

# ChristieTWIST™ Warping Module Installation Instruction Sheet

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## SAFETY AND WARNING GUIDELINES

**⚠ DANGER** HIGH VOLTAGES MAY BE EXPOSED! Always power down and disconnect power sources prior to servicing. Once the projector is powered down, allow the cooling fans to automatically turn OFF before disconnecting from AC and opening the projector.

**⚠ WARNING** QUALIFIED SERVICE TECHNICIANS REQUIRED! All module replacement procedures must be performed by Christie accredited service technicians.

**⚠ WARNING** NON-INSULATED DANGEROUS VOLTAGES MAY BE EXPOSED! Always disconnect from AC prior to disassembly.

**⚠ WARNING** OBSERVE ALL ELECTROSTATIC PRECAUTIONS! Use a grounded wrist strap when handling electronic assemblies.

**⚠ CAUTION** Never operate the projector (or the fans) without all the covers installed.

## INTRODUCTION

These instructions explain how to upgrade the following Christie products to include the ChristieTWIST™ Warping Module:

Warping Module P/N 108-104001	
DS+60	DW30

Warping Module P/N 108-103001/108-103101-01	
Christie DS+ 5K/6K/8K	Christie HD8K/8Kc
Christie DW3K/3Kc	Christie Mirage WU3/7/12/18
Christie DW4Kc	DLV1400-DX
Christie DW5K/8K	DLV1920-DX
Christie DW6K/6Kc	Mirage HD3/6/8/12/18
Christie HD2Kc	Mirage S+2K/3K/4K/6K/8K/14K
Christie HD3K/6K	Roadster HD12K/18K
Christie HD5K/5Kc	Roadster S+12K/16K/20K
Christie HD7Kc	

**NOTE:** Matrix models already include the Warping Module & related software.

With the Module and related software both installed, you can use your PC to shape projected images as desired, defining new corner points and/or applying custom curved (i.e., warped) boundaries typically needed for curved walls. You can also utilize special edge blends to smooth multiple adjacent warped images into a single large seamless display.

## SUMMARY OF PROCEDURE

### SOFTWARE

On your PC, install the ChristieTWIST™ Basic v1.0.1 (or higher) software application provided. In addition, the projector must run main software v1.1 (or higher) if using ChristieTWIST™ Basic v1.0.1 (or higher) or main software v1.2c (or higher) if using ChristieTWIST™ Pro v1.1 (or higher).

**You will also require KoRE Librarian to load warp\_20.rff (or greater) to the projector.** Please refer to ./KoRE Librarian/ directory on the CD in the kit for the Warp firmware, the KoRE Librarian setup, and the Using KoRE 10-Bit Librarian Upgrade Instructions.pdf file.

**NOTE:** You *MUST* install the warp\_20.rff software file to the projector prior to installing the Warping Module PCB and powering up the projector.

### HARDWARE

The ChristieTWIST™ Warping Module is installed onto the projector's TIPM (10-bit Image Processing Module).

## KITS REQUIRED

- CD containing:
  - ChristieTWIST™ Basic v1.0.1 (or higher) PC application
  - ChristieTWIST™ Basic Install and Users Guide
  - KoRE 10-Bit Librarian Setup PC application

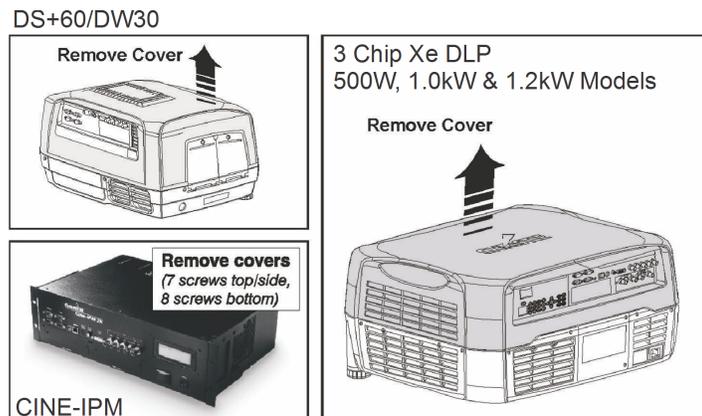
- Using KoRE 10-Bit Librarian Upgrade Instructions
- warp\_20.rff
- ChristieTWIST™ Warping Module PCB
- Four (4) mounting screws & washers
- For DS+60/DW30 Only
  - Top Mounting Bracket
  - 9 Screws for Top Mounting Bracket
  - Thermal Pad
  - Top Cover Grille

## INSTRUCTIONS

### INSTALLING THE MODULE

1. Turn the projector OFF and wait for cooling fans to stop.
2. Disconnect all power sources to the projector.
3. Remove the projector cover and/or slide out the TIPM drawer assembly depending on your projector model.

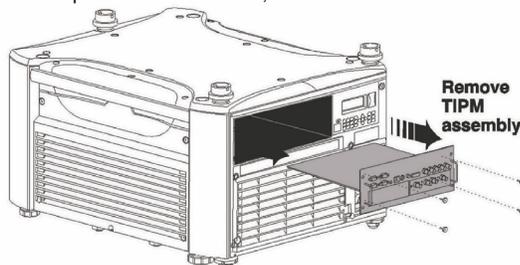
For models similar to Figure 1, remove the cover(s) and disconnect any cables connecting the cover to the rest of the unit. Do not remove the TIPM.



**FIGURE 1 REMOVE TOP COVER**

For models similar to Figure 2 slide out the TIPM drawer as shown.

3 Chip Xe DLP - 2.0kW, 2.4kW & 3.0kW Models



**FIGURE 2 SLIDE OUT TIPM DRAWER - REAR**

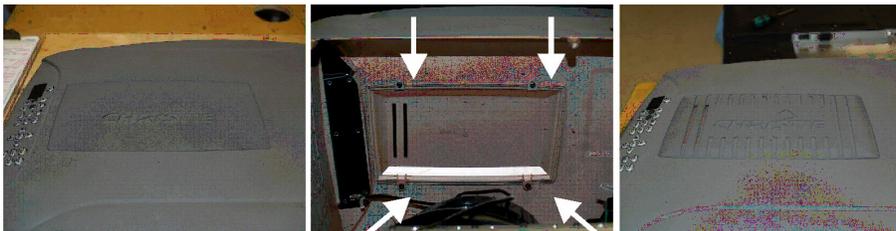
4. Install the ChristieTWIST™ Warping Module

**DS+60/DW30 MODELS:**

- a. Align the Warping Module to the four TIPM stand-offs, taking care to mate the single large connector (Figure 2-Top).
- b. Carefully press the module into place and secure to the TIPM using the 4 screws and washers provided.
- c. Affix the thermal pad, provided in the kit, to the indentation found on the inside of the module cover (Figure 3-Centre).
- d. Flip the module cover over, aligning the thermal pad with the large square circuit on the PCB and secure it with the 9 screws provided in the kit (Figure 3-Bottom).
- e. Remove the Christie Logo insert from the projector cover (4 screws - Figure 4-Centre) and replace with the new Grille insert provided in the kit (Figure 4-Right).



**FIGURE 3 DS+60/DW30 WARPING MODULE INSTALLATION**



**FIGURE 4 DS+60/DW30 WARPING COVER MODIFICATION**

**3 CHIP XE DLP - 500W, 1.0KW & 1.2KW MODELS:**

- a. Align the Warping Module to the four TIPM stand-offs, taking care to mate the single large connector (Figure 5-Left & Centre).
- b. Carefully press the module into place and secure to the TIPM using the 4 screws and washers provided (Figure 5-Right).

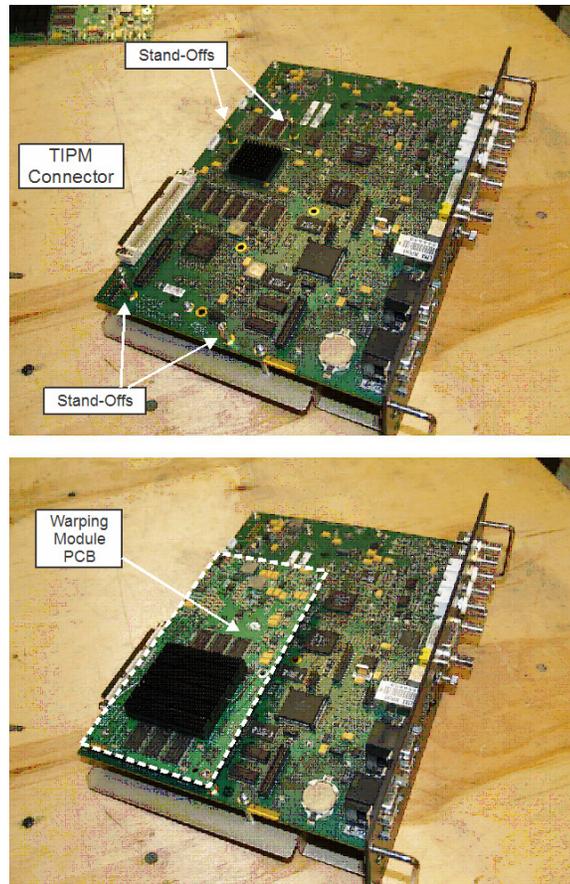


**FIGURE 5 3 CHIP XE DLP - 500W, 1.0KW & 1.2KW WARPING MODULE INSTALLATION**

**CINE-IPM 2K AND 3 CHIP XE DLP - 2.0KW, 2.4KW & 3.0 KW MODELS:**

- a. Align the Warping Module to the four TIPM stand-offs, taking care to mate the single large connector (Figure 6-Top).

- b. Carefully press the module into place and secure to the TIPM using the 4 screws and washers provided (Figure 6-Bottom).



**FIGURE 6 CINE-IPM 2K AND 3 CHIP XE DLP - 2.0.kW, 2.4kW & 3.0kW  
WARPING MODULE INSTALLATION**

5. Reassemble the projector. Replace covers removed in Step 3.

## **INSTALLING SOFTWARE**

### **ON YOUR PC**

Install the ChristieTWIST™ Basic v1.0.1 (or higher) software application provided on the CD shipped with the module. For instructions, refer to the ChristieTWIST™ Basic Install and Users Guide included on the CD.

Install the KoRE Librarian setup v1.2 software application from the CD. For instructions, refer to the Using KoRE 10-Bit Librarian Upgrade Instructions.pdf file for details.

**IN THE PROJECTOR**

Make sure you are running main software v1.1 (or higher) if using the ChristieTWIST™ Basic v1.0.1 (or higher) software application or main software v1.2c (or higher) if using the ChristieTWIST™ Pro v1.1 (or higher) software application. Refer to the Christie Website for the latest version.

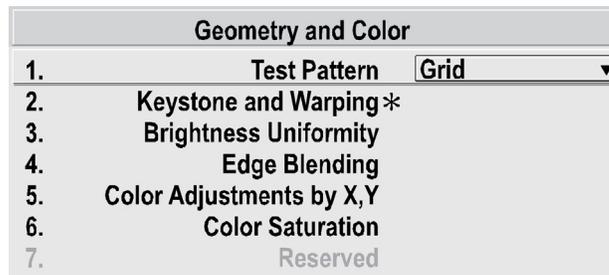
**INSTALL WARP SOFTWARE 2.0**

Use KoRE Librarian to install the Warp Software (warp\_20.rff) onto the projector (except Matrix- already loaded).

**USING CHRISTIETWIST™ PROJECTOR CONTROLS**

NOTE: The following section describes projector software only. Refer to separate documentation such as the ChristieTWIST™ Basic Install and Users Guide for information about using the PC application for defining custom image warps.

The ChristieTWIST™ Warping Module and software enables a new Geometry and Color menu for accessing additional Keystone and Warping controls in the projector.

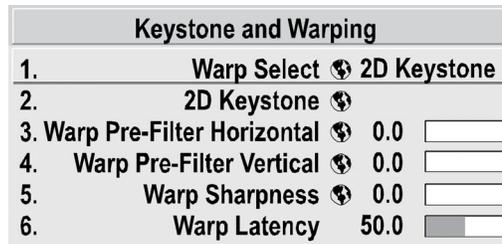


\* Requires ChristieTWIST warping module, standard in Matrix projectors. Replaces Vertical Keystone standard in other models.

**FIGURE 7 GEOMETRY AND COLOR**

**KEYSTONE AND WARPING**

Use the Keystone and Warping submenu to shape your images using new corner points and/or to apply customized curved image boundaries called “warps”.



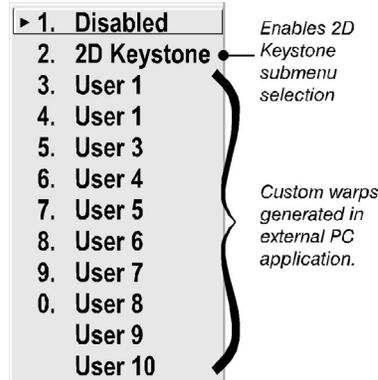
**FIGURE 8 KEYSTONE AND WARPING**

**WARP SELECT**

Choose a type of image shaping to apply, or choose to disable these adjustments. Note: Settings apply to all sources:

- **Disabled:** Display standard (rectangular) images with no warping or keystone adjustments applied.

- **2D Keystone:** Move 4 corners of the image to correct for a keystone image and/or to create an unusual 4-sided image exhibiting perspective or distortion. See 2D Keystone, below.
- **User 1-10:** Note: The user-defined options are titled User 1-10 by default; they can be changed using the ChristieTWIST™ Software. Apply a custom image shape or twist that has been defined in the ChristieTWIST™ PC application and downloaded to projector memory, typically creating one or more “squeezed” or stretched areas in the display. If no custom warps have been created, the User options will have no effect.



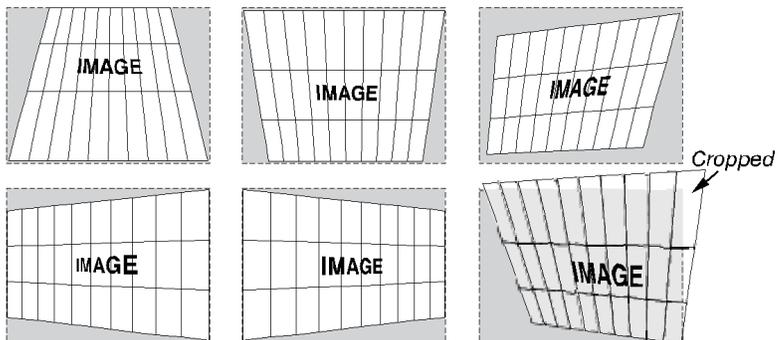
**FIGURE 9 WARP SELECT**

**2D KEYSTONE**

Move one or more corner points as desired for your application. Traditionally, keystone adjustments simply correct an image in which opposing sides are inclined away from each other (caused by tilting the projector in relation to the screen). If the lens surface is parallel to the screen and settings are 50.0, the image should appear rectangular. Alternatively, move the corner points as desired to create a specific 4-sided image in which corners are up to 25% closer to the center of the image, or which are cropped off.

2D Keystone		
1.	Top Left H-Position	50.0 <input type="text"/>
2.	Top Left V-Position	50.0 <input type="text"/>
3.	Top Right H-Position	50.0 <input type="text"/>
4.	Top Right V-Position	50.0 <input type="text"/>
5.	Bottom Left H-Position	50.0 <input type="text"/>
6.	Bottom Left V-Position	50.0 <input type="text"/>
7.	Bottom Right H-Position	50.0 <input type="text"/>
8.	Bottom Right V-Position	50.0 <input type="text"/>

= Default Settings



**FIGURE 10 MOVING THE CORNERS FOR 2D KEYSTONE**

**WARP PRE-FILTER**

**HORIZONTAL:** Adjust as desired to smooth or sharpen side-to-side clarity in a warped image. An increase will appear to blur horizontal lines.

**WARP PRE-FILTER VERTICAL:** Adjust as desired to smooth or sharpen top-to-bottom clarity in a warped image. An increase will appear to blur vertical lines.

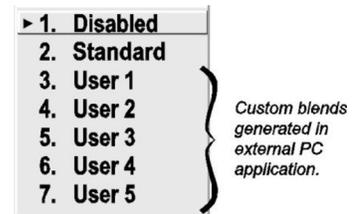
**WARP SHARPNESS:** Adjust as desired to soften or sharpen the overall image, similar to a Detail adjustment.

**WARP LATENCY:** Set the percentage of frame delay (default = 50.0) desired for displaying incoming data. A higher or lower setting will typically be needed with significant warps, ensuring that the entire image appears. Warp latency also provides a means of synchronizing one display with adjacent displays or other equipment such as audio.

**BLENDING**

Choose a type of image blending to apply, or choose to disable these adjustments. Note: Settings apply to all sources:

- **Disabled:** This setting provides no Blending options.
- **Standard:** This setting activates the standard edge blending functionality to the projector without the warp board and is not intended for use with warped images. Please refer to your projector's Users Guide for further details.
- **User 1-5:** Note: The user-defined options are titled User 1-5 by default; they can be changed using the ChristieTWIST™ Software. Apply a custom edge blend, generated and defined in the ChristieTWIST™ PC application and downloaded to projector memory, typically creating one or more types of edge blend. If no custom blends have been created, the User options will have no effect.



**FIGURE 11 BLENDING**

**NOTE:** *If a ChristieTWIST™ Warping Module is installed, the Edge Blending menu controls are expanded to include user-defined blends appropriate for a warped image. The new blend ranges are 0-80 for side blends, and 0-60 for top or bottom blends. If no warping is currently applied but you still need to use edge blending for a tiled wall, select "Standard".*

**NOTE:** *The installation of a Warping Module will disable the Black Level Blending feature on 3-chip projectors.*