



Hall Research Technologies, Inc.

# Model DVC-3

## PC/HDTV Video Test Pattern Generator

With DVI, VGA, and Component (Y, Pb, Pr) Outputs



Model DVC-3

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**CUSTOMER SUPPORT INFORMATION** Order toll-free in the U.S. 800-959-6439  
FREE technical support, Call 714-641-6607 or fax 714-641-6698  
Mail order: Hall Research Technologies, 1163 Warner Ave., Tustin, CA 92780  
Web site: [www.hallresearch.com](http://www.hallresearch.com) • E-mail: [info@hallresearch.com](mailto:info@hallresearch.com)



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AND CANADIAN DEPARTMENT OF COMMUNICATIONS  
RADIO FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been designed to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are intended to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

*This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.*

*Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada*

**EUROPEAN UNION DECLARATION OF CONFORMITY**

This product has been tested and shown to comply with the requirements of the European EMC directive 89/336/EEC



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# 1. Introduction

## 1.1 General

Thank you for purchasing Hall Research Technologies' Model DVC-3 (Digital Video Coach-3), a video test pattern generator for high-resolution display devices.

The unit provides DVI, PC (VGA through SXGA), and HDTV Component Video (Y, Pb, Pr) outputs. The DVC-3 features 28 static and dynamic video test patterns specially designed for testing, calibrating, and troubleshooting high end video gear and A/V installations.

In addition to all of standard PC resolutions and refresh rates (up to SXGA at 85 Hz), it is capable of providing HDTV outputs from 480p to 1080p both in DVI digital and in YPbPr formats. The OSD indicates output resolution and refresh rate settings. Among the available 28 test patterns are: color bar, multi-burst, circle, and crosshatch. The OSD will disappear from the screen, to prevent screen burn-in, after a time period of 8-20 seconds depending on the pattern being displayed.

The DVC-3 comes in a sturdy metal case and it includes DVI, VGA, and VGA-to-Component cables to handle most high-end testing and installation requirements. The DVC-3 is ideal to use with LCD, plasma, CRT monitors, and projectors that are equipped with PC, Component, or DVI inputs.

## 1.2 Features

- 3 devices in one. VGA, Component, and DVI video test pattern Generator
- Programmable PC output resolutions from 640x480 to 1280x1024 (VGA/SVGA/XGA/SXGA)
- Programmable HDTV output resolutions from 480p to 1080p (480p 576p 720p 1080p)
- 28 typical and custom video test patterns (both static and dynamic)
- Easy-to-use push-button OSD menu control
- Includes all cables required
- Packaged in highly portable EMI shielded enclosure

## 2. Installation

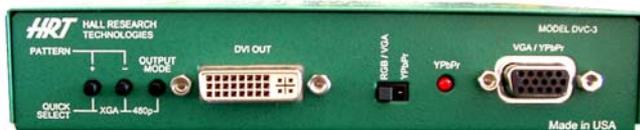
1. Plug the supplied AC adapter to the Power input connector located on the rear of the unit. Use the supplied adapter or a 100% equivalent only. There's a small green LED that turns on when the unit is powered up.
2. Included in the package are all the cables that you may need: a DVI cable, a VGA cable, and a HD15 to component Cable (shown below)



Choose and use the cable required for your application.

## 3. Operation

- The front panel of the unit is pictured below:



- There are two output connectors on the box that are both active simultaneously. One VGA (HD15) and one DVI.
- The VGA output is dual purpose. It can output standard RGBHV VESA signals similar to those that are output by most PC's, as well as YPbPr component video output. The output mode of the HD15 connector is determined by a small slide switch.

## Model DVC-3 Digital Video Coach

- There's an indicator LED next to the slide switch that comes on when the output resolution is one of the standard HDTV resolutions AND the slide switch is in YPbPr.
- To operate the unit you use 3 push-button switches. One button is to walk through all the resolutions and refresh rates that are available (it is labeled OUTPUT MODE). The other 2 buttons are used to change the video pattern being generated there are 28 patterns (these buttons are labeled + and -).
- To quickly jump to a known resolution (instead of walking through them one by one using the MODE switch), pressing two buttons simultaneously jumps to a given resolution/refresh rate. Pressing the left two buttons gets you to XGA at 60 Hz (and subsequent pressing of the MODE button will take you up from there). Pressing the right two buttons gets you to 480p (a standard HDTV mode). Please note that in these HDTV modes, the DVI is outputting the proper signal and if the slide switch is in VGA you are getting RGBHV output and if in YPbPr you get component video (with sync on Y) and the LED will light to indicate that the unit is outputting a proper YPbPr output.
- If the OSD is not displayed, pressing the MODE button once will redisplay the current resolution. The resolution will only change when the OSD is displayed.
- Here is a list of output resolutions that the Mode button will walk you through (there's an on screen display OSD which indicates the mode setting):

### PC Resolutions

VGA	640 X 480 @ 50/60/72/75/85 Hz	
SVGA	800 X 600 @ 50/56/60/72/75/85 Hz	
XGA	1024 X 768 @ 50/60/70/75/85 Hz	---- (Quick Select)
WXGA	1280 X 768 @ 50/60 Hz	
SXGA	1280 X 1024 @ 50/60 Hz	

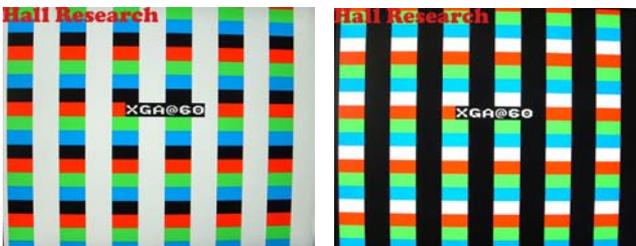
### HDTV Resolutions

480p	720 X 480 @ 50/60 Hz	---- (Quick Select)
576p	720 X 576 @ 50/60 Hz	
720p	1280 X 720 @ 50/60 Hz	
1080p	1920 X 1080 @ 60 Hz	

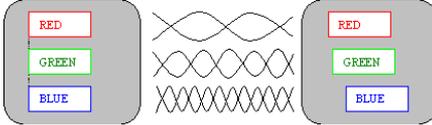
- As mentioned earlier the + and – buttons change the video output screen among the different patterns that are provided. Most standard patterns are included such as: Color bars, Color bar and Multi-burst on same screen, Grey-scale, Checkerboard, Circle, Crosshatch, etc. However several unique and interesting patterns are also available. There are 2 dynamic patterns one which changes the screen smoothly from black to full white, and another which is a checkerboard that switches white and black squares about once per second (this pattern may be useful for viewing compression artifacts in a situation where video is going to be compressed for lower bandwidth transmission or processed in some other way).



- There are 2 patterns with Red Green and Blue horizontal bars over white and black background that are great for video distribution testing especially when long cables (either multi-coaxial, or Category5/6) are used. The high frequency loss in the long cable runs will cause the color of the horizontal bars to smear to the right. Hall Research along with a few other manufacturers of high quality video amplifiers and extenders have provisions for compensating for these losses (usually by means of dip switches or potentiometers). These two patterns are perfect for these types of installations. The user can set the amount of compensation perfectly!



The same 2 patterns are also useful for Video-over-UTP Category cable both for the high-frequency loss compensation (above paragraph), but also for Skew Compensation for those devices that give you this flexibility. The right and left edges of the RGB bars should vertically line-up. Again, this pattern gives you a convenient means for making this adjustment.



### Operation Summary

- ❑ To change the resolution being produced press the OUTPUT MODE button repeatedly. The output screen has an OSD to indicate the resolution and refresh rate settings

***NOTE:** It is possible to set the output resolution to one that your monitor does not support. In this case you may not get a screen. You can either keep pressing the OUTPUT MODE button as it eventually goes through all the available outputs in a circular fashion, or use 2-button “Quick Select” combination to jump to a specific output immediately.*

- ❑ To change pattern press the + or – keys.
- ❑ To get analog high res. component video output at the HD15 connector (instead of VGA), slide the switch to YPbPr and press the 480p “Quick Select”. The LED will turn on to indicate that there is a valid component output signal present.  
***NOTE:** If the LED is not on that means you are not getting a proper analog component output! Either the output MODE is not at one of the HDTV settings, or the slide switch is not in correct position.*  
***NOTE:** The DVI connector outputs all available resolutions (both PC and HDTV)*
- ❑ When you change the output, the DVC-3 memorizes your settings after 8 seconds and the next time the unit is tuned on it will recall the memorized settings.

## 4. Troubleshooting

### FAQ

#### **If your monitor goes blank or says “mode not supported”...**

It is possible to set the output resolution to one that your monitor does not support. In this case you may not get a screen. You can either keep pressing the OUTPUT MODE button as it eventually goes through all the available outputs in a circular fashion, or use 2-button “Quick Select” combination to jump to a specific output immediately

#### **If you are convinced that the unit is defective ...**

Do not open or try to repair the unit yourself. There are no customer repairable items in the unit and you will void your warranty by doing so. Contact HRT instead.

### **Calling Hall Research**

If you determine that your converter is malfunctioning, do not attempt to repair the unit. Contact HRT Support at 714-641-6607.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The nature and duration of the problem;
- The components involved in the problem—that is, what type of cable, makes and models of computers and monitors, etc.
- The results of any testing you’ve already done.

### **Shipping and Packaging**

If you need to transport or ship your converter:

- Package it carefully. We recommend that you use the original container.
- Before you ship the unit back to Hall Research for repair or return, contact us to get a Return Material Authorization (RMA) number.

## 5. Specifications

<b>Compliance</b>	CE; FCC Part 15 Subpart B Class A, IC Class
<b>Standards</b>	PC (RGBHV): VGA, SVGA, XGA, SXGA video. HDTV (YPbPr): 480P, 576P, 720P, 1080p DVI: All of the above
<b>Interfaces Supported</b>	Analog Video: VGA, and YPbPr Digital Video: DVI –I Single link
<b>Video Level</b>	0.7 volts peak-to-peak, on RGB, 3 v on H & V 1vp-p on Y signal, 0.7 vp-p on Pb & Pr in YPbPr mode
<b>Connectors</b>	HD15 for VGA and YPbPr 29 pin female DVI connector
<b>Temperature Tolerance</b>	Operating: 32 to 122°F (0 to 50°C); Storage: –40 to +185°F (–40 to +85°C)
<b>Enclosure</b>	Steel
<b>MTBF</b>	90,000 hours (calculated estimate)
<b>Power</b>	From utility-power (mains) outlet, through included external power supply. Output Voltage: 5v DC Center-Positive 1.5A, maximum
<b>Size</b>	7" W x 7" D x 1.2" H
<b>Weight</b>	1.3 lb box only; 3 lb shipping

# Notes







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