  8  9
000 | 00 FF FF FF FF FF 00 2E 4D
010 | 02 00 9C 03 00 00 27 14 01 03
020 | 78 58 32 78 EF EE 91 A3 54 4C
030 | 99 26 0F 50 54 A5 6F 00 D1 C0
040 | B3 00 95 00 90 40 A9 40 81 00
050 | 81 40 81 C0 02 3A 80 18 71 38
060 | 2D 40 58 2C 45 00 12 2C 21 00
070 | 00 1E 66 21 50 B0 51 00 1B 30
080 | 40 70 36 00 12 2C 21 00 00 1E
090 | 28 3C 80 A0 70 B0 23 40 30 20
100 | 36 00 12 2C 21 00 00 1E 48 3F
110 | 40 30 62 B0 32 40 40 C0 13 00
120 | 12 2C 21 00 00 1E 00 1A
```

- (8-9) ID Manufacture Name : KRM
(10-11) ID Product Code : 0002
(12-15) ID Serial Number :
(16) Week of Manufacture : 39
(17) Year of Manufacture : 2010
- (18) EDID Version Number : 1
(19) EDID Revision Number: 3
- (20) Video Input Definition: Analog
0.700, 0.000 (0.700 V p-p)
Separate Syncs
- (21) Maximum Horizontal Image Size: 88 cm
(22) Maximum Vertical Image Size : 50 cm
(23) Display Gamma : 2.20
(24) Power Management and Supported Feature(s):
Standby, Suspend, Active Off/Very Low Power, RGB Color, sRGB, Preferred Timing Mode,
Default GTF Supported
- (25-34) Color Characteristics
Red Chromaticity : Rx = 0.636 Ry = 0.330
Green Chromaticity : Gx = 0.300 Gy = 0.596
Blue Chromaticity : Bx = 0.150 By = 0.056
Default White Point: Wx = 0.312 Wy = 0.329
- (35) Established Timings I
720 x 400 @ 70Hz (IBM, VGA)
640 x 480 @ 60Hz (IBM, VGA)
640 x 480 @ 75Hz (VESA)
800 x 600 @ 60Hz (VESA)
- (36) Established Timings II
800 x 600 @ 75Hz (VESA)
832 x 624 @ 75Hz (Apple, Mac II)
1024 x 768 @ 60Hz (VESA)
1024 x 768 @ 70Hz (VESA)
1024 x 768 @ 75Hz (VESA)
1280 x 1024 @ 75Hz (VESA)
- (37) Manufacturer's Timings (Not Used)
- (38-53) Standard Timings
1920x1080 @ 60 Hz (16:9 Aspect Ratio)
1680x1050 @ 60 Hz (16:10 Aspect Ratio)
1440x900 @ 60 Hz (16:10 Aspect Ratio)

1400x1050 @ 60 Hz (4:3 Aspect Ratio)
1600x1200 @ 60 Hz (4:3 Aspect Ratio)
1280x800 @ 60 Hz (16:10 Aspect Ratio)
1280x960 @ 60 Hz (4:3 Aspect Ratio)
1280x720 @ 60 Hz (16:9 Aspect Ratio)

(54-71) Detailed Descriptor #1: Preferred Detailed Timing (1920x1080 @ 60Hz)

Pixel Clock : 148.5 MHz
Horizontal Image Size : 530 mm
Vertical Image Size : 300 mm
Refresh Mode : Non-interlaced
Normal Display, No Stereo
Horizontal:
Active Time : 1920 Pixels
Blanking Time : 280 Pixels
Sync Offset : 88 Pixels
Sync Pulse Width: 44 Pixels
Border : 0 Pixels
Frequency : 67 kHz

Vertical:
Active Time : 1080 Lines
Blanking Time : 45 Lines
Sync Offset : 4 Lines
Sync Pulse Width: 5 Lines
Border : 0 Lines

Digital Separate, Horizontal Polarity (+), Vertical Polarity (+)

Modeline: "1920x1080" 148.500 1920 2008 2052 2200 1080 1084 1089 1125
+hsync +vsync

(72-89) Detailed Descriptor #2: Detailed Timing (1360x768 @ 60Hz)

Pixel Clock : 85.5 MHz
Horizontal Image Size : 530 mm
Vertical Image Size : 300 mm
Refresh Mode : Non-interlaced
Normal Display, No Stereo
Horizontal:
Active Time : 1360 Pixels
Blanking Time : 432 Pixels
Sync Offset : 64 Pixels
Sync Pulse Width: 112 Pixels
Border : 0 Pixels
Frequency : 47 kHz

Vertical:
Active Time : 768 Lines
Blanking Time : 27 Lines
Sync Offset : 3 Lines
Sync Pulse Width: 6 Lines
Border : 0 Lines

Digital Separate, Horizontal Polarity (+), Vertical Polarity (+)

Modeline: "1360x768" 85.500 1360 1424 1536 1792 768 771 777 795 +hsync
+vsync

(90-107) Detailed Descriptor #3: Detailed Timing (1920x1200 @ 60Hz)

Pixel Clock : 154 MHz
Horizontal Image Size : 530 mm
Vertical Image Size : 300 mm
Refresh Mode : Non-interlaced
Normal Display, No Stereo
Horizontal:
Active Time : 1920 Pixels
Blanking Time : 160 Pixels
Sync Offset : 48 Pixels
Sync Pulse Width: 32 Pixels
Border : 0 Pixels
Frequency : 74 kHz

Vertical:
Active Time : 1200 Lines
Blanking Time : 35 Lines
Sync Offset : 3 Lines
Sync Pulse Width: 6 Lines
Border : 0 Lines

Digital Separate, Horizontal Polarity (+), Vertical Polarity (+)

Modeline: "1920x1200" 154.000 1920 1968 2000 2080 1200 1203 1209 1235
 +hsync +vsync
 (108-125) Detailed Descriptor #4: Detailed Timing (1600x1200 @ 60Hz)
 Pixel Clock : 162 MHz
 Horizontal Image Size : 530 mm
 Vertical Image Size : 300 mm
 Refresh Mode : Non-interlaced
 Normal Display, No Stereo
 Horizontal:
 Active Time : 1600 Pixels
 Blanking Time : 560 Pixels
 Sync Offset : 64 Pixels
 Sync Pulse Width: 192 Pixels
 Border : 0 Pixels
 Frequency : 75 kHz

 Vertical:
 Active Time : 1200 Lines
 Blanking Time : 50 Lines
 Sync Offset : 1 Lines
 Sync Pulse Width: 3 Lines
 Border : 0 Lines
 Digital Separate, Horizontal Polarity (+), Vertical Polarity (+)
 Modeline: "1600x1200" 162.000 1600 1664 1856 2160 1200 1201 1204 1250
 +hsync +vsync

 (126-127) Extension Flag and Checksum
 Extension Block(s) : 0
 Checksum Value : 26

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

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 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.

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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 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.



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

We welcome your questions, comments, and feedback.

Web site: www.kramerelectronics.com

E-mail: info@kramerel.com

CE



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-000487



Rev: 5