

**Kramer Electronics, Ltd.**



# **USER MANUAL**

**Model:**

**FC-32**

*DVI to PC/Component Converter*

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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 the video, audio, presentation, and broadcasting professional 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<sup>1</sup> that are clearly defined by function.

Thank you for purchasing the Kramer DigiTOOLS® **FC-32 DVI to PC/Component Converter**, which is ideal for:

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

Each package includes the following items:

- The **FC-32 DVI to PC/Component Converter**
- Power adapter (5V DC Input)
- This user manual<sup>2</sup>

## 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<sup>3</sup>

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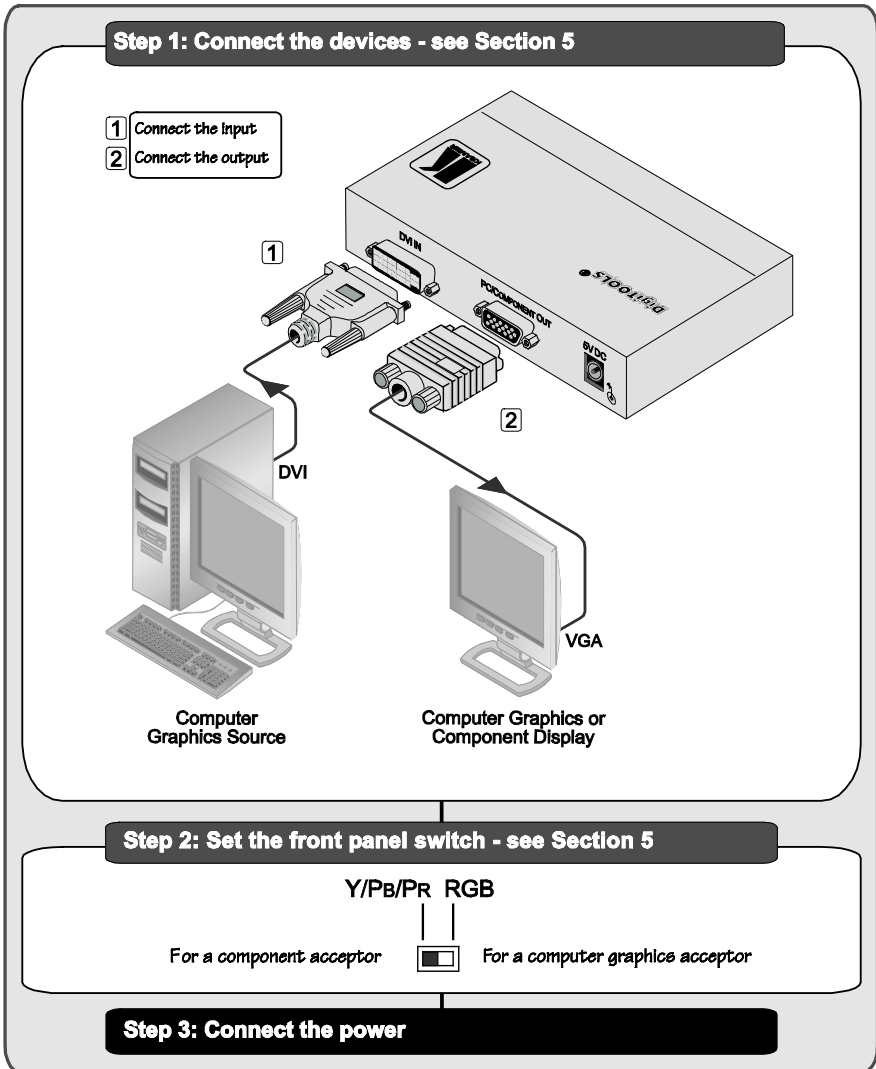
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from <http://www.kramerelectronics.com>

3 The complete list of Kramer cables is available from <http://www.kramerelectronics.com>

## 2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



### 3 Overview

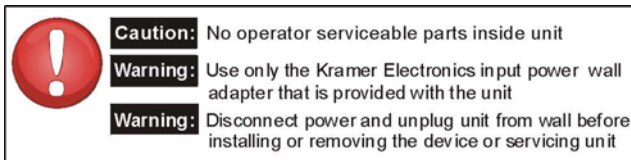
The **FC-32 DVI to PC/Component Converter** is a high-performance format converter for digital DVI-D signals. It converts a DVI-D input to a computer graphics or component video output on a 15-pin HD connection.

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<sup>1</sup>
- 5V DC power

To achieve the best performance:

- Use only good quality connection cables<sup>2</sup> to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your **Kramer FC-32** away from moisture, excessive sunlight and dust



<sup>1</sup> YPbPr signal is with a bi-level sync

<sup>2</sup> A full list of cables is available from <http://www.kramerelectronics.com>

## 4 Your FC-32 DVI to PC/Component Converter

[Figure 1](#) and [Table 1](#) define the unit.

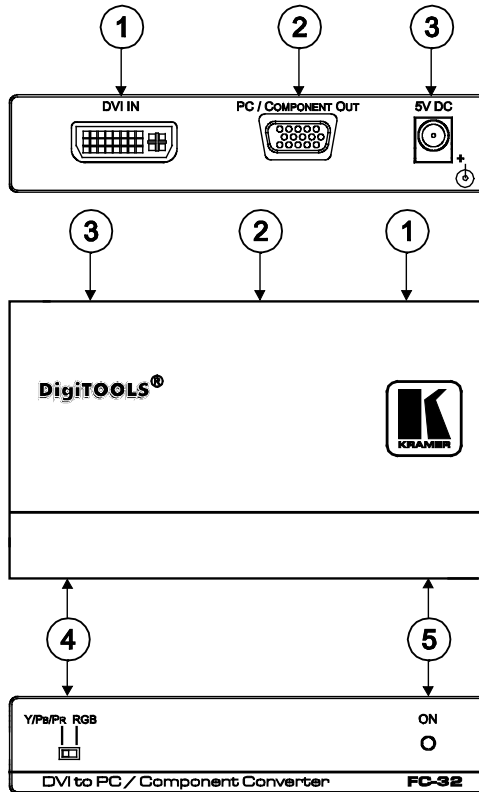


Figure 1: FC-32 DVI to PC/Component Converter Functions

Table 1: FC-32 DVI to PC/Component Converter Functions

#	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 <sup>1</sup> ; slide the switch to the right for a computer graphics acceptor
5	ON LED	Illuminates green when receiving power

<sup>1</sup> With bi-level sync

## 5 Connecting the FC-32 DVI to PC/Component Converter

To connect the **FC-32**, as the example in [Figure 2](#) illustrates, do the following<sup>1</sup>:

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.

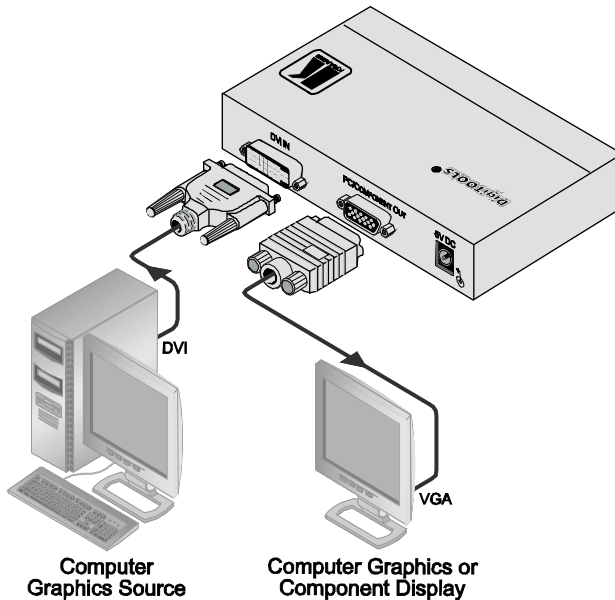


Figure 2: Connecting the FC-32 DVI to PC/Component Converter

## 6 EDID

The **FC-32** is shipped with a fixed, factory default EDID (see [Section 8](#)).

<sup>1</sup> Switch off the power on each device before connecting it to your FC-32. After connecting your FC-32, switch on its power and then switch on the power on each device

## 7 Technical Specifications

The **FC-32** technical specifications are shown in [Table 2](#).

*Table 2: FC-32 Technical Specifications<sup>1</sup>*

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 <sup>2</sup>
CONTROL:	Switch for RGB/YPbPr selection
POWER SOURCE:	5V DC, 490mA
DIMENSIONS	12cm x 7.2cm x 2.4cm (4.7" x 2.8" x 1.0") W, D, H
WEIGHT:	0.3kg (0.7lbs)
ACCESSORIES:	5V DC power supply
OPTIONS:	Rack mount

## 8 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 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

<sup>1</sup> Specifications are subject to change without notice

<sup>2</sup> 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)



## EDID Factory Default Data

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(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



## EDID Factory Default Data

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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

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## 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 three 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](http://www.kramerelectronics.com).
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
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.  
\* FCC and CE approved using STP cable (for twisted pair products)



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**For the latest information on our products and a list of Kramer distributors visit [www.kramerelectronics.com](http://www.kramerelectronics.com) where updates to this user manual may be found. We welcome your questions, comments and feedback.**



**Caution**

**Safety Warning:**

Disconnect the unit from the power supply before opening/servicing.



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**Kramer Electronics, Ltd.**

Web site: [www.kramerelectronics.com](http://www.kramerelectronics.com)

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

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