

KD-VTCA3

VGA to Component Video Adapter



Key digital

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KD-VTCA3

Model KD-VTCA3

VGA to Component Video Adapter Model KD-VTCA3

*VGA Video (RGBHV) Input to Component Video (YPrPb) Output and **active VGA loop-through** Video Adapter, with SCART compatibility. This Video Adapter is NOT a Video Scaler or Video Processor.*

Included in this package:

- One KD-VTCA3 ClearColor3
- One external power supply
- This User/Installer Manual with included Warranty statement

Product Overview

TheKD-VTCA3

ClearColor3 is the world's smallest adapter on the market to “glue” your VGA (RGBHV) devices to Component Video (YPrPb) HDTV monitors. ClearColor3 is the ideal choice to drive your Component Video displays from VGA sources like your HDTV Set Top Box or personal computer (PC). ClearColor3 works with HDTV RCA[®] Set Top Boxes, HD monitors like Panasonic[®] and Sony[®], and all video formats — 480p, 720p, 1080i/540p, NTSC, PAL, interlaced or progressive. With ClearColor3, there is also SCART compatibility, and a VGA loop-through permits you to simultaneously drive a VGA and Component Video

monitor. With your cost-effective KDS ClearColor3 product, you get crystal-clear processing and you can drive monitors with cable lengths up to 50 feet.

Why do you need a Video Adapter?

The video industry has produced many different products to process, switch, and distribute your video. In many instances, the video input or output formats of these products are not compatible. For example, you may have an application where you would like your VGA-out (RGBHV) HDTV Set Top Box or personal computer to drive your Component Video (YPrPb) display.

OPERATING INSTRUCTIONS

What do you do? One less-palatable option is to purchase all new equipment that is totally compatible, which is a significant investment and limits you for the future to ever consider equipment that does not conform to the standard you purchased. At Key Digital Systems, we have a better solution for you. We have designed economical, high-quality video adapters, which “glue” your components that may have been designed to diverging standards:

- KD-VTCA3

ClearColor3: *VGA to Component Video adapter, and more*

- KD-CTCA3 ClearVideo3: *Component Video (YPrPb) to VGA adapter, and more*

NOTE THAT A VIDEO ADAPTER DOES NOT PERFORM VIDEO SCALING, PROCESSING, OR SCAN CONVERSIONS.

Product Features

KD-KD-VTCA3

ClearColor3 offers versatility, convenience, and well thought-out features:

- Smallest VGA (RGBHV) input to Component Video (YPrPb) output Video Adapter on the market today

OPERATING INSTRUCTIONS

- Convenient loop-through feature:
 - VGA input also has loop-through output to simultaneously drive your VGA and Component Video displays
- Enables display of:
 - HDTV RCA[®] Set Top Boxes and Personal computers PC's on HD Component Video monitors like Panasonic[®] and Sony[®]
 - Personal Computer output on HD Component Video monitors*
- Compatible with:
 - All video formats — 480p, 720p, 1080i/540p, NTSC, PAL, interlaced or progressive
- Flexible Sync options:
 - Composite Sync out on YPrPb

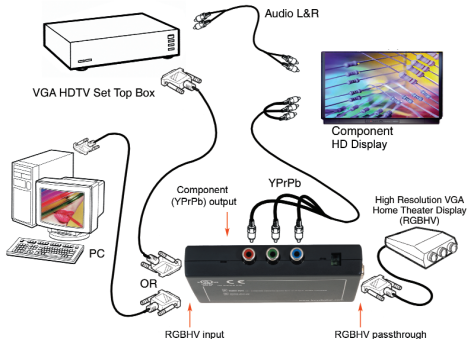
KD-VTCA3

Model KD-VTCA3

- SCART decoding of composite sync on H input
- Special Sync mode to accommodate a Panasonic[®] Direct View HDTV monitor connected to RCA[®] DTV Set Top Box

*NOTE: When using your ClearColor3 with a VGA personal computer input, special care should be given to set your PC to the appropriate resolution that will be recognized by an HDTV Component Video monitor. A freeware program called PowerStrip helps to do this, and is available from <http://www.entechtaiwan.com/ps.htm>. Various experts have published guides on how to use PowerStrip in the application of HDTV. One of these guides is included at the end of this manual.

OPERATING INSTRUCTIONS



SOME TYPICAL APPLICATION EXAMPLES

VGA to Component Video Adapter
ClearColor3, ModelKD-VTCA3

Safety Instructions – Please be sure to follow these instructions for safe operation of your unit

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

UL LISTED - Model KD-VTCA3

- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution

KD-VTCA3

Model KD-VTCA3

when moving the cart/apparatus combination to avoid injury from tip-over.



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

QUICK SET-UP

Connecting and using your KD-VTCA3
ClearColor3 is a simple process.

NOTE: Do not attempt to connect power to the unit until you have completed all Steps 1 – 4.

STEP 1: Determine your configuration requirements. The primary function of the KD-VTCA3

KD-VTCA3

Model KD-VTCA3

ClearColor3 is to convert your VGA (RGBHV) signal to Component Video (YPrPb). The unit automatically adjusts to the input scan format. There are added bonuses that let you also simultaneously drive your VGA monitor, decode SCART input sync, and a Special Sync mode accommodates a Panasonic[®] Direct View HDTV monitor connected to RCA[®] DTV Set Top Box.

For PC VGA inputs, please refer to setting of your PC to the appropriate resolution for your Composite Video display. See the PowerStrip guide at the end of this manual.

Please be aware that LCD flat panel monitors do not recognize interlaced formats such as 1080i.

QUICK SET-UP

STEP 2: Make your Input Connection:

- One VGA Video (RGBHV) input on DB15 connector

STEP 3: Make your Output Connections:

- One Component Video (YPrPb) output on three RCA female jacks which can drive equal cable lengths up to 50 feet (be sure to terminate this output at the end of the runs)
- If desired, use the VGA loop-through to simultaneously drive your VGA monitor

STEP 4: Configure the Sync Select Switches (adjacent to the Component Video output connectors) to suit your application:

KD-VTCA3

Model KD-VTCA3

Select input sync with Switch 1 between H and V drive, or SCART on H:

- Switch 1 ON (up): H and V drive VGA input (typical mode, RGBHV)
- Switch 1 OFF (down): SCART composite sync in on H

Select output sync with Switch 2 between H and V drive, or Special Sync mode:

- Switch 2 ON (up): Composite Sync out on YPrPb (typical mode)
- Switch 2 OFF (down): Special Sync out to accommodate a Panasonic[®] Direct View HDTV monitor connected to RCA[®] DTV Set Top Box

STEP 5: Apply power to the unit:

QUICK SET-UP

- Use ONLY the external wall-plug power supply provided with your unit, +5 Volts @ 03.Amps, 100-240 VAC, 50-60 Hz
- Connect the 1/8" mini-plug external power supply connector to your unit, and plug the power supply into a power outlet
- The green Power-on LED (adjacent to the external power supply connector) should be ON

STEP 6: Operation of your unit:

- Your VGA source should now drive your Component Video display and is also available as a loop-through to a VGA monitor

Technical Specifications

ClearColor3

Model KD-VTCA3

Video Input:

- One VGA Video (RGBHV) input on DB15 connector
 - RGB: 0.7 V p-p, 75 Ohm, terminated at the source

Technical Specifications

Video Outputs:

- One Component Video (YPrPb) output on three RCA female jacks
 - 1 V p-p @ 75 Ohm terminated
 - Composite Sync on YPrPb
- One VGA loop-through output on DB15 connector
 - VGA input loops-through to this connector to simultaneously drive a VGA display

Accepted Scanning Formats:

- Unit adjusts automatically for ANY incoming video scanning format:
 - 50 Hz or 60 Hz refresh
 - 480p, 576p, 1080i/540p, 720p
- Output scanning format is always the SAME as the input scanning format

Control and Adjustments:

- LED (adjacent to the external power supply connector):
 - Green Power-on LED
- Sync Select Switches (adjacent to the Component Video output connectors):
 - Input sync: H and V drive, or SCART:
 - Switch 1 ON (up): H and V drive VGA sync in (typical mode, RGBHV)
 - Switch 1 OFF (down): SCART composite sync in on H
 - Output sync: H and V drive, or Special Sync mode:
 - Switch 2 ON (up): H and V drive VGA out (typical mode, RGBHV)
 - Switch 2 OFF (down): Special Sync out to accommo-

Technical Specifications

date a Panasonic[®] Direct View HDTV monitor
connected to RCA[®] DTV Set Top Box

- Input Sync polarity:
 - Positive or Negative TTL sync accepted for H and V in RGBHV mode

Processing:

- HDTV colorimetry matrix
- Video bandwidth -3 dB at 110 MHz, linear-phase passband, for crystal-clear display
- Outputs can drive equal-length cables up to 50 feet

KD-VTCA3

Model KD-VTCA3

Mechanical:

- Connectors
 - DB15 (frequently used for VGA/computer)
 - RCA (for Component Video)
 - 1/8" mini-plug external power supply input
- Size: 2" x 4.75" x 0.75"
- Weight: 1 lb.
- Enclosure type: Plastic
- External wall-plug power supply provided, +5 Volts @ 03.Amps, 100-240 VAC, 50-60 Hz

HOW TO CONTACT KEY DIGITAL

Repairs and Warranty Service:

Should your HD Leeza require warranty service, please contact Key Digital first to obtain a Returned Materials Authorization (RMA) number

Please contact us at either:

Toll-free 1-203-778-0295 extension 3#

email tech@keydigital.com

Technical Support:

For technical questions about using our products, please contact us at either:
1-203-778-0295 or Toll-free 1-888-258-2028
email tech@keydigital.com

Customer Support:

For customer support questions about using our products, please contact us at either:
1-203-778-0295
email customersupport@keydigital.com

WARRANTY

All Key Digital products are built to high manufacturing standards and should provide years of trouble-free operation. They are backed by a limited two-year parts and labor warranty.

IMPORTANT NOTICE WHEN USING THIS PRODUCT WITH A

VGA COMPUTER INPUT

When using your ClearColor3 with a VGA personal computer input, special care should be given to set your PC to the appropriate resolution that will be recognized by an HDTV Component Video monitor. A freeware program called *PowerStrip* helps to do this, and is available from

<http://www.entechtaiwan.com/ps.htm>. Various experts have published guides on how to use PowerStrip in the application of HDTV. One of these guides is included below:

PowerStrip Specifications

REVISED: Custom Resolution Guide for HDTV-HTPC

Here are several progressive scan Custom Timing and Resolution strings for the ATI Radeon card, created with PowerStrip 3.28 build 342 and Catalyst 3.1 WinXP ATI drivers, displayed on a Mitsubishi W55819 1080i 16x9 HDTV. All are 1080i/ 540p based timings. Scan rate is exactly 33.75 kHz and refresh rate is 59.94 Hz for all resolutions. Please note I am using a Key Digital VTCA-2 Transcoder to connect to my HDTV, not an ATI HDTV dongle adapter. If used with the ATI HDTV adapter you will get a virtual desktop almost every time.

Copy the entire PowerStrip timing parameters listed below, one resolution at a time. Then, in PS 3—display profiles—advanced timings—custom

KD-VTCA3

Model KD-VTCA3

resolutions—user defined, click the paste button, which will add the copied values, and then click “add”. Or, you can enter the generic timing detail values manually in the custom resolution screen if you wish. PowerStrip will tell you if the display driver has accepted the new resolution. You may be prompted to reboot first. If so, you will restart at your previous resolution, so you will have to manually switch to the new resolution. Enter the advanced timings screen and adjust as needed. Common first time tweaks include positioning and adjusting for over/underscan. Remember, to use your new custom T & R, make sure you set PowerStrip 3 (options—preferences) to start up with Windows AND apply settings at start up. Use at your own risk.

PowerStrip timing parameters: Desktop 4x3

640x480p=640,152,48,176,480,28,1,54,34290,272

PowerStrip Specifications

Generic timing details for 640x480:

HFP=152 HSW=48 HBP=176 kHz=34 VFP=28 VSW=1 VBP=54 Hz=60

+hsync +vsync

PowerStrip timing parameters: DVD 1

720x480p=720,76,40,100,480,29,1,53,31590,272

Generic timing details for 720x480:

HFP=76 HSW=40 HBP=100 kHz=34 VFP=29 VSW=1 VBP=53 Hz=60

+hsync +vsync

PowerStrip timing parameters: Desktop 16x9

KD-VTCA3

Model KD-VTCA3

848x480p=848,88,48,120,480,28,1,54,37260,272

Generic timing details for 848x480:

HFP=88 HSW=48 HBP=120 kHz=34 VFP=28 VSW=1 VBP=54 Hz=60
+hsync +vsync

PowerStrip timing parameters: Desktop 16x9

856x480p=856,87,48,121,480,28,1,54,37530,272

Generic timing details for 856x480:

HFP=87 HSW=48 HBP=121 kHz=34 VFP=28 VSW=1 VBP=54 Hz=60
+hsync +vsync

PowerStrip timing parameters: DVD 1.5

1080x480p=1080,108,48,164,480,29,1,53,47250,272

PowerStrip Specifications

Generic timing details for 1080x480:

HFP=108 HSW=48 HBP=164 kHz=34 VFP=29 VSW=1 VBP=53 Hz=60

+hsync +vsync

PowerStrip timing parameters: DVD 2

1440x480p=1440,144,80,208,480,29,1,53,63180,272

Generic timing details for 1440x480:

HFP=144 HSW=80 HBP=208 kHz=34 VFP=29 VSW=1 VBP=53 Hz=60

+hsync +vsync

PowerStrip timing parameters: DVD 2.5

KD-VTCA3

Model KD-VTCA3

1800x480p=1800,154,96,246,480,32,1,50,77490,272

Generic timing details for 1800x480:

HFP=154 HSW=96 HBP=246 kHz=34 VFP=32 VSW=1 VBP=50 Hz=60
+hsync +vsync

PowerStrip timing parameters: DVD 540p

1800x540p=1800,148,96,244,540,7,1,15,77220,272

Generic timing details for 1800x540:

HFP=148 HSW=96 HBP=244 kHz=34 VFP=7 VSW=1 VBP=15 Hz=60
+hsync +vsync

PowerStrip timing parameters:

960x540p=960,98,48,142,540,7,1,15,42120,272

PowerStrip Specifications

Generic timing details for 960x540:

HFP=98 HSW=48 HBP=142 kHz=34 VFP=7 VSW=1 VBP=15 Hz=60

+hsync +vsync

TIP: To get an exact scan rate of 33.75Khz, go to the “advanced timings screen”, type “33.75” in the horizontal scan rate box and press the TAB button on the keyboard. This will set the scan rate exactly to 33.75KHz and also adjust the refresh rate accordingly.

If you find your desktop has black bars on the sides (underscan), or has a bit too much overscan (image cropping), simply go back to the advanced timings

screen and adjust the horizontal front/back porches: *To decrease horizontal overscan, increase the horizontal front/back porches. To increase horizontal overscan, decrease the horizontal front/back porches.* Before making overscan adjustments, click the “lock scan frequencies” button in the advanced timings screen. Now you can make realtime adjustments while keeping the scan rate and refresh rate locked. *You'll probably find that a couple of clicks will do the trick.*

Keep the progressive vertical line total at 563 (interlaced 1125). You won't have much range of vertical sizing adjustment, only positioning. To compensate for vertical underscan, it is best to add pixels to the vertical total since the range of adjustment is limited. Try to maintain a 16x9 aspect ratio when you add to the line total. Example: if 848x480p is underscanned, try a custom resolution of 888x500p, using the same timings. To compensate for

PowerStrip Specifications

vertical overscan, adjust using the service menus of your set.

It is also important to note that the monitor you specify in Windows must be capable of resolving the resolutions you present to the display driver in progressive scan mode. I have used the Sony GDM-W900 monitor drivers because it has a max resolution of >1920x1200p as listed in PowerStrip 3 monitor profiles. Make sure to “disable plug & play monitors”. Selecting a high-resolution monitor will also help avoid “virtual desktop”, or a side scrolling desktop. PowerStrip will allow you to create your own custom monitor driver. I made a driver for my Mits HDTV based on the Sony specs and is attached later in this thread.

I use 856x480p @ 540p timings (posted above) for best 16x9 desktop results. The sides are perfect on my set with less than half of the title bar and task bar

KD-VTCA3

Model KD-VTCA3

cropped, quite manageable IMO. Your results may differ depending on your sets' overscan. Try large icons and a Windows Standard -large- Appearance for a smooth, easy to read desktop and a neutral grey desktop color for even tube wear. There are also utilities available to hide the desktop and mouse completely, such as Icon Hider and BZ (mouse) Hider.

I cannot stress this point enough: test on your PC monitor first, get a stable picture with acceptable values, connect to your HDTV, then adjust as needed.

As always, results may vary according to manufacturer.

Here are several UPDATED interlaced custom T & R strings for the ATI Radeon card, created with PowerStrip 3.28 build 342 and Catalyst 2.5 WinXP ATI driv-

PowerStrip Specifications

ers, displayed on a Mitsubishi W55819 1080i 16x9 HDTV. Scan rate is 33.75KHz and refresh rate is 30Hz for all resolutions.

Interlaced overlay support is driver and OS specific

Use at your own risk.

PowerStrip timing parameters:

800x600i=800,279,56,329,600,250,1,274,49410,280

Generic timing details for 800x600:

HFP=279 HSW=56 HBP=329 kHz=34 VFP=250 VSW=1 VBP=274 Hz=30
interlace +hsync +vsync

PowerStrip timing parameters:

KD-VTCA3

Model KD-VTCA3

1024x768i=1024,164,56,220,768,160,1,196,49410,280

Generic timing details for 1024x768:

HFP=164 HSW=56 HBP=220 kHz=34 VFP=160 VSW=1 VBP=196 Hz=30
interlace +hsync +vsync

PowerStrip timing parameters:

1152x864i=1152,190,112,218,864,116,1,144,56430,280

Generic timing details for 1152x864:

HFP=190 HSW=112 HBP=218 kHz=34 VFP=116 VSW=1 VBP=144 Hz=30
interlace +hsync +vsync

PowerStrip Specifications

PowerStrip timing parameters:

1280x720i=1280,125,120,139,720,180,1,224,56160,280

Generic timing details for 1280x720:

HFP=125 HSW=120 HBP=139 kHz=34 VFP=180 VSW=1 VBP=224 Hz=30

interlace +hsync +vsync

PowerStrip timing parameters:

1280x768i=1280,124,128,132,768,160,1,196,56160,280

Generic timing details for 1280x768:

HFP=124 HSW=128 HBP=132 kHz=34 VFP=160 VSW=1 VBP=196 Hz=30

interlace +hsync +vsync

KD-VTCA3

Model KD-VTCA3

PowerStrip timing parameters:

1280x1024i=1280,125,128,131,1024,43,3,55,56160,280

Generic timing details for 1280x1024:

HFP=125 HSW=128 HBP=131 kHz=34 VFP=43 VSW=3 VBP=55 Hz=30
interlace +hsync +vsync

PowerStrip timing parameters:

1440x960i=1440,125,144,139,960,64,1,100,62370,280

Generic timing details for 1440x960:

HFP=125 HSW=144 HBP=139 kHz=34 VFP=64 VSW=1 VBP=100 Hz=30

PowerStrip Specifications

interlace +hsync +vsync

PowerStrip timing parameters:

1600x900i=1600,154,152,174,900,93,3,129,70200,280

Generic timing details for 1600x900:

HFP=154 HSW=152 HBP=174 kHz=34 VFP=93 VSW=3 VBP=129 Hz=30

interlace +hsync +vsync

PowerStrip timing parameters:

1920x1080i=1920,180,144,244,1080,24,2,20,83970,280

Generic timing details for 1920x1080:

KD-VTCA3

Model KD-VTCA3

HFP=180 HSW=144 HBP=244 kHz=34 VFP=24 VSW=2 VBP=20 Hz=30
interlace +hsync +vsync

OK, by popular request here are some 480p based timings for 4x3 HD sets for the ATI Radeon card. These basically emulate a 480p progressive scan DVD player. They were created on a 16x9 Mitsubishi HDTV in 480p mode and in 4x3 horizontal squeeze mode, so you might have to adjust for horizontal overscan and positioning relative to your own set.

Timings are exactly 31.5KHz scan rate and 60 Hz refresh rate for all resolutions.

There is some vertical overscan, but it's not too bad. Use at your own risk.

480p timings——-Radeon Catalyst 2.5 drivers

PowerStrip Specifications

PowerStrip timing parameters: Desktop 4x3

640x480p=640,55,96,57,480,11,5,29,26712,272

Generic timing details for 640x480:

HFP=55 HSW=96 HBP=57 kHz=32 VFP=11 VSW=5 VBP=29 Hz=60

+hsync +vsync

PowerStrip timing parameters: DVD 1

720x480p=720,67,96,85,480,21,5,19,30492,272

Generic timing details for 720x480:

HFP=67 HSW=96 HBP=85 kHz=32 VFP=21 VSW=5 VBP=19 Hz=60

+hsync +vsync

PowerStrip timing parameters: DVD 2

1440x480p=1440,118,144,218,480,13,5,27,60480,272

Generic timing details for 1440x480:

HFP=118 HSW=144 HBP=218 kHz=32 VFP=13 VSW=5 VBP=27 Hz=60

+hsync +vsync

Last edited by Karnis on 02-20-03 at 01:43 AM