

---

---

# **Deuce<sup>®</sup> HD**

***Intelligent Video Scaler***

## **USER'S MANUAL**



### WORLD HEADQUARTERS

Artel Video Systems  
5B Lyberty Way  
Westford, MA 01886  
Tel: (978) 263-5775  
Fax: (978) 263-9755  
Email: [info@artel.com](mailto:info@artel.com)  
Web: [www.artel.com](http://www.artel.com)

**P/N 121509 Rev. F**  
**Copyright ©2016**



# USER & CERTIFICATION INFORMATION

## FCC STATEMENT

**WARNING:** This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.





## UL INFORMATION

This product meets requirements for category E4 equipment utilizing the sample, limits and methods described in AECO Test Report Number STR-19801-1.

## CE INFORMATION

Standards to which conformity is declared: EN 55103-1:1996 EN 55103-2:1997

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRONIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

	<b>CAUTION</b> <b>RISK OF ELECTRIC SHOCK.</b> <b>DO NOT OPEN.</b>		<b>CAUTION: TO REDUCE THE RISK OF ELECTRONIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</b>
	This symbol warns the user of uninsulated voltage within the unit that can cause dangerous electronic shocks.		This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.

# WARRANTY

Artel Video Systems warrants that for a period of three (3) years after purchase by the Buyer, *Deuce HD* will be free from defects in material and workmanship under normal use and service. A Return Material Authorization (RMA) number must be obtained from Artel before any equipment is returned by the Buyer. All material must be shipped to Artel at the expense and risk of the Buyer.

Artel's obligation under this warranty will be limited, at its option, to either the repair or replacement of defective units, including free materials and labor. In no event shall Artel be responsible for any incidental or consequential damages or loss of profits or goodwill.

Artel shall not be obligated to replace or repair equipment that has been damaged by fire, war, acts of God, or similar causes, or equipment that has been serviced by unauthorized personnel, altered, improperly installed or abused.

RMA numbers and repairs can be obtained by contacting our sales department or by visiting our web site:  
<http://www.artel.com>

Artel Video Systems  
5B Lyberty Way  
Westford, MA 01886  
Tel: (978) 263-5775  
Fax: (978) 263-9755  
Email: [info@artel.com](mailto:info@artel.com)

Please have your serial number (located underneath *Deuce HD*) available when contacting us.

# TABLE OF CONTENTS

Introduction	2
Installation	3
Operation	4
Output Timing Specifications	6
Troubleshooting	6
Accessories	7
Rear Connector Pin-outs	7
User and Certification Information	8
Statement of Warranty	8

## INCLUDED WITH THIS PRODUCT YOU SHOULD HAVE:

- 1 - *Deuce*<sup>®</sup> *HD* Intelligent Video Scaler
- 1 - AC power line cord
- 1 - 12 foot composite video input cable
- 1 - 12 foot S-Video input cable
- 1 - User's Manual
- 1 - Product Registration card

## AVAILABLE OPTIONAL ACCESSORIES:

- 15-pin VGA adapter cables for *Deuce HD*'s VGA output
- AC line cords for North America, Japan, or Europe
- Rackmounting kits

*Deuce* is a registered trademark of Artel Video Systems.

# INTRODUCTION

Thank you for purchasing *Deuce HD*, the Intelligent Video Scaler designed especially for use with HDTV and DTV displays. With Deuce HD, you now have the ability to enjoy high-resolution, film-like images from any standard video source, including broadcast or cable TV, video tape, DVD and laser disc. Deuce HD offers a unique automatic motion compensation feature that will adapt to the specific type of input source image.

When processing NTSC sources, Deuce HD's motion compensation feature automatically selects one of three different motion compensation techniques: adaptive frame (inverse 3:2 pulldown) for original film material, vertical temporal and static mesh. (When processing PAL sources, inverse 3:2 pulldown is not applicable.) Because each technique is set specifically for the type of input image, the result is the clearest, crispest picture quality possible, making Deuce HD ideal for Home Theater and Professional A/V applications. Packed with other great features such as three different aspect ratio conversions, Deuce HD is one incredibly versatile scaler. Additional features include Composite, S-Video and Y-C<sub>B</sub>-C<sub>R</sub> component inputs and RGB or Y-C<sub>B</sub>-C<sub>R</sub> component outputs, plus an RS-232 remote. An internal power supply and simple, intuitive user-interface round out this sleek, compact unit.

Like all products from Artel Video Systems, Deuce HD comes with our continuing commitment to provide support. In order to assist us in this process, please be sure to mail in your product registration card. This will make it easier for us to notify you with any new product announcements or other information concerning our product line. Should you need to contact us for support, our office is open Monday through Friday, from 8:30 AM to 5:00 PM Eastern Time. We also offer a comprehensive web site for your added convenience. ([www.artel.com](http://www.artel.com))

Thank you for choosing Deuce HD. As always, we welcome your comments and suggestions.

**Artel Video Systems**  
**5B Lyberty Way**  
**Westford, MA 01886**  
**Tel: (978) 263-5775**  
**Fax: (978) 263-9755**  
**Email: [info@artel.com](mailto:info@artel.com)**  
**Web: [www.artel.com](http://www.artel.com)**

# ACCESSORIES

The following accessories are available for *Deuce HD*. They may be ordered from your dealer or from Artel Video Systems. If you need an accessory that isn't listed below or have a specific application for which you need assistance, please give us a call.

Item#	Description
1240	Single rackmount kit. This kit allows one <i>Deuce HD</i> to be rackmounted.
1241	Double rackmount kit. This kit allows two <i>Deuce HD</i> to be rackmounted.
1119-006	6 ft. VGA extension cable
1119-025	25 ft. VGA 15-pin M/F output extension cable
1119-050	50 ft. VGA 15-pin M/F output extension cable
1119-100	100 ft. VGA 15-pin M/F output extension cable
1206	6 ft. HD-15 male to 5x BNC cable

Custom cable lengths are available. Call for information.

# REAR CONNECTOR PIN-OUTS

## VGA COMPATIBLE OUTPUT: (HD-15 CONNECTOR)

	RGBHV	RGBS	Y-C <sub>B</sub> -C <sub>R</sub>
1	Red	Red	C <sub>R</sub>
2	Green	Green	Y
3	Blue	Blue	C <sub>B</sub>
4	n/c	n/c	n/c
5	Ground	Ground	Ground
6	Ground	Ground	Ground
7	Ground	Ground	Ground
8	Ground	Ground	Ground
9	n/c	n/c	n/c
10	Ground	Ground	Ground
11	n/c	n/c	n/c
12	n/c	n/c	n/c
13	H-Sync out	Composite sync	n/c
14	V-Sync out	n/c	n/c
15	n/c	n/c	n/c

## S-VIDEO INPUT:

1	Ground
2	Ground
3	Luminance
4	Chrominance

## COMPONENT INPUT: (3 FEMALE RCA CONNECTORS)

Y center	Y in
Y outer	Ground
C <sub>B</sub> center	C <sub>B</sub> in
C <sub>B</sub> outer	Ground
C <sub>R</sub> center	C <sub>R</sub> in
C <sub>R</sub> outer	Ground

## VIDEO INPUT: (FEMALE RCA CONNECTOR)

center	Composite Video IN
outer	ground

## RS-232 REMOTE:

1 (left)	ground
2 (middle)	receive data
3 (right)	transmit data

# INSTALLATION

## OUTPUT TIMING SPECIFICATIONS

OUTPUT FORMAT	INPUT TYPE	H (kHz)	V (Hz)
480p	NTSC	31.5	59.94
	PAL	32.5	50
720p	NTSC	44.9	59.94
	PAL	37.5	50
1080p	NTSC	67.5	59.94
	PAL	56.3	50
1280x1024	NTSC	63.9	59.94
	PAL	53.3	50
1366x768	NTSC	47.8	59.94
	PAL	39.9	50

## TROUBLESHOOTING

### IF THIS IS YOUR PROBLEM:

### THEN CHECK TO SEE:

#### **Nothing works/no video output:**

Are any of the LEDs lit? Is the Deuce HD plugged into the AC wall outlet?

Is video source connected to the unit and is it putting out a video signal as viewed on a video monitor?

Is the VCR or video source in the proper mode to output video as required?

Have you selected the proper input on the unit (COMPOSITE, S-VIDEO or COMPOENT) for the source selected as the active input?

Is the source of the video ON?

#### **There is Video on the Output**

#### **Display but it appears out of sync:**

If you are using 5 BNC or RCA connectors to the output display, try reversing the H and V sync connectors.

Make sure the display is capable of supporting the resolution you selected on the front of the unit. Try a lower resolution.

### INSTALLATION STEPS:

1. Connect the provided AC power cord into the connector marked Power on the rear of Deuce HD and plug the other end into an AC outlet. This is an auto-sensing universal input power supply and is compatible with worldwide standards.
2. Connect a video source to either the COMPOSITE, S-VIDEO or COMPONENT input on the rear panel.
3. Connect a computer monitor, projector or display to the VGA compatible connector on the rear panel.

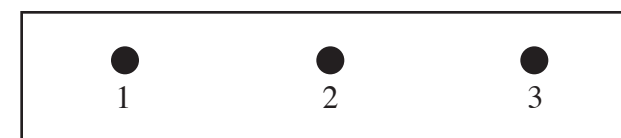
### AVAILABLE OUTPUTS:

There are three outputs configurations available on the output VGA connector: RGBHV, RGBS and Y-C<sub>B</sub>-C<sub>R</sub>. The rear panel switch next to the output connector selects one of the three output types. The individual signals on the HD-15 connector are defined on page 7. Rear connector pin-outs for the output configuration are selected by this switch.

### REMOTE CONTROL:

Deuce HD provides for a hard-wired RS-232 remote control connection using a 3-pin Phoenix-type connector on the rear panel. The baud rate is 9600 baud, no parity, 1 start bit, 1 stop bit. The pin out is as follows:

1 - Ground    2 - Receive Data    3 - Transmit Data



Please contact the sales department at Artel Video Systems or our web site at [www.artel.com](http://www.artel.com) for detailed specifications on the command structure for this remote control part.

# OPERATION

Deuce HD is designed to operate properly with any projector or display while requiring minimal set-up and adjustments.

## SELECTING AN INPUT:

There are three buttons on the front panel for directly selecting one of the three inputs. The LED that is lit indicates the active selection. The three input options are:

Video (composite)  
S-Video (Y/C)  
Y-C<sub>B</sub>-C<sub>R</sub> (component)

## SELECTING AN OUTPUT FORMAT:

Deuce HD provides the five output formats listed below. Pressing the output format button on the front panel will cycle through the choices. The LED that is on indicates the current output format.

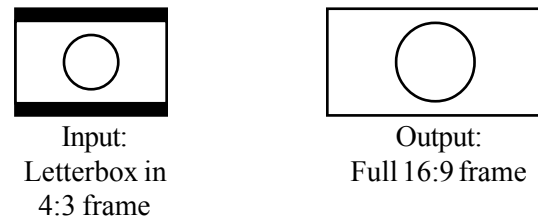
480p  
720p  
1080p  
1280 x 1024  
1366 x 768

## SELECTING AN ASPECT RATIO:

Deuce HD's unique preset aspect ratio conversion offers the user three choices for changing the input aspect ratio to the desired output image aspect ratio. It is important to select the appropriate conversion setting in order for the output image to appear geometrically correct.

### 16:9 to 16:9

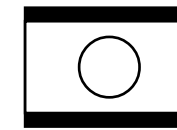
This conversion scales a 16:9 crop of the input video raster and maps it to the output as a full screen image. It is intended for displaying original letterbox images as a full screen image on 16:9 displays.



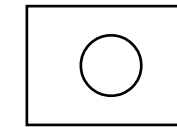
### 4:3 to Full Screen

This conversion takes the entire input video raster and maps it to the entire output raster. If the output display aspect ratio is 4:3, the image will appear with the same geometry as shown on the input. If the output display aspect ratio is 16:9, the image will appear to be "stretched" in the horizontal direction. This is useful if the input video source was an anamorphically compressed DVD, as it will now appear to be geometrically correct on the 16:9 display. Refer to diagrams on top of page 5.

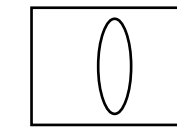
*Note: This mode is not available with PAL input to 480p output.*



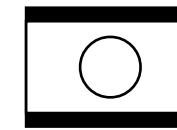
Input:  
Letterbox in 4:3 frame



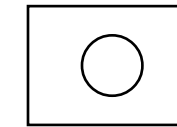
Input:  
4:3 video source



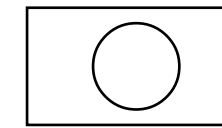
Input:  
Anamorphically com-  
pressed DVD



Output:  
Letterbox in 4:3 frame



Output:  
Image fills 4:3 screen

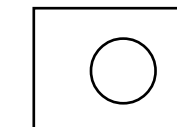


Output:  
Image is stretched horizontally  
to fill a 16:9 screen

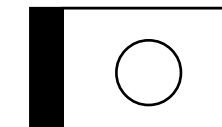
### 4:3 to 4:3 in 16:9 Screen

This conversion is intended to display a standard, full screen 4:3 input on a 16:9 display with the correct geometry. Deuce HD will place the 4:3 image centered in the 16:9 display with black on either side of the active image.

*Note: This mode is not available with PAL input to 480p output.*



Input:  
4:3 video source



Output:  
4:3 image is centered in 16:9  
screen

## MOTION COMPENSATION:

The automatic motion compensation feature will analyze the input source and choose the appropriate compensation. Deuce HD will automatically select between inverse 3:2 pulldown (adaptive frame), vertical temporal and static mesh modes. With a PAL input, inverse 3:2 pulldown is not used.

## SPECIAL KEY FUNCTIONS:

There are several functions that can be activated by pressing a combination of keys simultaneously:

**Key Panel Lockout:** Press the VIDEO and S-VIDEO buttons at the same time to lock out the key panel.

**Key Panel Unlock:** Press the S-VIDEO and COMPONENT buttons at the same time to unlock the key panel and allow normal operation.

**System Reset:** Press the COMPONENT and the OUTPUT FORMAT buttons at the same time to reset the unit and return all settings to their factory defaults.